Logic and the Basis of Theology

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An investigation into the help logic can give to the understanding of different
theologies, following the contributions to both disciplines of
Arthur Prior, 1914 – 1969.

by

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Abstract

My thesis is that modern symbolic mathematical logics have an important contribution to make to theologies.

I demonstrate this firstly in a 'theoretical section'

- (i) by showing what logics are and why they can be trusted;
- (ii) by showing how all theologies may be correctly treated as axiomatic systems;
- (iii) by outlining some modern logics which can assist theological thinking, including a logic I construct for this purpose called the *Theologic*.

I demonstrate this, secondly, in an 'applied logic' section, by looking at

- (iv) the theology of one current branch of Christianity in detail, outlining its logical problems and the consequences of trying to avoid them;
- (v) 'post-modern' Christian theologies, firstly those that suggest that the word 'God' is a symbol rather than a name, and secondly at three feminist theologies two of which are logically quite radical;
- (vi) pantheism, in particular at Spinoza's ideas and Lovelock's Gaia;
- (vii) two religions, Buddhism and Confucianism, which, in their basic religious thinking, can be said to have no gods.

I find that all religions I have studied – and they are representative of religions actual, proposed and imagined – have serious logical flaws, some known of old, others brought to light by the modern logics. The consequences of making the religions more logically sound, are generally unacceptable to the members of the faiths. The suggestion that the gods use a different sort of logic to us is generally logically unacceptable. This does not leave abandoning religion as the only other possibility: the work of theologians in future, assisted by mathematical logic, may be (a) to bring about changes in basic beliefs, and (b) to assist in the birth of new, logically sound, religions.

These investigations are carried out in the spirit of A N Prior, who came to logic through a Christian upbringing which gave him an interest in theology, a desire to make that theology more consistent, and as Professor of Philosophy at Canterbury College (as it then was) taught me. My upbringing was similar. We both, in the end, found conventional Christianity too illogical to believe. Time having past, I have been able to examine the logic of other, and newer, theologies.

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Preface

The Legacy of Arthur Prior to Theology and Logic

Arthur Norman Prior, born 1914, taught Philosophy and Logic at Canterbury University College from 1946 to 1958, then at Manchester University, 1958 to 1966, and later at Balliol, 1966 till his death in 1969. Those of us lucky enough to have been his students in the 1950s were introduced to a style of doing philosophy which used logic as a powerful tool in ways it had not been used before. This, from his John Locke Lectures 1955-6 to the University of Oxford, catches his aim:

Formal logic and general philosophy have more to bring to one another than is sometimes supposed. I do not mean by saying this to underrate the work of those who have explored the properties of symbolic calculi without any concern for what they might mean ... Nor do I mean to underrate what recent philosophers have done in the way of exploring the obstinate and intricate 'logic' embedded in common discourse, even when they have not derived or sought to derive anything like a calculus from it ... But these activities are, or can be, related to one another very much as theory and observation are in the physical sciences; and I must confess to a hankering after well-constructed theories which much contemporary philosophy fails to supply.¹

In his memorial paper in the *Proceedings of the British Academy* Anthony Kenny sums up the work of A N Prior thus:

Prior's greatest scholarly achievement was undoubtedly the creation and development of tense-logic. But his research and reflection on this topic led him to elaborate, piece by piece, a whole metaphysical system of an individual and characteristic stamp. He had many different interests at different periods of his life, but from different angles he constantly returned to the same central and unchanging themes. Throughout his life, for instance, he worked away at the knot of problems surrounding determinism: first as a predestination theologian, then as a moral philosopher, finally as a metaphysician and logician.²

Prior's life and his contribution to logic have been examined further by Jack Copeland (1996) in his introduction to *Logic and Reality*. Copeland mentions Prior's interest in the theological arguments of the Schoolmen, but not his early university days when he was considering becoming a Presbyterian minister³. On leaving university Prior considered a career in theological and church journalism and his published work on such topics begins.

In a recent paper (Grimshaw 2002) called 'The prior Prior', Michael Grimshaw looks at some of Arthur Prior's neglected early writings. He admires his theological acumen, seems to wish that he had continued as a theologian, but says, 'In the end, however, Theology left too many areas unanswered and this, in combination with a crisis of faith, resulted in the emergence of Prior the philosopher of Tense Logic – the Prior best known to the world.'⁴ Grimshaw's comment about why Prior left theology seems fair to me, one of Prior's students and a friend, and Prior's reasons sensible.

Per Hasle has a paper called 'The problem of Predestination; a prelude to A.N.Prior's Tense Logic' in *Time, Creation and World-Order*, (Hasle 1999). In this paper Hasle looks at Prior's early published and unpublished work on several theological topics, his rejection of the 'personal salvation' theology of the Methodist Church in which he was brought up in favour of the more 'rigorous' Calvinist theological thinking of the Presbyterian Church, his contribution to Presbyterian theological thinking which suggested several changes on mainly logical grounds, and how Prior kept returning to the problems of the various Calvinist and philosophical versions of predestination and determinism, finally coming down firmly on the side of free-will and the reality of choices.

These early articles are typical of his approach to life and logic and are just as light and cheerful in their style as everything he wrote later. In them his personality bubbles up and his characteristic way of writing: delight in wending very carefully through tricky ideas, quick reviews of what he has so far tidied up, quick dismissals of the unworthwhile comments of critics very disarmingly tossed in, and an obvious delight when he had untangled a knot, no matter how small.

His study of predestination, seen for example in his delightful article 'A Calvinist Romantic' in 1940 in a church magazine *Purpose*⁵, made him favour the supralapsarians over the sublapsarians – they were more logical in their conclusions – but his studies showed how tangled the polemicists of both sides became and how those who appeared to show God in the most strict and unbending light were, logically, not led to as fearful conclusions as at first appeared; free-will might survive.

This 'ontological' stance is a major characteristic of the types of time-logic which he developed and vigorously defended: he explored and helped develop different logics of time to fit different models of what time is (time flowing, time still and events occurring, time without end, time stopping, time branching in the future, circular time, continuous time, episodic time...) but he argued that we want logic to talk about *things*, and what has happened, or will happen, or is happening to those things. He said 'Logic is ... about the real world.'⁶ Thus time is best thought of as about past, present and future (not as a series of events earlier or later than other events, perhaps with dates attached). A quotation from 'A Statement of Temporal Realism', first published in *Logic and Reality* and written in the last years of his life (1968) makes some of these points:

Time is not an object, but whatever is real, exists and acts in time. We can describe most of what happens in time by talking about events being earlier or later than one another ... but this earlier-later calculus is only a convenient but indirect way of expressing truths that are not really about 'events' but about *things*, and about what these things are doing, have done and will do. For example to say my-falling-out-of-a-boat is an event earlier than my-writing-this-paper is just a way of saying that what is now the case is that I *am writing* this paper but *have already fallen* out of the boat.⁷

He was sure that time is real, unified and objective (not relative to the observer). But he did not consider it to be 'spread-out-eternally' and called that view 'the tapestry view of time', noticing that such a view seems to be implicit in the theory of relativity; he was actively working on problems relativity has with time when he died in 1969 at the age of 55. He loved the puzzles of time and read chunks of time-travel science fiction to us as students; the thought that only the past changes (past events get older, present events are just present, future events do not yet exist) tickled his humour.

Of great interest to theologians, he saw time as reflecting the reality of undetermined choice. He rejected as confused and confusing various remarks about God and time, such as 'God lives in the eternally present', and suggested that for simplicity's sake it is probably best to think of God as at the end of time seeing all events as past.

My thesis must be one of the last works, unless the dead are raised, to be written by someone who knew Arthur Prior and enjoyed being taught by him in New Zealand. My father happened to be one of his friends in student-days. He was a member of the same congregation in Christchurch, and I was one of his pupils at Canterbury University College in the 1950s. It would be stuffy to call him 'inspiring', partly because I had no standards of inspiration to compare him with, especially as a 17-year-old at last in a university atmosphere where all the new ideas we met were exciting. For a picture of his infectiously cheerful character and style see page three of Jack Copeland's introduction to *Logic and Reality*, particularly Jim Wilson's description of lectures.

Theological topics often arose in his Philosophy classes – a goodly percentage of Prior's students were budding clergy. Problems such as resurrection bodies or immortal souls, predestination and its variants, justice and mercy, and the Christian basis for morality, were brought up by students in classes, papers and seminars. Prior always got us to clarify our ideas and to be rigorous, either in applying our own intuitive logic or with the help of symbolic logic, to see where the arguments could lead. His own contributions were often to tell us what the ancients had said on the subject and we grew up with as great an admiration for Aristotle and Ockham as for Pelagius

and Calvin. Jack Copeland in *Logic and Reality* (Copeland 1996) discussing the fruits of Prior's work in computer science says:

It is noteworthy that two of the major forces in the genesis of these software technologies were a love of ancient and medieval logic and a concern to make conceptual room for freedom of the human will.⁸

Where did his interest in logic and theology lead Prior? I remember him in a congregational meeting in the Presbyterian Church in the suburb of St Martins, Christchurch, carefully teasing out one small point in a debate on church spending which needed theological thought if a truly Christ-like decision rather than a simply financial decision was to be made. His point was important but was mainly regarded as exasperatingly academic. By the time he left New Zealand he had given up the practice of theology and involvement in Church worship and affairs, despite having solved many of the logical conundrums of a very liberal theological Christian theology. His last paper touching on a theological theme (Prior 1962) 'The Formalities of Omniscience' is more concerned to use a theological illustration to comment on the logic of *time* than to use the the logics of time to comment on *God*. In his early 50s he gave up thinking of Christian theology as important and as reflecting what *is*. He was led to these conclusions by his passion for logical thinking. This thesis is moved by the same discovery. A religion should be rational as well as inspiring.

This doctoral thesis is dedicated to Arthur Norman Prior (no doctorate). I hope that you will hear echoes of his style of tackling logical, philosophical and theological problems. Certainly those of us who were his students at Canterbury University College (of the University of New Zealand) in the 1950s experienced a way of tackling philosophy which I have come to realise was rare as well as stimulating.

Our first experience was to be expected to do philosophy, not to learn about it. We were expected in essays and tutorials to have ideas and to defend them. We were expected to pick up handy philosophical and logical 'tricks of the trade' and to use them, but never to rely on 'authorities'. Marks depended on originality of thought and our skill at making ideas work. Bad spelling and grammatical solecisms were ignored and those of us who, like me, could not recognise when we had committed a spelling error, were never teased about such things — the ideas were the thing, and the main method of teaching was having Professor Prior take up your idea and push it to see how far it would go. It was assumed that when we were not at lectures or tutorials or writing essays we were reading about philosophical ideas of the past, and if we could read Latin or Greek, so much the better. These were fairly vain hopes for youngsters recently detached from school masters and mistresses and surrounded by fascinating women, mountains and university towers to climb, student politics and magazines to run, new ideas to talk out, events to celebrate, and pubs no longer forbidden.

Most philosophy classes had about equal numbers of theological students (who would soon be training for the protestant ministries), budding philosophers and logicians, and those who were filling out their degrees with an interesting-looking subject. Prior was an excellent teacher for the 'theologs' because he had been a theological student himself for a while; he came from a strong church background; he was a church-goer and contributor to church debates and events; he had been a pacifist before the Second World War (and in the airforce as a lowly aircraftman during it); he had been divorced and had married again and in the early 1950s was looking after their school-age children whilst Mary convalesced from TB (a long process in virtual isolation in a hospital in those days); their house was burnt down and manuscripts he was working on were lost with it; he was a founding member of the NZ Campaign for Civil Liberties and had written about the threat of Nazi ideas before the war. Thus he had been in the thick of major theological and social debates, was a man of conscience, had had experience of ups and downs, and knew what made the dedicated religious person tick. Many ideas we presented to him came from theological conundrums: the problem of evil, predestination, the wages of sin, the atonement, everlasting souls versus resurrection bodies, de-mything, the content of metaphorical language. Christian Ethics was just beginning to tackle the fact that the pill was detaching sex from reproduction, but had not yet taken up an

interest in poverty and liberation theology (in well-off well-governed New Zealand), nor in feminism, nor in an ecologically aware attitude to the world.

This is not to say that the students dictated the topics studied, rather that many of Prior's lectures to Stage 1 and 2 classes included illustrative material from theology, the Church fathers and the schoolmen of the Middle Ages; many questions from the floor had a theological basis (all classes had fewer than 40 students, and by Stage 3 were down to about a dozen). Students on the whole could discuss Christian religious matters since almost every one had had a taste of church, Sunday school and bible class and for those who were not beginning their rejection of religious teaching there was, outside the philosophy classes, vigorous discussion and teaching in Student Christian Movement camps and study groups.

Arthur Prior's understanding and enjoyment of the theological debates of the time (and a good demonstration of his style of proceeding) can be found in his paper 'Can Religion be Discussed?' first published in the *Australasian Journal of Philosophy* (Prior, 1942), and later in *New Essays in Philosophical Theology*, editors Flew and MacIntyre London, SCM Press, 1955. In it he has the heavyweights, Barthian Protestant, Catholic, Logician and Psychoanalyst slogging it out, with Modernist Protestant as someone off whom to score points. Barthian is in two minds about taking part at all: Christianity is true but cannot be proved so; faith is a gift from God; so he has nothing to say of interest among non-Christians. Catholic says his own creed is often charged with inhumanity by Protestants, but it is not as inhuman as the Protestantism he has just heard; reasons for believing can be set out for all to see. Psychoanalyst asks if he and Logician are, in their eyes, not human at all. By the end Barthian and Catholic are agreeing on some things but the Logician and Psychoanalyst are asking if the other two are sane human beings like themselves, or both mad. The footnotes contain reference to the provenance of the arguments, Anselm, Aquinas, Kant, Hegel, Freud, Feuerbach, Rabbi Duncan ... and the comment (in 1955) that even the writer of the footnotes slips up at times. Most of the arguments are about finding meaning for the theological statements, and the logical traps most of the proposed meanings lead to; positions are represented fairly by being sheeted home to actual writings, and the light touch makes it a pleasure to read.

Although we did not realise it at the time, Prior's method of attack was unique. We had lecturers with quite different interests and methods. Over the years we were introduced to the current British linguistic philosophy, to Wittgenstein, Austin, Ryle, as well as to the Greeks, to Berkeley, Locke, Hobbes, Kant, Hume and Mill. Prior helped organise a trip to New Zealand by Gilbert Ryle and that was a great experience as we scrambled to read his *Concept of Mind* and *Dilemmas* and then listened to his lectures. Prior and Ryle got on famously and such typical Rylean problems such as whether, when he had a toothache whilst in the library there was a pain in the library, and whether we could forget how to ride a bicycle, were hot topics. Most of us found it easier to be linguistic philosophers than Priorians. We also had an Australian who, in broad Scots, lectured at dictation speed about Aristotle's syllogistic, answering any queries (usually made to tease) at dictation speed also. With relief we were introduced to Lukasiewicz's book on the topic the next year.

One of the first-year papers was on logic so Prior very early on introduced us to the propositional calculus and Polish notation. He had been writing *Formal Logic* and it became our text in 1956. It clearly shows the same characteristics as 'Can Religion be Discussed', and a wealth of topics are discussed for both their logical interest and for their philosophical implications. The characteristics of his philosophical style (in no particular order) are:

- (i) a unique way of working on a philosophical problem by first teasing out the logical process at work in the problem, or the suggested solution; working out how logical methods, including extensive use of symbolic logic, would throw light on, or alter, the problem; lastly a tidying up with the philosophical implications flowing from his suggestions.
- (ii) a full knowledge of the contributions of the Greek, Mediaeval, and 19th Century logical thinkers to modern logic; this included many examples of where ideas had been set down but had, for various reasons, been bypassed;

- (iii) clear explanations of logical processes;
- (iv) a flair for explaining long formulæ in words, giving excellent examples of the meanings and consequences. This particularly applies to formulæ which at first sight seem to be unacceptable but which are in fact less harmful than they look, and often open up interesting possibilities;
- (v) great interest in the 'paradoxes', for example, 'the liar' and the paradoxes of implication such as $CpCqp < \text{the true is implied by anything} >$ and with this a talent for finding new 'solutions';
- (vi) a tremendous capacity to 'do' logic – a similar talent to that which pure mathematicians have – and with this the ability to see what new processes can be used to further develop an interesting idea, topic or line of reasoning;
- (vi) a constant interest in the philosophical implications of the logic that he discovers, uses, adds to, develops, extends, joins to other logics;
- (vii) a total absence of self-importance which meant he could, and did, follow arguments wherever they led and always enjoyed counter arguments;
- (viii) a capacity to be blunt – many a paper contains a remark such as, 'this will not do' – but said cheerfully with great good humour, and so well argued that offence could not be taken.

Per Hasle makes an excellent job of following Prior's gradually changing opinions on predestination and determinism over the years, and follows the influence of these opinions into his work on time. Mike Grimshaw (2001) has an interesting paper called 'The prior Prior' which further examines his early theological writings. Naturally enough, recent philosophers and logicians differ on these matters – that is how philosophical knowledge progresses. Jack Copeland's *Logic and Reality: Essays on the Legacy of Arthur Prior* has 20 papers, all working on one or other of the matters first raised or worked on by Prior. I have looked at several of Prior's unpublished papers on theological matters among those kept in the Bodleian Library and at similar material published in obscure journals, but the main topics in this thesis of mine arise from what I can only call a delight in the Priorian style of using logic to throw light on philosophical and theological ideas, rather than from study of specific papers and books by Prior. In my sections on developing an axiomatic 'Theologic' I am directly indebted to Prior's use of Alan Ross Anderson's modal logic involving the introduction of the idea of 'escaping the sanction'. Characteristically, Prior looked at the major paradox this logic threw up and, in finding an interpretation that overcame the logical problem, also discovered an enlightening way of looking at ethics. I found these ideas adaptable for a logic applicable to many and greatly differing theologies.

One other topic is directly inspired by Prior and will need special mention since it is not particularly in favour among professional logicians at present; this is the extent to which logic reflects reality. Logicians are very much concerned with validity and there are different methods of looking for and different reasons for accepting processes that 'add' validity, or 'prove' the validity of logical systems. There are also the problems of how 'complete' any system is. Prior was quite clear about what is real and what is not, particularly when logic is to be involved, and, for examples of his clear exposition of his position, *A Statement of Temporal Realism* can again be quoted:

Philosophy, including Logic, is not primarily about language, but about the real world. For example, the very simple logical truth that if John is sick then John is sick is not a truth about the sentence 'John is sick' but a truth about John. It is not, of course, *peculiar* to John that if he is sick he is sick; it is true of *everyone* that if he is sick he is sick. Still it is true of John, and that is what the sentence says.

Formalism, i.e., the theory that Logic is about symbols and not about things, is false. Nevertheless, it is important to 'formalise' as much as we can, i.e., to state truths about things in a rigorous language with a known and explicit structure. It is also necessary to pay attention to the structure of our language in order to expose and eliminate philosophical 'pseudo-problems', and in

order to distinguish real objects from mere 'logical-constructions'.

For example, we say that events begin by being future, and then become present, and then become more and more past: and Moore was worried about the question whether events must go on existing in order to become more and more past, or whether they exist only when they are present. I once fell out of a boat; this falling-out-of-a-boat was once present, and now is past. Does this falling-out-of-a-boat exist still, but in some place called 'the past', or did it only exist when it happened, i.e., when it was present? The answer is that, strictly speaking, events do not 'exist' at all; only *things* exist – events are just what things do and what happens to them. The truth that I once fell out of a boat is not a truth about a falling-out-of-a-boat, but a truth about me, and about a boat. To say that this event is no longer present but only past is simply to say that although I *was* once falling out of a boat, I am not falling out of one now. I am a real object and I did really fall, but my falling is not an additional real object but only a 'logical construction'. To call it a logical construction is not to call it a piece of language – a fall is *not* a piece of language – but it is to say that pieces of language which seem to be about a fall are really about something else, namely the man who falls.⁹

This insistence on clarity about what is real and what is a (probably useful) way of talking about it, is very Priorian. Prior thinks people and boats are real, as is the water he fell in, the punt-pole he hung onto too long, the trees on the bank, the sun in the sky, and so on. These things are 'more' real in a way that any abstract idea such as '(Prior's) falling', '(the water's) wetness', '(the boat's) inertia', '(the sun's) redness' and so on are not. It may be useful on many occasions to talk about 'Prior's falling' in sentences such as, 'Prior's falling occasioned much mirth', 'Prior's falling demonstrated the laws of inertia and gravity', 'Prior's falling was an event of the 16th of June 1935', 'Prior's falling gave the name to that bend in the river now known as Lapsus a Priori', 'Prior's falling is a member of the set of all things falling', 'If it is necessary that all things are falling at some time or other then it is possible that Prior's falling has occurred.' Many philosophers have regarded such abstract ideas as just as real as non-abstract things, or alternately argued that so-called concrete or non-abstract things are indeed as abstract, as much constructs of our minds, as 'Prior's falling' and 'redness' and prime numbers.

Prior was not of those opinions, and for good logical reasons. He had good reason for following the line that, useful as they may be, abstract ways of talking about things, and the making of logical constructions upon things, must nevertheless be seen for what they are, and many a puzzle is resolved when you get back to reality. In looking for a logic (or, more properly, logics) for theology, in trying to formalise as much as we can, in paying attention to rigorous language and explicit structure we must distinguish real objects from mere logical constructions and verbal gymnastics, eschew vain repetition disguised as additional information, and use those parts of logic which well and truly reflect reality.

I follow Prior in regarding logic as concerned with real things; not concerned in the same way as the physicist, mathematician, psychologist, or even the theologian is with real things, but concerned with the right drawing of conclusions in discussion of things. This may be regarded as reductionist: what there is, is reduced to what *things* there are. Many people inspired by Prior take quite a different view; for example the modal logicians David Lewis (1973) was quite sure possible-worlds are as real as our own world. The Priorian view would be that 'possible worlds' talk is extremely useful and powerful for certain processes of metalogic but that it is a construction for that very purpose, and a construction from the real world, and is real only as a handy mental tool, not as a description of the world. Harré, in 'There is No Time Like the Present' in *Logic and Reality* thinks Prior goes too far in trying to do away with the description of events as date-tagged/before-and-after (McTaggart's B-Series) and collapsing it into (or reducing it to) the past-present-future (McTaggart's A-Series). The debate, which Prior would have enjoyed, goes on.

In the next chapter I make a stab at a description of what logic is, and why it can be relied upon. Theorists who have been working on such problems in the 33 years since Prior's death may find my attempts rather naïve, and in particular not able to deal with the validity problems of the outer reaches of intentional logics; nevertheless the basic logics sketched here should help theologians understand why many of their arguments are treated with such abrupt and scornful dismissal by logicians.

Notes and References

1. Prior 1957a.
2. Kenny, 1970, p.348.
3. Mary Prior, the second Mrs Prior, somewhat gleefully, says that it was the unsuitability of the first Mrs Prior, even before they were married, for the then very 'proper' position of Mistress of the Manse that made the Presbyterians of the day reject Arthur's application to study for the ministry.
4. Grimshaw, Michael, 2002, 'The prior Prior: neglected early writings of Arthur N. Prior', in *Heythrop Journal*, Vol.43, No. 4, October 2002, pp.480 - 495.
5. Prior 1940.
6. Prior 1996a, p.45
7. Ibid. Prior's emphasis.
8. Copeland 1996, p.26
9. Prior 1996a, p.45

PART 1:

LOGIC AND THEOLOGY — THEORY

Chapter 1

Introduction

The History of the Problem

Theology

Logic

The setting

My Programme

My Presuppositions

Caveats

The Crux of the Problem

Conclusion

The History of the Problem

Theology

Systematised accounts of religious tenets are illogical. This can be quickly demonstrated, and will not take up much space. The most famous is the 'problem of evil' summarised thus:

E.1 God is all powerful.

E.2 God is all loving.

Therefore

E.3 God will not allow evil to fall on anyone.

But

E.4 Evil is constantly falling on millions of people.

This problem has been around since the idea of gods being powerful and the fact of evil happening began to be discussed; it even has a name of its own: the problem of Theodicy. St Augustine (354 – 430) gave the problem its first written Christian statement¹ as he converted from being a Manichæan to being a Catholic; Catholicism has only one god who has to be somehow responsible for evil, the Manichæans have two. Mani began preaching and converting in about 240CE, basing his theology on the Persian Zoroaster (5th Century BCE)² who preached the solution that there were two gods of equal power, one doing good to people, the other dealing out evil. The Manichæans chose a similar dualist solution. So did the Cathars and Albigensians (who called themselves Christians) and were wiped out by a Church 'crusade' and the Inquisition in the 13th Century³. Many Buddhists solve the problem by deciding that there is no god or gods⁴.

No Christian theologians, except the historically few who wish to re-define God altogether⁵, have been willing to deny either or both of *E.1* and *E.2*. Innumerable attempts have been made to show that *E.3* does not follow from *E.1* and *E.2*. One sort of method is to re-define key words in the argument, for example 'all-loving', or 'evil'. Such a type of argument would say that allowing people to freely choose to be evil is more loving of God than to give them no choice. This can be argued. However, it is a denial of *E.2* and involves the denial of *E.4* as well; it works better in the abstract than in particular cases, and not at all for 'natural' disasters.

A second method is more radical and suggests that God (or theology) does not have the same logic as humankind and the universe in general. A few philosophers (Ockham is the most famous) ask if logic applies to God, and some theologians definitely claim that one of the glories of God is that 'He is above and beyond logic.' This last was not considered seriously, even by the schoolmen, and in general theologians consider logic as an underlying and unitary 'given'.

Logic

As part of the acceleration of scientific knowledge there has been, in the last 100 years, a swift development of symbolic logic. However, this has been, as in the case of pure mathematics, largely theoretical, and applied symbolic logic has not been much used except in the development of computer circuitry and software.

Symbolic logic has developed a great number of different logics for different situations and endeavours. For example, to take one small part of the new logics, there have been logics (begun by Prior) developed to enable right reasoning about continuous time, discrete time, branching time, circular time, time with no end, time with an end, and reversing time. There is right reasoning about (a logic for) any topic which assumes that time 'flows' like a river and can always be chopped into finer and finer intervals. However, this reasoning does not work for any topic which assumes that time runs like a cinematograph projector with discrete moments like the separate frames of a film giving only an illusion of continuous flow. Modern logics do not aim to judge one view (in this instance, of time) as right or wrong, true or false, accurate or inaccurate; but they (a) make discussion consistent, once a view is espoused, and (b) make the consequences of espousing one view (rather than another) clear. It is these consequences that I am mainly interested to delineate, once logics for dealing with theological dicta have been chosen or invented.

The Setting

The idea of matching logics to theologies – or more particularly – matching logics to particular theological arguments, has had little attention.

Philosophers of religion have, in the western tradition, naturally, and wisely, concentrated on Christianity. There is a long tradition of philosophical input into Christianity from the first century.⁶ As the religion was evolving there were theological positions taken from the earliest days, witness the contrast between the *Letters of Paul* and the *Didache*, as Jews and 'pagans' tried to work out the implications of Jesus's life and teaching. Some of these differences of opinion became fierce. Later debate centred on the definition of heresies, the adaptation of Platonic philosophy into the tenets of Christianity and the use of Aristotelian logic into the discussion of them; this was carried forward by the Schoolmen of the middle-ages.

Later, in the renaissance, there was a questioning of religion in general; there were theological debates during the reformation, strong enough (when mixed with politics) to lead to war. All western philosophers from Augustine to Bergson were intensely interested in the Christian religion, either to support and develop it, or to question and deny it. But the modern developments in logic since the late 19th century (George Boole, Charles Sanders Peirce and then Frege, Russell, Brouwer and the great number of 20th century logicians) came after philosophers had moved from puzzling about metaphysics (particularly theology and ontology) and begun worrying more about ethics, politics, science, mathematics, knowledge (epistemology) and language. In recent years the teaching of ethics, especially that of business, medicine and the law, has become more sought after. The result has been that symbolic logic branched off in one direction to become a pure science akin to mathematics, whilst philosophy branched off towards problems of humans living together.

The philosophy of religion is still of interest to some professional philosophers, but it is not noted for its use of modern logic. It also has several strands.

(1) Some, in the Roman Catholic/Thomist tradition, continue to discuss, argue against or defend, such topics as the proofs of God's existence and the proofs of his non-existence (Durant and

Plantinga would be examples).

(2) Some, in the linguistic tradition personified in Wittgenstein, struggle to make sense of theological statements. (Flew, McIntyre and Brown and many contributors to the SCM Press *Library of Philosophy and Theology* series would be examples.)

(3) Some, of a more 'arm-chair' style – often scientists and cosmologists pausing from their main discipline – float ideas about the nature of God, the Universe and Everything. Paul Davis, a physicist at the University of Newcastle on Tyne, and later Adelaide, would be the most well known pro-religion scientist.⁷

(4) Some philosophers of a mystical bent, or puzzled theologians (in an unbelieving, scientific age) try to re-make religion in a more believable form, using some of the tools of philosophy to aid them. I would definitely include Spinoza, and Bergson of past ages; Teilhard de Chardin and James Lovelock among modern scientists; and Bultmann, Tillich and Geering among modern theologians attempting such tasks.

None of these philosophers of religion uses modern logic systematically. A few, however, have begun, for example, a 'Thomist' Ivo Thomas (1948) in *Dominican Studies* and a 'linguist' (Michael Durant (1973) in *The Logical Status of 'God'*, add some symbols into their general discussions. And, as in most philosophy of religion, the range of theological statements is small and the argument finely ground. However, a famous logician (and a Dominican) I M Bochenski (1949b) added some more closely worked logic to a part of Ivo Thomas' paper; in 1962 the Finnish logician Jaakko Hintikka published *Knowledge and Belief: an introduction to the logic of the two notions*; and then in 1965 Bochenski in *The Logic of Religion* did a lot of work on the 'foundations' of a new attitude to logic in Roman Catholic theology.

My Programme

I propose a broad sweep, to look at many different theologies and many different logics. To do this I will have to be quite brutal with some finely honed theological statements, to extract what I take to be the kernel of their sense, to rudely shove them into symbolic form, and so highlight the consequences of their arguments. I may be accused of giving no *actual* theology a 'fair go.' However, I endeavour to highlight the processes needed for consistent thinking about theological issues, certainly not to make judgements about the truth or validity or reality of the claims of any particular branch of any religion.

To judge the claims of religions, even on logical grounds, could give rise to the impression that I am setting up 'straw-men' to knock down. This is not the case; I have taken great care to select key beliefs from the religions I use as examples. Many many other beliefs I have ignored, especially when they can be deduced from the key beliefs, or where they have been added later to 'plug logical holes' in the conclusions the key beliefs lead to. Often key beliefs appear in this thesis in language which an adherent or theologian of the particular religion would never use: no Christian uses the phrase, 'God punished himself' – at least I have never heard it – but the usual formulation 'God sent his only begotten Son who died for our sins' carries the same message, especially if you believe that 'the Son and the Father are one', a common Christian formulation based on words in the *Gospel of John*. Many similar examples will occur to you, and to people who have spent years studying a particular branch of a religion much more closely than I could hope to.

Often key beliefs are not put down in so many words and have to be deduced from the theological reasoning that is used: 'Jesus died for our sins' carries the implication that punishment may be legitimately transferred from the sinner to another person – it is an absolutely key idea in most Christian theology, but I have never seen it stated. Often the key beliefs lead by good logic to dependent ideas that are difficult to believe. For example, the Buddha's key belief that there is no soul (*anatta*, the key belief is called) leads to the idea that there is no transmigration of karma from

one person to that same person reincarnated. Early Buddhists, believing strongly in reincarnation, argued fiercely about how to 'patch up' the logical problem and adding new beliefs was one way of dealing with the problem; examples of this are given in Appendix 3. I look at the Buddha's key beliefs and leave the later arguments to others.

Looking at key beliefs, beliefs which are agreed as vital or basic by all members of a religion, has another purpose: it makes any conclusions about the logical problems applicable to the whole religion, not just to any one branch. It is quite likely that I have not selected the best key beliefs. I will be pleased to see other people tackle the job of getting better sets of beliefs to start from. However, for my purpose, as will become clear, it is the best way to start.

This thesis seeks, in PART 1:

1. To show believers why logic is important to them and their theologies.
2. To make an examination of what any system of thinking needs to contain to be considered a theology and to recommend an 'axiomatic' description of theologies.
3. To give a quick summary of some of the different branches of symbolic logic which will prove useful to all theologians.
4. To describe a particularly useful logic in more detail and make an extension of it, which I call the *Theologic*. The *Theologic* will, among other things, show basic similarities, from a logical point of view, in many actual religions.

This thesis seeks, in PART 2:

5. To examine a particular theology (late 20th Century 'conservative' protestant theology) in some detail; to reduce it to its most basic tenets to reveal the types of logical problems each tenet throws up; to show how the problems might be overcome by alteration to the basic tenets.
6. To examine briefly several widely differing theologies using, as much as possible, the *Theologic* and looking at recurring themes. The logic of only one current 'ordinary' Christian theology is examined; no polytheistic religions are examined; chapters are given to the logics of the 'new' post-christian theologies of God-as-symbol theology, of feminist theological ideas, and of Gaia pantheism; two chapters look at the logical basics of two religions without deities, a particular interest of mine.
7. To introduce different logics and the sorts of problems they have been invented to deal with. This will be done, mainly in PART 1, but new logical ideas will appear later. It should be noted that there will be very little logic actually 'done' in the sense that a professional logician (e.g., a university staff member specialising in logic in a philosophy or mathematics department) does logic; he or she works on proofs and the consequences of particular formulas on systems, on reliability and the technical concept of validity. My main concern will be with
 - (1) the suppositions lying behind particular logics,
 - (2) the consequences of using particular logics,
 - (3) the 'worlds' particular logics apply to,
 - (4) the ideas included or excluded when particular logics are used.

Although this proposed programme has a clear set of topics to be dealt with, the progression through them will involve a lot of material unfamiliar to theologians and others interested in

religious studies of one sort or another. At the risk of boring logicians I will try to introduce all symbolic logic in something close to laymen's terms; as far as I am concerned (and the theologians also I hope) it is the suppositions on which the logics are based, the picture of the universe the logics incorporate and codify, that is of vital importance, rather than that the actual proofs of logical completeness and validity be done in front of our eyes. Therefore, there will be few proofs and not much of the justifications of systems which logicians call *semantics*. However, of the working of examples, of the outlining of implications, of the pointing up of the differences between systems *X* and *Y*, of the introduction of new methods of approach, there will at times seem to be no end. Theologians may avoid the symbols and read the copious examples, 'translations' substitutions, and instances, remembering always that they are examples only (of general logical laws) and hundreds of other 'translations' also fit.

My Presuppositions

There are three notions which pervade this thesis and must be mentioned early.

1. *The opposite of being logical is chaos.*

This is not the chaos of the so-called 'Chaos Theory'. Chaos Theory⁸ says that much of what happens has such a tangled web of interconnecting causes that they are physically (and possibly mentally) impossible to disentangle; certainly they make it scientifically impossible to predict consequences accurately beyond the very closest.

The chaos that is the opposite of logic is the chaos when the universe 'was without form, and void.' This is the chaos when nothing can be inferred, guessed at, predicted. This is the chaos when nothing is true and nothing is false. This is the chaos when logic, along with mathematics, time, space, the physical laws of the universe, no longer hold, no longer work. One definition of logic is the system of thought which does not lead to chaos; and this definition will do for the time being. Any seemingly 'logical' argument which leads to chaos is false; any logical *system* that can prove '*p*' is a law (that is, that any and every proposition is true) is false.

2. *There are different 'worlds' and different rules hold in each*

Different 'worlds' need not be physically separate but the different rules are the defining factor. We often say, 'he/she seems to live in a different world from us.' We say it of the daydreamer, the poet, and occasionally of the criminal who thinks different legal or moral rules should apply to him or her, perhaps (in 2002) of the economist who thinks that inflation is good for an economy.

The logician can find different ways to symbolise the different rules people, societies, species, live by, and thus highlight the effects of the different rules. The logician clarifies, but does not decide among them – the moral logic of a fascist state is different from that of the capitalist *laissez faire* state. The logician provides a logic for each, and points out the logical consequences of each.

Using 'worlds' this way is using a metaphor. To the professional logician the words 'possible worlds' is a technical term describing a method of testing the reliability of logical systems which cannot be tested by how truth and falsity work within them. I will not be pursuing this meta-logical aspect of the field of logic – I leave that to the experts in meta-logic and accept their assurances that a particular system is consistent or complete and so to what degree it can be relied upon.

3. *There is a major divide between empirical science and mathematics, between the world and logic.*

These paired differences are reflected in what each can do: Science uses Mathematics but not the other way round – Mathematics does not need, nor use, science. The same is, (and ought only to be) the case for the world and logic: the world is a logical place, but logic does not depend on the world – we can invent logics for worlds which do not exist, but not worlds which have no logic, that is, are illogical, chaotic.

In old fashioned talk these distinctions were: (a) that logic and mathematics are *analytic*, whilst (b) the world and science are *synthetic*. Maths and logic tease out the notions which are already there in their basic ideas; with their rules they analyse and sort the true from the false. Science, however, adds together more and more facts about the world and, when it can, makes generalisations about the facts, (the generalisations themselves being another level of facts); by scientific method new facts are synthesised.

A further difference: (c) science constantly revises our notion of the world as new facts are added, deduced, or formulated, and as incorrect facts are revealed and cause revisions in generalisations and models; thus *in science there is no absolute truth* and nothing within its purview which may not be re-viewed, re-cast, or abandoned. (d) However, *in mathematics and logic there is absolute certainty INSIDE SYSTEMS*; if you apply the rules correctly to the appropriate symbols you can be absolutely certain that the result you obtain is absolutely correct – *for that system*. For example: apply the rules of multiplication correctly to '6 x 7' and the answer is correctly written '42' (working in Base 10). However, if you are using 'hexadecimal' (Base 16, much used by computer programmers) the answer will be, correctly written, '2A'. The answers are exactly the same, as you can test for ever by making six piles of seven beans, or cars, or planets, or whatever you like, and counting the total number of beans or cars or planets... the answer will never be different. You are doing ordinary arithmetic; the answer will always be the same inside the system of ordinary arithmetic. Only the way of writing down the answer is different.

A hankering for absolute certainty (as displayed by mathematics and logic) probably contributes to many theological statements; many believers would like to see their gods or god as some sort of absolute truth, or to give him/her/it/them some sort of existence which cannot be doubted. Looking for reasons why people want their religions to give them absolute certainty are tasks for sociological, psychological or historical studies, not for this thesis. How 'theologies' try to give absolute certainty to religious tenets is interesting, but only mentioned in passing in this thesis – to point out logical consequences. Rather, I am looking for appropriate logical systems to make the statements of theologians more consistent, more examinable, even more useful. A parallel for my quest might be more properly seen in the application of 'unreal numbers' to electrons: almost everyone, from electrical engineers to householders can thank the mathematicians who invented the square root of minus one (generally called '*i*') which made it possible to design generators, transmission systems, and the manifold electrical and electronic gadgets we use every day. This pure mathematical invention (no one can point to a heap of beans and say counting them will give the answer '*i*') greatly contributes to our use, if not our understanding, of electrons.

To expect such a useful outcome of applying pure symbolic logic to theology is, I fear a forlorn hope: we are still at the stage of using 'mental logic' as we once, before calculators, used mental arithmetic. I have, for example, not yet heard of a government using Deontic Logic (the logic of 'permissible', 'obligatory', 'forbidden', 'permissible-that-not') to help decide whether a proposed new law fits in with its own legal system or its theory of human rights. On the other hand, neither Chrysippus in 100BCE nor George Boole in 1800CE designed their propositional and class logics to assist in the design of computer chips. So there is some hope of good results by applying pure logic to theology, if religions survive.

Caveats

Theologians, of all the religions I look at, may find my treatment of their statements abrupt and unsubtle, possibly disrespectful, if not downright blasphemous. It will be best to declare certain of my attitudes, beliefs and even prejudices at once, so that they can be discounted if they get in the road of pure reasoning. I will attempt to be 'professional' and honest in discussion. I trust that the logicity of my arguments will make them worth countenancing.

I hold grave doubts about the existence of God or gods.

I find all talk of 'spirits' and 'spirituality' refers to nothing, except when used in such phrases as 'a spirit of patriotism' or 'a spirited performance'.

I find in myself no 'sense of awe' which would lead me to worship anything, nor help me to define what religion is.

However, whilst people do continue (a) to believe in God or Gods, (b) to talk of spirit as something more concrete than a handy metaphor, (c) to think that there must be something worshipful that causes a feeling of awe, and (d) whilst people erect 'theologies' on these beliefs (in other words, whilst religions exist) it would be sensible to treat religious talk (especially 'god-talk': the talk of theologians) as rational, that is, obeying the laws of logic. How far this can be done I will attempt to show.

Logicians will find much of my logic elementary, and possibly old-fashioned. This is partly because my introduction to logic was in the 1950s and old habits die hard. It is, also, in part because in 50 years symbolic logic has advanced very quickly. Nowadays a professional logician has to specialise; and in all professions or disciplines specialist have difficulty talking to those outside their specialisation. However, as in the mathematical world arithmetic still has to be taught, or at least its general rules, to the person who hits the calculator keys, so part of this thesis may be teaching theological professionals, or lay people, how to do rather elementary logic.

Logic does not become rusty or worn out with time; only a complete shift in the nature of the universe will upset its basic principles; just as quantum mechanics and the theories of relativity do not alter Newtonian mechanics at the scale of the builder and the earth-bound cartographer. In mathematics $1+1=2$ does not alter when you are shopping, so $CKCpqpq <$ if one thing implies another, and we have the first, then we have the second too $>$ is true unless you are purposefully trying out non-standard systems to see what would happen. In this thesis I am not anywhere near touching on the further reaches of logic.

The Polish notation used by Arthur Prior is retained because I find it easy. I commend it to others for its simplicity. A crib will be found among the appendixes for those who do not wish to enjoy the pleasures of Polish.

The Crux of the Problem

In scientific circles the most dismissive remark you can make about any theory is that it is 'theological'. For example, the theory that earth is regularly visited by space-travelling aliens in flying saucers was held, it was reported after a Gallup poll in 1996, by between one-third and one-half of United States' citizens. There is even a religion, still in existence in 2002, based on such beliefs.⁹ No 'proofs' have held up under scientific scrutiny, no actual encounters have been reliably recorded, the number of sightings of UFOs has rapidly decreased to the point where societies and

clubs dedicated to recording such sightings are closing down. However, there are still people who hold to this theory and work hard to keep it afloat; for example, they find 'explanations' for the few current sightings: perhaps, that the aliens have lost interest in the planet Earth and its backward inhabitants. These UFO-theory believers will accept no evidence that UFOs and aliens do not exist. Their theory has neither been proved nor will its proponents allow that it has been disproved.

Such a theory is called by scientists and sometimes by philosophers and logicians, a 'theological' theory. This, to them, is a synonym for 'impossible to be proved or disproved'. In fact it is even stronger than that: it does not mean 'unable to be understood' or 'unable to be calculated' or 'beyond our present knowledge' or 'we have insufficient data' or even 'we will always have insufficient means to get it proved or disproved'; it means it is logically incapable of proof or disproof – no evidence or reasoning may disprove it, no evidence or reasoning may prove it. The theory is a matter of *faith* (in the modern use of the word) or unsubstantiable *belief*.

The scientists' use of the word 'theological' is very understandable since so much of religion is a matter of faith, and the fully committed believer will accept no argument or evidence that God is not good, that Allah is not merciful, that the Eight-fold path does not lead to nirvana, that Ogun does not like the sacrifice of a dog, that Tangaroa is not my ancestor, that Jesus was not raised from the dead, and so on. The Victorians were not wrong when they saw that science and religion were incompatible, and though we may find some of the topics they argued about were not as close to the nub as they thought (for example, arguments about the historicity of the flood) we can see that faith and science are 'worlds' apart when it comes to answering questions such as *what is?* and *what isn't?* The believer delights in theological discussion and the scientist rejects it as improper.

Suggested ways of deciding between, or marrying, the scientific and religious understanding of *what is?* are legion. They range from abandoning religion to abandoning science – the two horns of the dilemma. Some religious suggest 'slipping between the horns', and hold that the logic of science and the logic of religion are quite other, run to different rules, are equally valid, and should be allowed to go each its merry way. Many apologists for religion appear to propose this 'solution'. On the other hand, I know of only a few scientists who are willing to grant that there is any but one logic, the one that deals with things as they are, and that if religion cannot use that logic it is further proof (if any were needed) that religion is false.¹⁰

The hypothesis that there are separate logics for religion and science, for God and Man (to use the old fashioned terminology) has to be examined. It is part of what I am attempting to do. It is going to involve looking at what theologies are, giving examples of reasoning in these theologies, and in particular untangling where the logic of everyday and science and the (possibly different) logic of religion come together in theologies. And come together they constantly do, because religions are about ordinary life as much as about God or gods. Some religions are not about gods at all and totally about everyday life with other people, with our physical surroundings, and with our mental feelings and ideas; but most religions have the gods, or a single god, interfering with the physical world (bringing droughts or life-saving rain), or our mental world (bringing dreams or inspiration), and often appearing on earth (as avatars, bodhisattvas, angels, appearances and incarnations) often in disguise.

Examples of human/god contacts are: the Jewish-Christian-Islamic god interferes in *history*, for example, giving victory to one side or the other in wars, making pacts with his believers, but seldom appears in person; the gods of the Hindus, in popular religion, often visit earth, but in the theology seldom do so, relying more on the working of *karma* (balance); the gods of the Yoruba bring sickness or healing, poverty or wealth, to individuals and whole towns, appear as little eddies of dust but seldom in human form; pre-European Maori religion's gods, so like one's grandparents, had strict rules to be obeyed but although busy among individuals and families did not appear on earth in human form.

All religions, including those whose 'theology' is monotheistic or excludes gods, have popular versions; all popular religions have notions of spirits inhabiting people and objects, often as an animating force, conceived as much more 'real' than just a mythical or metaphoric personification of behaviour: taniwha, dryads, nymphs, lares et penates, boggarts, trolls, angels, jinn, asuras, apsaras... Despite science and philosophy this theory of animating spirits is as prevalent today as it was four

thousand years ago, even among westernised civilisations and their new religions. Most twenty-first century Christians believe each person is inhabited by a soul which is immortal, and this is stated in many official summaries of denominational beliefs, (see Chapter 6) even though it is not part of the earliest creeds and can be argued is an import into Hebrew religion from Greek and other neighbouring religions.

Believers in 'new-age' religions are also sure that everything, from stars and planets to manufactured crystals, have spirits in them which can influence people's health, wealth and day to day behaviour. The more useful descriptions and explanations in the sciences of chemistry, meteorology, biology (including the medically related sciences of physiology, neurology, genetics, endocrinology, bacteriology, virology, etc.) the human behavioural sciences of psychology, sociology, and anthropology, and the findings of ethics, political science, economics, even philosophy and logic, have had little effect on such beliefs.

As will appear, every religion with a god or gods has

- (1) everyday events, which have an every-day logic;
- (2) things which the gods do, which may have a logic of their own, yet to be described;
- (3) events which are some sort of interaction between the gods and people.

A logic which can deal with (1), (2) and (3) will have to be described. Religions without (official) gods may also find such a logic useful.

This sounds simple enough but everyday logic is not as simple as it might be supposed from the argument between the scientists and the religious described above. The simplest logical laws behave like simple electrical switching circuits – they are either true or false, off or on – and those simple electric brains, the computers, are now composed of thousands and thousands of 'logic gates' which mimic how we use words like 'and', 'not', 'either-or', 'implies'. But the more complex logics of human relationships such as obligation, possibility, belief, commands, justice, mercy, convenience, have been over the last 50 years rescued from obscurity and become a whole major study of their own. These are known in logic as 'modes', hence the term 'Modal Logic'.

The logics of the modes do not behave like propositional laws and we would not want them to. We recognise this in every day language; we do not say that murder is true or false but that it is wicked, immoral, punishable, illegal, unfortunate. Some other way will have to be devised to judge if such language is logical or not and can be relied upon to give us the truth at the end of a piece of reasoning. This has been done, and some historians of logic suggest that Arthur Prior found the theoretical basis for how this could be done in 1951, and then produced his *I-calculus* in 1954, and with Carew Meredith a paper called *Interpretations of Different Modal Logics in the 'Property Calculus'*.¹¹ Peter Geach added a useful verbalisation of one aspect. This whole idea, involving 'possible worlds', was later independently discovered by other logicians and became famous in the form developed by the boy genius Saul Kripke; there are, however, germs of the idea in Leibnitz, Frege, and Wittgenstein.¹²

Conclusion

Theologies have to rely heavily on logic because they cannot use scientific method to justify their tenets. Religions are sophisticated systems of belief about people's actions as well as cosmological theories and beliefs in divine beings. Therefore, to be credible, religions need the logics they use to be sophisticated and the logics must be used rigorously. An example of how logic is misused by a religion can be found in Appendix 1. The common sidestepping of logical conclusions was demonstrated in the first few sentences of this introduction. Both misusing and sidestepping do religion no service.

Notes and References

1. Augustine's first statement of the problem is in his *Confessions*, Book 7, paragraph 7.5.7
Behold God and behold the things that he has created. God is good, and more excellent than his creation by far... where then is evil? From where and by what route did it worm its way into creation? ... either there is evil and we fear it, or the very fact that we fear it is itself an evil. What then is its origin, seeing as all things that the good God made, are good? (*Genesis* 1.31) ... was there some kind of evil matter, out of which he made his created works, shaping and ordering it, but leaving in it something untransformed into good? Why then did he do this? Did he, the Omnipotent, lack the power to transform the whole, so that no evil remained? ... Could it have existed against his will? ... These thoughts I turned around in my heart, unhappy and burdened...
The Confessions were written in 397. I have used the Everyman's Library 2001 re-issue in a new translation by Philip Burton.
2. Zoroastrianism had three phases from its beginnings: first the primitive message of Zoroaster himself, focused on the single Wise God (Ahura Mazda); second a re-paganisation in which some of the old gods with early Hindu names and characteristics were admitted; thirdly a new dualistic orthodoxy developed fully in the times of the Sassanian kings of Persia, Darius III in particular. Zoroaster (more properly, Zarathushtra) can be given no reliable dates, but about 1300 BCE may be correct. However, about twenty of his sayings, known as the *Gathas*, survived and were written down about the beginning of the Christian era, along with a larger body of work important to ritual, known, together, as the *Avesta*. Here is a small extract from the *Gathas*:
From Yasna 30, verse 3: Truly there are two primal Spirits, twins renowned to be in conflict. In thought and word and in act they are two: the better and the bad. And those people who act well have chosen rightly between these two. Not so the evildoers. [Mary Boyce's translation.]

In the orthodox development (which is the most interesting to me because it solves a logical problem) the two primal spirits are Ahura Mazda (later known as Ohrmazd) and Angra Mainyu (later known as Ahriman). Ahura Mazda, who is all goodness and light, and will exist for ever, created the material universe and people to assist him in his struggle against Angra Mainyu, who is all wickedness and death but will be finally be defeated and cease to exist. (We might like to think of Ahura Mazda and Angra Mainyu having two different time logics.) Zoroastrianism sees the role of humankind to co-operate with nature, to farm, to lead a good moral life, to marry and procreate, to assist Ahura Mazda's struggle. It is strongly opposed to monasticism and asceticism.

The religion has been through more than one state of collapse and revival and changes along the way, acquiring, for example, a panoply of good and bad spirits, animal sacrifices, and most recently, theological interpretations that can be dated to 18th century Parsee contact with Christians. R. C. Zaehner says:

The Parsees have preserved the ancient rituals intact. In matters of doctrine ... a Parsee would have no difficulty in finding scriptural evidence to justify a total monotheism, an uncompromising dualism, or even a barely disguised polytheism. [Zaehner (1961) p.24]

However, the idea that the created physical world is good has remained. This is in strong contrast to Manichæism (originally based on Zoroastrian ideas) and the religion of the Cathars, which also solved the 'problem of evil' by having two warring gods but made the good god interested in the spiritual world alone, and the earth and all fleshly concerns to be the creation and domain of the wicked god.

A good introduction to Zoroastrian sources (and the difficulties of translation from the several languages and scripts involved) is Boyce, Mary (1984). *Textual Sources for the Study of Zoroastrianism*. An easier introduction, with enthusiasm for the religion showing through, are two books by Zaehner, R C, (1956) *The Teachings of the Magi, a Compendium of Zoroastrian Beliefs* and (1961) *The Dawn and Twilight of Zoroastrianism*.

3. The Cathars are the subject of recent 'popular' books, one being O'Shea, Stephen (2000), *The Perfect Heresy*. For more academic accounts see: Strayer, Joseph R., (1992), *The Albigensian Crusades*, and the appropriate entries in George, Leonard (1995) *The Encyclopedia of Heresies and*

Heretics and Johnson, Paul (1988) *A History of Christianity*, and Cohn, Norman (1972) *The Pursuit of the Millennium*

The Cathars are also the focus of various 'cults' represented on the World-wide-web. However one web-site is informative, well done, and reliable, but in French: www.cathares.org

4. In the Buddha's first sermon, when he laid down the Four Noble Truths and the Eight-fold Path to Enlightenment, he did not mention any gods. See, for probably the oldest account of what he preached, the *Vinaya-Pitaka, Maha-vagga, Khandhaka I, vi, 10-29, §4 to §9*, in, for example, Jennings (1948), pp. 43-47. Some scholars mention the Hindu world the Buddha grew up in with its multitude of gods, making it unlikely that the Buddha did anything but accept them. Others point out that his doctrine of impermanence makes even the gods just passing impressions. These topics are discussed further in Chapter 15. The First Sermon is reproduced in Appendix 2.
5. These few become important in my Chapters 10 to 13. In Chapter 11 I look at Christian theologians Tillich, Kaufman and Geering, all of whom wish to re-define God as a symbol. In Chapter 12 I look at three feminist theologies, all of which radically re-define God. In Chapter 13 on Pantheism I look at the logic of theological ideas of Spinoza, de Chardin and Lovelock which certainly re-define God. Nine re-definers, all but one living mainly in the 20th Century, are a very small proportion of the theological thinkers since the beginning of the Christian era, but they are the major re-definers, other than historical heretics and mostly unknown sectarians. They are, of course, included in this thesis because of their logical interest.
6. See any book on the first five hundred years of Christianity, or the first chapters in Book II of Russell (1954) *A History of Western Philosophy*. Major attempts were made to incorporate Platonic and Aristotelian ideas into Christian theology. Origen of Alexandria, 185 to 254, is the best known of early 'Christian' neo-platonists to attempt a synthesis, however, his ideas were eventually condemned as heretical and the Aristotelian ideas of St Augustine, whose theological work *The City of God* was finished in 427, became orthodoxy in Western Christendom, and still are in the Roman Catholic church. The first one hundred years of Christianity, before Origen, were no less full of clashing ideas, but they were much more various, much more religious than philosophical. The number of competing religions was in the hundreds, from 'official' religions such as Emperor Worship in Rome and Zoroastrianism in Persia, to 'underground' faiths such as the mystical forms of Gnosticism, Osiris worship, and the teaching of wandering Kynics.
7. See, for example *God and the New Physics*, Davies (1983), and several books since, including *Other Worlds* (1988), *The Runaway Universe*, and *Superforce*.
8. An excellent introduction to Chaos Theory, with contributions by eminent people in the field, is Hall, Nina (Ed), 1991, *The New Scientist Guide to Chaos*, Harmondsworth, Penguin.
9. My reference to the Gallup poll is from National Science Foundation report, *Indicators 2000*, Chapter 8 'Science and Technology: Public Attitudes and Public Understanding' to be found on <http://www.nsf.gov/sbs/seint00/access/c8/c8s5.html>
 The Raëlians. Based in Canada, this UFO-based religion has, perhaps, 55,000 members world-wide, mainly in Quebec, France and Japan. It was founded by Claude Vorilhon in 1973, and has been in the news in December 2002 and January 2003 for funding human cloning experiments. See an entry in Barrett, David (2001), *The World Christian Encyclopedia*, and a short description of its beliefs in Lester, Toby (2002).
10. There is perhaps one exception: there are some quantum physicists who are looking for a logic which will allow for the 'illogical' behaviour of entangled electrons and photons. However, it is reasonably clear that the logic for these sub-atomic particles is not going to be a logic for God.
11. Usually called the *U Calculus*, it circulated among logicians, a single side of paper, from 1956. As usual Prior took no credit to himself, but mentioned as precursors John Wallis (17th century logician), Wittgenstein in the *Tractatus*, and Carnap; and put Meredith's name as first author. See Copeland (1996), pages 8 to 15 and 133 to 134.

12. See Kripke, 1963; Frege, 1952; Wittgenstein, 1922, 4.024, 4.41, 4.431. I owe this insight to Max Cresswell, see Cresswell, 1973, p.3.

Chapter 2

For Believers and Logicians

For Believers

The Argument

For Logicians

For Believers

As the conclusions of my logical analysis of theological tenets pile up in succeeding chapters and seem to overwhelm belief, people of 'faith' may feel inclined to wave the lot away; is not life larger than logic? They may feel with Hamlet 'There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy.'

I feel I must defend logic from such dismissal.

For a quick overview of the argument read just the paragraphs which have a single number. For the details read, as well, the paragraphs with decimal points in the numbers.

The Argument

1. Logic is one of many different ways of looking at facts, looking at reality, looking at things, looking at happenings; however, it is a way of looking which enables new patterns and new deductions to be made; logic is useful.

1.1 Looking at well known facts in new ways is the usual way for big new discoveries to be made in any science. Take the example of Newton and his famous apple. Apples had been falling ever since there were apple trees, but the chief interest people had in apples falling was as a way of gathering something to eat, and perhaps as a sign of the changing seasons. Newton's insight was that the apple's fall could be described using the same rules and calculations that we have for anything moving and bumping into something else – but vertically instead of horizontally. The billiard ball is driven by the *force* of the cue, it strikes another ball which in turn is propelled, proportionally far or fast according to the force with which it is struck. Force is also used by the horse straining to pull the carriage out of a rut, and by the postillion heaving at the obstinate wheel. Maybe the rules of force are the same for the apple: think of the apple as being 'pulled' to the earth (and the earth to the apple.) Newton proposed a 'force of gravity'.

1.2 Newton also said that the idea of forces acting at a distance (with no connecting ropes or harness) was nonsensical, but, once the idea of there being a force of gravity, obeying the same laws as the mechanical forces of billiard balls and horse-power, then astronomy and physics took great strides forward and we now have space-craft and atomic bombs. Newton started describing something everyone knew – apples fall down – in a new way, but apples keep on falling down. The facts stay the same, but the new descriptions are extremely useful.

- 1.3 Thus it is with logic. The facts stay the same but the new way of describing is extremely useful. For example, the logician, thinking of moral decisions – these may be right or wrong but are never true or false – may shift to talking about the ‘accessibility of one possible moral world from another’. This is just another way of talking about what we do to each other, about how moral actions are related to each other, about real world moral decisions, and it has proved very useful.

2. Logic is no more than a way of coding, simplifying, making more subtle and making more useful, the way things are.

- 2.1 The Waimakariri river runs down from the Southern Alps to the Pacific Ocean; the Amazon runs down from the Andes to the Atlantic; the Ganges runs down from the Himalayas to the Gulf of Bengal; and a thousand thousand more examples ... Now to summarise the individual cases: Water, given a chance, runs downhill. The poet, Tennyson for example, seeing the same facts may write,

I chatter, chatter, as I flow
To join the brimming river,
For men may come and men may go,
But I go on for ever.

The scientist may quote Bonelli’s Law equation that the energy in the river is equal to the sum of the height, the pressure and the kinetic energy. Ask the logician and he will say:

*If water is running free **then** it is running from the higher place to the lower place.*

- 2.2. That statement,

*If water is running free **then** it is running from the higher place to the lower place,*

uses a simple piece of logic. It tells us how things are, and tells us by using the words (and so the ideas or concepts)

‘*if*’, and ‘*then*’.

Nothing has changed. Water still runs downhill. But now we have a logical tool which can help us.

- 2.3. Let us use this tool: the sentence above makes a general statement. Now we can particularise:

*If you come across some water running freely (say the Waimakariri at Rangiora, the Rhine at Strasburg, the Missouri at Kansas City)
then the place it is coming from (the Southern Alps, the Swiss Alps, the Rockies) is higher up than the place it is flowing to (the Pacific Ocean, the North Sea, the Gulf of Mexico).*

This is useful if you cannot detect the slope with your eye, or the mountains are over the horizon, or the sea is hidden by something.

- 2.4 Now let us make it even more useful:

*If you have some water free to run **and** the two ends are at the same height (i.e., level)
then the water will not be running.*

This 'law of nature' is how I checked, without a theodolite and just using a hose full of water, that the far corners of the house I was building were level with each other.

- 2.5 The law of nature is still the same, but using logic we now have two useful new ideas. Logic does not change how things are, it just makes it clear what conclusions we may draw from the facts.

3. Logic can be made more useful still: generalising the rule.

- 3.1 If you take out the references to water moving and to heights, replacing them by variable symbols, you have a useful logical law that can be used for other things and on other occasions. The specific rule:

*If you have some water freely running **implies** that one end is higher than the other, **then, if** the two ends are **not** at different heights (they are level) **then** the water will **not** be running.*

becomes a general rule:

*If this **implies** that **then** not-that **implies** not-this.*

Using p for *this* and q for *that*

*If p **implies** q **then** Not- q **implies** Not- p*

in symbols: $CCpqCNqNp$

This is the first set of symbols to be used.

N = not; it can also be translated as N = It is not the case that....

C = If.... then; in Polish notation, as here, it goes in front of the two propositions it joins; it can also be translated C = implies, but it still goes in front. Because it joins two parts only, the formula does not need brackets, but you could write it with brackets to make it clearer: $C [Cpq] [CNqNp]$

- 3.2 Apply this logical rule to a quite different situation and it is still true:

*If all trains for Auckland leave Wellington from Station Platform 9, **then** any train leaving from some other platform is not going to Auckland.*

- 3.3 Apply it to *any* situation and it is still true.

*If this is **the** Mona Lisa it was painted by Leonardo, **then**, if it is not painted by Leonardo (by a forger perhaps) **then** it is not **the** Mona Lisa.*

*If Crippen was a murderer he deserved life imprisonment, **then**, if he did not deserve it, it was because he was not a murderer .*

*If having a croissant for morning tea only happens if I walk to the shops, **then**, if I do not walk to the shops I will not have a croissant for morning tea.*

4. Logic is universal.
Everything we want to talk about can be put into logical form.

- 4.1 Usually there is no need to put our conversation into logical form since we will not be extending our sentences into an argument or trying to draw conclusions from them. Not only that; putting ordinary sentences into logical form often makes them seem terribly awkward and pedantic. Here is a conversational remark, an example of what I might call 'ur-logic':

(i) *I think I'll dig a ditch here to divert some water away from that soggy bit of garden.*

Now to put it into a form that makes it logically malleable; I call this 'plain logic':

(ii) *If water flows downhill and water is lying on the whole garden, then, if a ditch is dug across the garden then some of the water will flow into the ditch off the garden.*

Now to display the logical law which is being used; I may call this 'symbolic logic':

(iii) *Universal domain* (for everything in the universe); ϕ = is water; ψ = flows downhill;
 x is a variable; Π = in all cases; Σ = in at least one case (i.e., some)
 $C K \Sigma x \phi x \Pi x C \phi x \psi x \Sigma x \psi x$ < If both, some x is water and if x always flows downhill,
 then we have some x flowing downhill >
 < If there is some water (notably the water in my ditch
 when it is dug) and all water flows downhill then that
 flows downhill >

This is a valid argument; the symbols, and why it is valid will be explained later. Thus we can see that my bit of ur-logic conversation rests securely on a logical law, and thus the reason why it did not sound like nonsense is revealed.

- 4.2 As you notice, the added, usually-unstated, premise (the fact about which way water flows) is so obvious that people would find it laughable if you added it to any conversation. However, we can think of its addition as the way of moving from ur-logic (logic without all its premises and pre-suppositions spelt out) to a plain logic statement, which in turn can be analysed to show its symbolic logic structure. In this case we found a valid logical law was in use.
- 4.3 All scriptures and all theological works are made up almost entirely of ur-logical statements. This is not surprising as almost all of our conversation and almost everything we read is just the same. A very few sentences we encounter in scriptures and theologies have the plain logic spelt out; in the whole of the *New Testament* I have found only a handful. Here are two of them.

1 Corinthians 15:13

But if there is no resurrection of the dead, then Christ is not risen.

This uses

5. $C \Pi x N \phi x \Sigma x N \phi x$, a valid law.

Mark 11:14

When you pray, forgive anyone you have anything against and God will forgive you; but if you do not forgive, God will not forgive your trespasses.

This is an instance of a false law, F6.

$F6. KCpqCNpNq$ < Both, if you forgive then God forgives you, and, if you do not forgive God will not forgive you >.

The superior F has been added to show that it is *not* a valid law.

However, if we see Mark 11: 4 as a 'tougher' law

6. $CEqpCNpNq$ < If, God-forgiving follows only from you-forgiving, then if you do not forgive, God will not forgive you >

then we do have a logical law.

However, as you notice, the law now binds God to a certain action.

Most of the other sentences in the New Testament which have 'if' in them have a different form (and intent). They have the same form as, 'If you want to get into the Kingdom of God then do thus:'. This appears to be in plain logic rather than ur-logic because no hidden premises appear when you look – all the argument seems to be there. Their underlying symbolic form would be Cpq . But although this is a logical construction (called a well-formed-formula – a wff), it is definitely not a logical **law**, and never can be – its addition as a law to any logic collapses the system into chaos. We need a considerably more subtle logic to handle the point it is making. Some of this has been used already (in the ditch-digging example) and will appear in later chapters.

5. To reject logic is to reject what there *is*, it is to reject what is the case, to reject how things are. To say that God cannot be described in logical sentences is to reject God as part of how things are – to say there is no God.
 - 5.1 Every religious person, and especially every theologian, uses logical sentences and expects to be understood. We do not understand a person who uses illogical sentences and that is not surprising, because they are not talking about how things are.
 - 5.2 To say that God cannot be described in logical sentences is to say there is no God, since logic is one way (a useful and subtle way) of talking about what there is.
 - 5.3 By introducing symbols and abstract laws I seem to be getting further and further away from reality and things in earth and heaven. The religious person may want to say, 'We may be constrained by logic, but *God* is not.' Where did the idea of 'constrained' come in? I am describing how things are – simple things like water and hills and movements, paintings and painters, trains and platforms and destinations, people who kill other people, the legal system, the shops and walking for exercise.
 - 5.4 God, and what he-she does, must be described in understandable and reliable sentences; the alternative is that we do not know what is being said. Language is the public face of logical relationships. Language is not, and cannot be, private. We 'talk to ourselves' but our ideas come first, without language; then we put the ideas into language so that we can get them clear in a way that we can communicate, that is, pass on to others.¹ We can invent a language that is private to just ourselves and God, but it cannot be used, and mean anything, when we talk to people. For any communication (any language) there must be agreement about the meanings of the terms (words, signs, etc.) and of the relationships referred to.
 - 5.5 God may, if you like, be expected to be 'more' than our words describe. This is quite an ordinary notion since every person we meet, even those we know best, are 'more' than we

do know, more complex, have had more experiences (and been formed by them) than we will ever be aware of. There is no need, however, to say that God is 'more' than we *can* ever know, which implies that there is some mathematical or logical block to a full description of God. There is a way of giving a meaning to 'more than we *can* know' but that involves a mathematic or logical process rather like the trick with mirrors reflecting our picture further and further back for ever.² It does not give us a picture of God's 'otherness' that is at all like what believers and religions want.

6. How is it that we can tell the difference between logical and illogical statements?

- 6.1 The believer will say that God made us so. The unbeliever (particularly the Darwinian unbeliever) will say that if we did not act logically we would die. If we cannot see how things are and how things are logically connected we will not survive. The young cave-man who could not tell a tiger from a rabbit was soon eaten and unable to pass his foolishness on to sons and daughters. Humans are, therefore 'hard-wired' to instinctively draw logical conclusions. We are modern humans and we can state the caveman's problem in logical language:

*If this is a hungry man-eating beast **and** I want to survive, **then** I must run;
if it is not, **or** I feel suicidal, **then** I need not run.*

The caveman does not need to know any formal logic, nor even to use words to frame the situation, it is sufficient for him to run when the tiger appears for him to be acting, as we say, logically, that is, sensibly, in a way that fits the situation that actually exists, that fits what *is*.

- 6.2 It is not just human beings who 'understand' logical laws: in 200 BC Chrysippus wrote down this logical law:

*If there are only three possibilities **and** two are blocked **then** the third must be available.*

Chrysippus said even dogs understood that logical law. In symbols it is

CKApAqrKNpNqr.

Imagine you are out walking and have got ahead, out of sight and you call to your dog, Lucy, to come to heel. She gallops along and comes to three paths. The first has no trace of your scent, the second has no trace, so, without sniffing, she charges down the third.

- 6.3 The logician as logician is very concerned about the problems of 'validity' – is he or she arriving at formulae which can be relied upon, or is the particular system unreliable and a waste of time pursuing? In simple logic, dealing with ideas that can be labelled simply true or false, there are three main methods of checking:

- 6.3.1 We can start from a set of formulae which we accept as intuitively true (our *axioms*) and a set of *rules* which we accept as intuitively correct, apply the rules to the formulae and see what happens. If we then find we can generate by this means all the formulae that the system can possibly make we say (using the 'Priorian' description) the system is 'weakly' complete; if we find that by applying the rules we can show that formulae outside the system are not just missing but actively rejected we may describe the system as 'strongly' complete. Prior's method of showing rejection (it is one of several) was usually to show that adding a 'dodgy' axiom leads, by the rules, to the

system now proving that the simple proposition ' p ' is a law. An alternative is to show that Πpp , a formula which means *<everything is true>* is now a law. As we all know that NOT everything is true, then a system that says everything is true must be invalid. We must reject the 'dodgy' axiom, since it, like a virus, destroyed our system. If the system has a way of rejecting such formulæ it is 'strongly' complete. (Most logicians nowadays use different and more complex ways of talking about completeness, but this simple explanation will do for logic and theology at this present stage.)

- 6.3.2 We can, instead of using the axiomatic method of hunting for validity, look for a quite different way of using the symbols and rules and see if that is consistent and complete. The most famous and easy to use, for simple logics, are the 'truth tables'. This method allows you to examine quickly what might happen in different combinations of truth and falsehood. To be useful, a logical law must work even when the statements it is handling are a mixture of true statements and false statements. For example, as soon as you have two different statements to deal with, p and q , there are 4 possibilities: [p true, q true]; [p true, q false]; [p false, q true]; [p false, q false]. Cpq <if p then q > can have all four possibilities, but as an argument (a bit of logic) it is false only when you say Cp [true], q [false] <A true statement implies a false one> <If hens lay eggs then roosters lay eggs>.

But a logical *law* is true at all times – that is, logical laws work, every time. Here is Cpq inside, as part of, a logical law:

1. $CqCpq$ < if some thing is the case no matter what, it is the case>

Here are the 4 possibilities

$$\begin{aligned} C [true] C [true], [true] &= C [true], [true] = [true] \\ C [false] C [true], [false] &= C [false], [false] = [true] \\ C [true] C [false], [true] &= C [true], [true] = [true] \\ C [false] C [false], [false] &= C [false], [true] = [true] \end{aligned}$$

If you take any propositional calculus formula you want to test to see if it is a logical law, first make all the combinations of all of the true/false substitutions. If they all come out to 'true', then your formula will be a logical law, with no need to try to prove it from axioms. If any one of the substitutions gives you a 'false' then the formula is not a law of (binary propositional) logic.

This method of proving the soundness of formulæ could be called 'proof by analogy.' If a system of logic worked out for one way of talking (looking at reality) can be found to work just as well in another way of talking (another way of looking at reality) then we can have confidence in it.

You will have noticed that this is a very mechanical process, and therefore, well suited for a computer program to do the work for you. There are many such programs and thirteen of them are described, briefly, in Appendix 4.

- 6.3.3 A third method for testing the validity of a formula consists in denying the conclusion of the argument and working out if that denial can be derived from the parts of the argument you are starting from (the premises): if it can, then the premises prove too much, and the whole argument is unsound. This method can be considerably quicker than truth tables, unless you use a computer program to do them for you, and very much quicker than proof from axioms unless you have the sort of mind chess grand masters have. Because this method is laid out and develops into a sort of tree shape these proofs are usually called tree proofs, but you may hear them called 'Semantic Tableaux'. This sort of proof can be used for logical arguments

which cannot be handled by truth tables, for example, arguments involving the lower predicate calculus, so they are used a great deal.

- 6.3.4 When we get to logics which have, as well as parts which can be true or false, other parts which cannot be true or false, then other validation methods need to be found. For example, torture is abhorrent, unjust, inhumane, and possibly forbidden, but it is not true or false; a command not to torture is, similarly, wise or futile, or good, or just, but not true or false. Logics to handle such concepts look to the comparisons of possible worlds for validation. A logical law which is used (valid) in all possible worlds is what one is looking for.
- 6.4 There are still problems for the philosophical logician: how well do these symbols match the way we talk? We may well be reluctant to see that the symbol *C* stands for the idea of joining two false statements together and getting a true conclusion from that. There are strong reasons for putting up with this oddness – it leads us into few traps and fits in with the idea that falsity leads to chaos where anything can be true; and there *are* examples of everyday use of this ‘logical rule’. For example, ‘If Nixon was telling the truth then I’m a monkey’s uncle.’ Nixon was not telling the truth so that statement is false; I am not related to any monkeys, so that statement is false; but the whole sentence, the whole logical argument is true; you nod when I say it.
There are more philosophical problems here than just this one; they will be mentioned in later chapters.

7. If logic is about the ‘real world’ (and about this Arthur Prior was quite sure) how then should a believer, who is also a logician, treat theology? A useful way is to treat it as an axiomatic system.

- 7.1 An axiomatic system starts with axioms. These are statements which are accepted without proof, rather like beliefs are accepted without proof. Usually there are very good reasons for accepting axioms in logic – they are intuitively correct, or are correct in mathematical models, or they are extremely powerful to get you other results. In religions the basic beliefs may spring from intuition, or inspiration, or trust, or revelation. From axioms good logic will help us deduce conclusions we can trust as well as we trust the axioms.
- 7.2 Is God part of the real world? This problem has been with us since at least the classical Greeks; in the Middle Ages many logicians tackled the problem. Are there insights from modern ‘mathematical symbolic’ logic? This is one of the possibilities I will be discussing.
- 7.3 Theology, which is seeking to ‘justify the ways of God to man’, is not interested in tautological and ‘obvious’ laws, but rather a ‘Law of God’. In the case of Christian scripture and theology as in section 4, above, the religion is looking at a law from God (put in Jesus’s mouth in Mark), something decreed, something special, not simply natural or inevitable. However, other religions, particularly Buddhism and those ‘post-Christian’ religions I name ‘Gaia’ and ‘God-the-symbol’, may be content with laws which are ‘laws of the universe’ or psychological rules, or the inevitable consequences of actions.
- 7.4 The believer is looking for a clear directive, not a weak and doubtful conditional; that is not what belief is all about: it is about believing without ‘ifs’ and ‘buts’; it is about faith in God to tell us the truth, not to argue us to the truth. A possible way to give more than tautological significance to statements in scriptures is to declare that the ur-logic of Jesus (and God) is not translatable into plain propositional/predicate extensional logic but must be considered under some other branch of logic. There are several suggestions, the most obvious is some special logic of belief. Another is a logic of commands – and the special case of God’s commands. A third is that we need a ‘deontic’ logic, one that can

deal with obligation, permission, and interdiction. A fourth is that God has a special logic of his-her/its own. All of these will be looked into.

8. Some things in this world are problematic, true and false do not work, yet they are still 'logical'. Can we still construct sensible arguments about them? Yes, we can, for example using modal logics, and other new logics.

8.1 Any logic which deals with future events, for example, has to take this into account. We are always talking about what it is likely will happen tomorrow and we can put together logics which help us get our ideas about the future straight. But we still cannot make our predictions about the future absolutely certain. We have to accept that we cannot say that 'It will rain tomorrow' is either true or false. We have to accept (and realise that there are) limitations to predictions. Mother says (with concern, but speaking rather loosely), 'It's going to rain, put your coat on.' Daughter replies, 'I'll take a coat. *If it rains then I'll put it on.*'

9. Some things in this world are even more difficult: human relationships and all talk of good and bad, for example. But we can make sense when we talk about these things.

9.1 When we talk about human relationships, and about relationships between humans and God, we often talk about good and bad actions, that is, about morals. Such matters are even further away from the ideas of true and false than matters about the future; for example we do not say that torture is true or false; we say that it is bad, wicked, immoral, illegal, punishable, inexcusable, displeasing in God's eyes, but not that it is false; we do not say that charity is true but that it is good, commendable, should be rewarded, is pleasing in God's eyes. There are logics to help us get our ideas about such matters straight, but they cannot be judged the same way as logics about the physical world. But you can always go back to ordinary logic and say, for example, *It is true that torture is wicked. or If torture is illegal then it ought to be punished.*

10. The human imagination is a marvellous pleasure. Can logic deal with the invented unreal? Yes.

10.1 Novelists invent imaginary people, crazy plots, unreal places; mathematicians invent unlikely dimensions; science-fiction writers invent weird worlds, futuristic science; painters invent new combinations of colour and shape; inventors invent new machines such as the aeroplane, the dentist's drill, the skateboard, the olive pitter; chemists invent new chemicals such as the polymer plastics ...

10.2 The most difficult thing is to try to invent something with which logic cannot deal. Even a surreal world has its own facts, even a fantasy story with wizards and magic is not entirely haphazard. If there are some non-sequiturs in a story, many colours with no pattern we think the writer or painter at first 'humorous' or 'wacky' or 'on drugs' but when too many things do not fit together we lose interest and suspect madness.

10.3 But what about all those imagined and possible people, those dreamed up places, those twisted plots, those strange fictions, and all the thousands of possibilities we consider everyday – will it rain? will the exchange rate fall? will the carrot seed grow? will the shops be open this late? will she ring? Are they real enough for logic to be useful in dealing with them? A good deal of time in the theoretical development of logics these days is taken up with discussion of 'possible worlds'. And philosophers discuss how 'real' these worlds are.

- 10.4 The logicians invent new symbols and new rules and try them out, but the bits of English between the symbols are still examples of ordinary, simple, logically true argument.
11. I will be looking at several theologies. I will do this in an unfamiliar way, by treating each as if it were a logical system, rational and worthy of both notice and belief.³
 - 11.1 If the theology proves to be illogical in some of its tenets, then attempts will be made to find more satisfactory substitute tenets which might keep it 'alive', that is, keep it attached to the real world. Some people might consider this to be abandoning the old, illogical religion and inventing a new, logical religion.
 - 11.2 Or suggestions may be sought for how new logics might be constructed to reflect the theology without internal inconsistencies. Such new logics need to be tested, and rejected if they prove to lead to chaos.
 - 11.3 If a theology proves to be unreal (not of this world) but possible in some possible world (some other state of affairs) then this too can be noted. Think of the case where it seems necessary for a theology to exist in a universe where time is circular and everything that has happened starts happening again. There may be a case for studying such a logic to properly understand the first-century mind set of a gospel writer; it is clear from the way they write that they saw time through metaphors that are much more circular (with endlessly repeating seasons, lunar months, and the cycle of plant and animal birth and death) than our own very historical, arithmetical and linear metaphors for time.
12. Is it possible to have a 'theologic', a logic that is about one God or gods, and which still reflects what is? Yes.
 - 12.1 Logicians love to invent new logics, and check their properties. For them it is something between a sport, an æsthetic pleasure, and a way to fame among colleagues. Some of these 'pure' invented logics turn out to have practical applications; for example, computers, in both their electronics and software, use logics invented before computers.
 - 12.2 Theology was once the driving force behind the development of logic as the theologians of the middle ages looked for ways of expressing and defending the subtleties of their beliefs. But 'applied' modern symbolic logic has raised more complexities and conundrums that it has managed to answer. Legal systems look like an ideal place for logic to contribute, but one logician working in this field said,

the languages of the current systems of deontic logic are far too poor to function as a satisfactory medium...⁴
 - 12.3 So it may also be said of modern theologies: there has been so little done that a full and comprehensive 'theologic' is a long way off. I point to traps which ancient theologians fell into and which the contemporary theologians of the new religions could well look to avoid if the religions are to have credence, especially among the scientific and logically minded, as faiths to believe in and ways to practice. If they miss out on making sense to the scientific and logical they miss out on any chance of universal appeal. I will be approaching the topic in a way that will be recognisable to those philosophers and logicians influenced by A N Prior. Like Prior I am interested in having a rational set of beliefs, not interested in religion as a phenomenon to study.

For Logicians

A rough guide to my working theory of what Logic is will have appeared from the preceding paragraphs. I apologise for its lack of theoretical rigour. 'What logic is' is a fascinating topic and must be debated at length and with that rigour, but this is not the thesis in which to do that. My approach to the theory, to what topics to include and what topics to omit, should do for the purposes to which it is here put. I am aiming to take reasonably well known logics 'off the shelf', explain them very roughly, and use them in looking at theologies; in other words, to do some *applied* logic.

As I said in the Introduction, logic does not go rusty nor become worn out with time and in this thesis I am applying some fairly simple logic, not anywhere near touching on the further reaches. Several important topics such as Relevance Logic and Free Logic and Nonmonotonic Logic and Natural Deduction get hardly a mention – other people will have to see if they throw light on theological conundrums.

I do not know how Arthur Prior would have reacted to the *For Believers* section, which is my own, naturally; but I do know how he could have begun. Let us suppose that a student in the same classes as I attended in 1955 at Canterbury University College had asked him what would happen if we concerned ourselves with a logic of belief. Prior's eyes would have lit up and smiling broadly he would have grabbed a piece of the strange 2cm square stick of rather waxy chalk the University supplied, the roller blackboard would have been shot up to a new blank section and he *might* have said:

Well, let us see. Puzzles are a good place to start. How about Moore's Paradox?

Let us consider a man who says both "The train will be late," and "I don't really believe that it will." We are apt to think that this traveller is contradicting himself. And then on second thoughts, perhaps he is not: it is conceivable that the train really will be late, and the traveller really does not believe that it will be late. In that case, how can you contradict yourself by saying two true things? Of course if someone else had said it *about* our traveller: that "The train will be late, but he doesn't believe it," we would have had no trouble. Perhaps some symbols might help.

We will need, over and above the ordinary laws of logic, to recognise the fact that belief-statements and assertion-statements have the form they do have, linking a name or pronoun (the x of ' x believes that p ') with a subordinate statement (the p of ' x believes that p '). We can use B for believes; S for says; x for the traveller; y for the onlooker; p for the train will be late; q for the train will be on time.

1. $\Pi x p K S x p S x N B x p$ For any x and p , both x says that p , and x says that x does not believe that p . This is the odd double remark by our traveller.
2. $\Pi x y p K S x p S y N B x p$ For any x and p , both x says that p , and y says that x does not believe that p . This is the onlooker's comment on our traveller.

It looks as if we can say the following:

3. $\Pi x p C K S x p S x N B x p A \Sigma q K S x q N B x q \Sigma q K S x N q q$
For any x and p , if x says that p , and x says that x does not believe that p , then either x says something he does not believe or, he says something that is not true.

It is very interesting that we have not had to draw upon any doubtful premises like 'If x believes that p , then x believes that x believes that p ' or fuzzy ones like 'if x believes that p , then if he is healthy-minded he will believe that he believes it.' The ordinary logic of 'if', 'and', 'not', 'all' and 'some' is enough.

This is not, of course, a remembrance of an actual lecture, but it is abstracted and edited from a paper by Arthur Prior in 1956 called 'The Logic of Belief', which he had had accepted by *Analysis*, and then, on receiving comments on the manuscript from Peter Geach (now lost) which suggested a modal operator instead of material implication, it was not revised for publication till many years later.⁵

From this impressionist picture I hope you gather something of the style and concerns of A N Prior; in particular he believed logic is about the real world. You may have noticed even in the short extract above that the key item about which things are said or believed is a matter of fact about the real world: a real train and its arrival at a real station at a real time – the logic is not about manipulating sentences, or operators or variables, but about facts. We see that Prior was interested in philosophic (and theological) problems and his instinct was to tackle them by seeing how current logic could help and to invent new logic if it seem appropriate.

Prior is most famous for his belief that we are more at home with the idea of past, present and future (McTaggart's A-series⁶) than with earlier and later, the ideas of an ordered series of dates (McTaggart's B series). For example he hoped that his tense logic would collapse the B series statements into A series statements. This does not mean that he ignored the B series and one of his most famous investigations was into what he called the U-Calculus.⁷

I, for one, am not adept at logical proofs, nor perspicacious in seeing how new logics can be invented and old ones dovetailed. As his interest in modal logic grew, and in particular its new use for temporal logic, honours students sat in on seminars in which he explained how the logic worked. I watched the blackboards in the room being consumed in formulae and desperately tried to keep up with the steps. Life was not all formulae; I remember him asking to a class the Senior lecturer in Classics to translate as accurately as possible into modern English Aristotle's sea-battle passage in order to check that his own Greek had been sufficient for the importance of the topic as he saw it. From this immersion in the Priorian style I suspect I got a fair idea of what was being done, if not the details of how. This left me in the position of understanding not the details but a reasonable number of the philosophical/theological implications of the effect of using this or that logic. For this I thank Arthur Prior who made it such good fun.

A lot has happened in philosophy, and particularly in Logic, since he died unexpectedly whilst lecturing in Norway in 1969 at the age of 55. Even in modal logic the dozen or so systems with which he was adept have blossomed to over 100, and it is realised that there are probably an infinite number. The logic of time which he invented (despite his always giving the credit to Aristotle's puzzles about sea battles, to Diodorus, to 19th Century thinkers, and his teacher John Findlay) has become a huge discipline of its own.

Prior would have enjoyed the new ideas about certain sorts of implication, usually referred to as 'counterfactual conditionals'. Counterfactuals raise a host of philosophical implications – I am sure Arthur would not, however, have seen their arrival as a threat to 'ordinary logic' but as a challenge for investigation, new sets of symbols, axioms and rules, new examples of the power of language and method to combine to make philosophical puzzles more clearly understood.

Coming back to mathematical, symbolic, logic after 40 years away makes me feel like the petrol pump attendant in the *Punch* cartoon who says to the chauffeur of the grand limousine, 'Would you mind turning the engine off. You're gaining on me.' What were exciting discoveries in the 1950s are now routine and elementary and the tremendously powerful techniques of, for example, tree proofs, and possible worlds had not been invented. Such techniques make predicate and modal logics much more useful to those who, like me, wish to apply logic to rarer fields. Back in the 50s we struggled along without the ideas of domains of discourse (though there was a feeling that Taski's use of the universal quantifier was almost superfluous); constants were almost never mixed with variables in the predicate calculus (interpretations of bound variables did instead); intuitive reasoning where no operators join antecedent, consequent and conclusion were regarded as shoddy workmanship or in need of careful investigation; the use of *reductio* (as in tree proofs) would

have seemed cavalier; there were only two sorts of completeness; and possible worlds meant Ray Bradbury's science fiction stories.

It has been very exciting to follow up the advice of friendly working logicians and discover new techniques and tools. Most of the old questions of the philosophy of logic remain, and new ones arise. What justifies the use of material implication? Is it wise to use any deontic logic that allows the distinctive axiom of *T* (If x is obligatory, x is done)? Can deontic logic be abandoned in favour of the careful use of moral domains and predicates?⁸ Does the Barcan formula imply existence from universality? Is there a universal logic? Does quantum physics require a logic of its own? Where logic and actual ('natural') language part company which should change to accommodate the other? Is it legitimate to use mathematical examples to limit or extend logic?

There is lots to do.

Notes and References

1. In his earlier book, *Tractatus Logico-philosophicus*, Wittgenstein made a gnomic remark about the limits of our thoughts being the limits of our language, and this has often been quoted as meaning that we cannot think without language and therefore teaching 'subtle' language use to 'backward' children will help them think. In his later book, *Philosophical Investigations*, he makes it quite clear that this is quite the wrong interpretation to take from any such remark, and goes on to give a tight logical account of how language does not precede thinking, and especially does not precede all the essentially private emotions, feelings, ideas, concepts, imaginings, dreams we all have. He shows how we have to learn our language, especially about these private workings of the mind, from other people who can never have or share or feel the *same* pains, feelings, emotions, ideas, etc., as we have. Therefore, the words and sentences we use, no matter how we interpret them otherwise, are never about the actual feelings etc., of either ourselves or of others, but about the outward manifestations we all agree go with those actual feelings, etc.

Our brains work with tiny electrical currents and chemical changes at the junctions of nerve cell with nerve cell, and these we do not register at all. We may have a 'deep language' (à la Chomsky's 'deep structure') and this will have a 'deep logic', we may even have, as a race, a 'universal deep logic'; but it is used for the equivalent of data processing deep in a computer, and it takes place without language. The electrical-chemical data processing has to be translated into a local language, shared by other people, before we can communicate its findings.

2. The trick necessary to make God 'unknowable' involves a process similar to Gödel's incompleteness proof for ordinary arithmetic or Lewis Carroll's fable of 'What Achilles said to the Tortoise', or Russell's Paradox which gave rise to the Theory of Types in the Higher Predicate Calculus. Gödel discovered that in any system of mathematics rich enough to be able to talk about itself there was always at least one formula in the system which cannot be talked about and, although a way can be invented to include that formula and to talk about it, the invention involves creating a new formula which then lies inside the system, but which cannot be talked about by the system... and so on for ever. It is most unlikely that any theologian would propose a God who is unknowable because of some ever-receding mathematical quirk. The effect (among logicians and mathematicians) of Gödel's incompleteness proof is not to prove ordinary arithmetic logically or mathematically shaky, but to prove that self-referential systems are shaky and self-proving systems impossible.

Gödel's incompleteness proof has given rise to a huge literature (some of it from the religiously inclined and quite wrong-headed). The original paper can be found in Gödel (1956). Carroll's delightful fable can be found in Carroll (1849). Russell's theory of types can be found discussed in any text on the Higher Predicate Calculus, and a simple version – usually called Grelling's Paradox – dealing with the idea of heterological words, can be found in Grelling (1939) and many other places, for example, Prior (1955) p.287.

3. My method of looking at theologies is unfamiliar because very few people, including modern theologians, have studied Spinoza in the last 200 years. My own debt to Spinoza's method will be noted when I look at his work in Chapter 9.
4. Van Eck, 1981.
5. The typewritten manuscript, and a letter from the editor of *Analysis* with some hints of Geach's comments, is in Box Five of Arthur Prior's papers in the Bodleian Library, Oxford. Prior greatly admired Geach's perspicacity. A quite different paper using some of the same material is Prior's 1967 paper 'On Spurious Egocentricity', in *Philosophy*, Vol. XLII, pp326 to 335.
6. How interesting that both McTaggart and Prior, both innovators in the logic of time, were New Zealanders, and although he described McTaggart's origins as well as his theories to us I never heard him mention the coincidence – another example of Prior's modesty about his own achievements.

7. See Prior 1956b, described in Copeland 1996, p.10-12 and reprinted in Copeland, 1996, p.113-114.
8. This fascinating idea came to me whilst working on this thesis, and I discover it has come independently to others. It is suggested in Pigden (1998). Charles Pigden suggested to me that Erin Livingstone has worked on this idea. See Livingstone (2000).

Chapter 3

A Theology Is

§1 A Theology is any reasoning carried out as part of a particular religion.

For a theology to be considered seriously it must have:

§2 One or more unproved assumptions (axioms) about God, or gods or some equivalent.

§3 Logical Laws.

§4 Derived theological propositions produced by using logical laws on the axiom(s).

§5 Non-theological propositions, added to the theological and worked on by further logic.

General Discussion

Axiomatic Theology

A method of proceeding

In this chapter I will first propose a very broad use of the word 'theology' and then look at the separate types of statement and arguments that theologies use so that we can see what topics will have to be covered when looking for a logic or logics which will be useful for theologians. Both the broad use of the word and the moves inside theologies will have EXPLANATIONS, EXAMPLES, and DISCUSSIONS. The logical symbols and processes are to be introduced in detail in Chapter 4; however, in this chapter they may be ignored without losing the plot – just read the examples or explanations inside pointed brackets, < thus >.

I use 'God' with a capital letter to name the monotheistic god of the Jewish/Christian/Moslem religions. It is not supposed to be exclusively the Christian god, though I may slip into that usage unawares – habit, please excuse and correct.

§ 1. A Theology is...

1. A theology is any reasoning carried out as part of a particular religion of the present, of the past, or imaginable.

The first three examples below belong to Judaism/Christianity/Islam (present day); Zoroastrianism (past – I do not intend to represent Parsee beliefs.); Modern Pantheism (imagined). The examples also belong to §2. AXIOMS and are in this section only to show how my delineation gives a reasonably wide field of inquiry.

EXAMPLES OF THEOLOGICAL STATEMENTS

Example 1:

Theol. 1. God made the universe.

Example 2 :

Theol. 2. Ahura Mazda created light.

Theol. 3. Angra Mainyu created dark.

Example 3:

Theol. 4. All religions are one.¹

DISCUSSION

My definition may seem to bring an extraordinarily wide range of types and kinds and topics of human mental effort into consideration. However, I intend to limit the topic a bit in the sections that follow, if only to get psychic surgery and divination by swinging crystals out of contention.

I am carefully not defining what a religion is, and instead will draw up a list of religions if asked to. This recourse to ostensive definition (definition by pointing) is because, for religions past and present, the list is finite. The number of religions is surprisingly large, and 9,900 are described by David Barrett and his team, in the 2001 edition of the two volume *World Christian Encyclopedia*, published by Oxford University Press, with three new religions being added each day. However, the number with greatly differing theologies does not appear to be nearly so large. Of course any list I draw up, or the list anyone in the year 2002 draws up, will have gaps in it due to the gaps in our knowledge. There will also be gaps because different people have different notions of what a religion is. For example, I often feel that there are good reasons for excluding this or that example from the class of social phenomena called religion: very early Buddhist texts have no mention of god or gods, Maori gods were more like ancestors, Confucianism seems not to spring from any sense of awe, and so on. However, these all depend on some definition of religion being imposed, and to impose a definition is both constipating to research and merely fiddling with how the word 'religion' is to be used; besides an imposed, generalised, definition can often be seen to reflect a prejudice for one's own brand or class of religion.

However, the extension out to 'imaginable religions' is less easily justified. I suggest that the drawing up of a grid or spreadsheet of religions and their characteristic beliefs will give us a way of producing an extendable list of imaginable religions which is predictable. The process is sketched here:

Religions /Beliefs										
Religion	Gods				Life after death				Creation	
	No gods	1 god	2 gods	many gods	immortal souls	resurrection bodies	re-incarnation	- no life after death	scientific	instantaneous
Pentateuch										
Jewish		✓						✓		✓
Christian										
Catholic		✓			✓					✓
Protestant		✓			✓	✓				✓
Mod. Prot.		✓			✓				✓	
Islam		✓			✓					✓
Zoroastrian			✓		✓					
Hindu				✓			✓			
Buddhism	✓						✓			
Modern										
pantheism	✓							✓	✓	

From the grid so far it is clear that a religion with 2 gods, re-incarnation and a 'scientific' attitude to the creation has not, as far as we know, sprung up yet. The theology for such a religion can be imagined, and if such a belief did occur we would have no trouble in calling it a religion. In literature, imagined religions and their theologies are created; extracts from and comments upon one of these are found in Appendix 5.

The beliefs (the vertical rows) suggest that the categories chosen are those of someone with a clear definition of what he or she will allow into the category 'religions' but I point out that this grid is not finite: not only may the list of religions (the first column) grow, but also the categories which

should be added may grow, presumably by consensus of the academic world investigating religious practice and beliefs. This would happen as time adds more religions with beliefs not in this list, or if science makes new investigations of contemporary religions possible, for example if a science making sense of brain activity at a quantum level, as suggested by Roger Penrose², throws light on the origins and development of individual beliefs.

Theology's base

Western professional philosophers of religion, and this group includes some theologians, have a thriving academic discipline. Many of these thinkers have a logical turn of mind, and for some of the topics they discuss they need such a mind: many of the problems in this field are left over from the logical work of the schoolmen of the middle-ages. In order not to get involved in the fascinating but seemingly endless debates I make it clear in the next section that some questions cannot be asked: namely those which seek a 'higher' level of justification for the most elementary or basic theological statements (which I call *theological axioms*).

Past attempts to find such a base for theology have been of three sorts:

- (a) 'natural' – basing theology on the nature of the universe or of logic;
- (b) authority – basing theology on what are seen as God's commands;
- (c) revelation – basing theology on something ('revealed by God') which we are unable to doubt.

The first – attempts to prove God's necessary existence from the nature of the universe or from logic – are summarised in §2 below.

The second (basing theology on authority) is most commonly seen when the Bible or the Koran is used as a proof that God exists and is of such-and-such a nature. The argument is so plainly circular I wonder at my bothering to put it down; on God's supposed goodness it goes something like this: the Bible says God is good. Why is the Bible authoritative on this matter? Because God (indirectly) wrote it. How do you know God wrote it? Because it says so in the Bible. How do you know that part of the Bible is authoritative? Because God wrote it. ...

There are more subtle forms of the argument from authority, but they all run into the problem of why we should accept some statements as more authoritative than others. Catholic philosophers have suggested that the Pope, speaking ex-cathedra, is an authority one cannot deny. The problem is that ex-cathedra statements have later been repudiated, for example, statements condemning the Copernican picture of the solar system. This problem of how to tell 'real' ex-cathedra statements from 'seeming' ex-cathedra statements leads off into some of the same problems as revelation-as-a-basis (see below) and into more logical problems of circularity. Recent Catholic logicians such as the dominican I.M.Bochenski in *The Logic of Religion* (Bochenski 1965) reject authority as a basis for a logic of religion, not on logical grounds but for theological reasons.

Robert McIntyre in 'The Logical Status of Religious Belief' (McIntyre 1957) suggests that the difficulty we have in making sense of theological statements evaporates when we see the statements as commands (carrying authority) rather than historical statements or even metaphorical statements. It is not clear how McIntyre would translate such biblical statements as 'God spoke to Moses', other than 'Believe the following: I spoke to Moses.' Nevertheless, modern logicians have studied logics of Imperatives (commands) and these will be discussed further in §7.5. This still leaves us with the problem of where the justification for accepting one authority over another comes from, but that is not a logical problem.

A logic, or rather logics, of command and authority are mentioned by the 18th century logician Isaac Watts, better known for his hymn writing. In his *Logick* he discusses necessity, impossibility, possibility and contingency then says:

There are several other *Modes* of speaking whereby a Predicate is connected with a Subject: Such as, *it is certain, it is doubtful, it is probable, it is improbable, it is agreed, it is granted, it is said by the ancients, it is written*, etc. all of which will form other Kinds of modal Propositions.³

Modern logicians have taken something like Watts's 'It is written' seriously as a modal operator and have looked at 'theological modes' such as those expressed by 'It is *de fide*...' ('It is by faith') and 'It is heretical...'. The usefulness of these will be discussed later.

The third suggested solution about where a legitimate basis for theology may be found relies on revelation. Again we are confronted with the problem of which of many competing revelations to accept as the proper basis. 'By their works ye shall know them' seems as good as we can get, and this relies on some way of judging between the results.

How then is one to select between competing methods of judging results? For example, a soldier ant may have it revealed to him (be compelled by his instincts to believe) that the nest must be protected from invading wasps by his killing a wasp, and in the process being killed. The nest is thus saved. Is this a good work? If you are a survivor in the ant nest this may be the best result. If you are a wasp it is not, as the wasp nest dies of starvation. If you are an anteater it is a good result as there are more ants to eat. If you are a human it is not a good result as the ants eat the grain in your food-store. If you are a certain sort of god and want the humans to learn ant-proof methods of food-store construction by themselves, it is a good result. Which of these judgements is best? And at the next level: which system of moral judging is best?

This last question could be re-phrased as: which deontic (moral) logic is best? Deontic logics for the ants, wasps, anteaters, humans, and the god can be constructed, but someone has to choose between them. Revelation is so dependent on judgements which are likely to be short-sighted or species-specific that the dependability of revelation also boils down to (for us) 'the proper study of mankind is man.'

In the case of theology perhaps we have, 'the proper study of the god is the god'. The chances of doing such a study will be looked at quite soon, but the idea that any god reveals himself/herself to himself/herself looks pretty self defeating.

My way of dealing with the problem of selecting a basis for theology is akin to the third solution, namely 'revelation'. I assume (and assuming is akin to accepting a revelation) that the universe is so constructed that rules can be found, including logical rules, and that any argument or idea that breaks the rules leads to chaos. I do not regard my assumption as a totally unfounded, possibly irrational, leap in the dark. I rely on the fact that such an assumption has proved very useful, in millions of cases, and is therefore on the way to being as well tested a scientific truth as any (though still prone to disproof if one counter-case is ever discovered.) 'Useful' here includes useful to ants, anteaters, humans, and for talk about gods. The proper study of the universe is the universe.

I therefore suggest that the best plan for anyone wishing to set up a theology is to try out the propositions, arguments and ideas of that theology and see if they cause chaos. If they do, it must be rejected as a theology.

If there are, after this 'test to destruction', several competing logically strong theologies they will have to be judged by non-logical criteria, for example for their universality, usefulness, morality, beauty, charm, etc.

§ 2. Theological Axioms

For a theology to be considered seriously it must have:

- 2.1 One or more unproved assumptions (axioms) about God, or gods or some equivalent.

The three examples from §1 will do as examples of theological axioms. In the case of *Theol.4*, '*All religions are one*', the statement is to be treated axiomatically; that is, no attempt made to prove it. However, most people who make this statement probably have a vague feeling that it could somehow be demonstrated from human psychology or by examining theologies. If it could be demonstrated it might be regarded as a proof from 'natural theology'. However, I think it is better to regard it as a matter of faith or belief, to think of it as a given, that is as an axiom.

DISCUSSION

Ideally all the axioms you need should be clearly stated early on and no extras added.

An axiom saying that there is no God, or are no gods, is considered in this thesis to be a theological axiom, when used as part of religious reasoning by a member of that religion. Note that, used by an atheist, it is not a theological axiom, but a statement of fact, and therefore, either true or false.

Having an unproved axiom (or, more usually, many unproved axioms) is one of the distinguishing marks of a theology; this characteristic goes with the idea summed up in the ordinary language way we often call a religion a 'belief': religions differ from science and many normal everyday ways of talking because they include propositions which cannot be proved or demonstrated or deduced as generalisations are.

Is theology a science?

Theology was for a long time described as 'the Queen of the Sciences'. Even some modern scientists say theology is a science.⁴ Science is multifarious so it is wise to ask several questions; for example, is theology scientific in the same way as, say, geology is? The results of scientific research, (or detective investigations) *prove facts*, that is, until some new evidence makes us abandon our 'facts' or modify our hypotheses, or call for a re-trial. This process was once described as resulting in *empirical* or *synthetic* knowledge. The essence of such knowledge is that it does not rely on beliefs and never gives absolute truth; it gives us, for the time being, enough accuracy and assurance and working models so that technology can create new processes and from them new materials and new forms of energy. Theology is not empirical, not being based on facts, accurate measurements, nor models. Theology is not 'scientific' (in the sense that science is empirical.)

Is theology scientific in the sense that mathematics is scientific? Mathematics, and its cousin, logic, have unproved axioms and invented rules. This can give the impression that we are putting theologies into the same epistemological category as mathematics and logic – those branches of knowledge which used to be called *analytic* because they proceeded by teasing out from statements (axioms or theses) the consequences to be found in them.

Unfortunately for believers, the analytic disciplines, although they provide absolute and irrefutable truth in a way that no other science or human endeavour, from morals to quantum physics, can do, provide that certainty at a price: the absolute truth of their statements applies only **INSIDE** the **SYSTEM** being used.

A science such as geology uses mathematics; so do trades such as carpentry and banking. Any

human activity that uses talking and writing uses logic. Therefore, we can expect that theologies will use logic, and perhaps a little arithmetic. We can have theologies with a lot of logic, that is theologies that are very analytic, and theologies that are changing as new facts are discovered. Here are some examples to help a theologian decide how analytic he or she wants the theology being constructed or modified to be.

(i)

A theological system could be developed for a religion (call it Three-ism) which contained three gods who toss coins to decide the fate of each person. Three heads would see you healthy, wealthy and wise through life; two heads would see you missing out on one of these blessings; three tails would see you sickly, poor and stupid. We could even build in a logical law of tosser-identity and, for example, a sickly, wealthy and stupid person would know which gods had tossed tails at his or her birth, which to praise and which to curse.

A different theology, just as consistent, could be developed for a Six-ism religion with six gods who always worked in pairs, taking turns at tossing the coin, perhaps the female god tossing for boy babies and the male partner god tossing for girl babies; or any other system of gods and tossings you like.

These theologies purport to describe the same process – we are predestined and our fates are decided by three coin tosses. There is no way that the truth or otherwise of these theologies can be demonstrated by experiment or modelling so the religions are not empirical (like geology). These theologies are tidy and neat and consistent in themselves, but give absolutely no assurance that there are three (or whatever number you decide upon) gods, or that they behave as described. We can safely make deductions about all sorts of ups and downs in our lives and the gods' influence upon them, but we must preface each deduction with, 'If things are as the theology describes, then' Therefore, Three-ism and Six-ism behave in a purely analytic way, like maths or logic – the absolute truth of the conclusions inside the theology can be assured, but only inside the system.

(ii)

Theologies often incorporate not only descriptions of the gods and their dealings with humans but also make comments about what the gods admire, or commend, or command. Can logics for theologies incorporate such moral or ethical ideas as well? Yes. Different moral logical systems can be developed for, say, ants and dogs.

Ants would have a rule:

$CNOpFp$ < If p is not obligatory then it is forbidden >
 < If you are not obliged to feed the queen (you are a soldier, not a worker) it is
 forbidden that you do so >

Dogs would have a rule:

$CKNFpNOpPp$ < If p is not forbidden and not obligatory, it is permissible >
 < If you are not forbidden to chase rabbits, nor obliged to chase them,
 you may, nevertheless, do so.>

Both logical systems (both are part of variations of Deontic Logic and further examined in Chapters 4 and 5) are complete, certain, reliable, etc., as logical systems, but they are different logical systems and neither is universally applicable. How important is a universally applicable logic for the ethical parts of your theology? Can you manage with your god of ants working with a different ethical logic to your god of dogs? In Valhalla shall we find different gods applying different ethical systems to their own behaviour, the ant god allowing itself to do only obligatory actions but the dog god doing permissible things from time to time? If you have a single god how does he-she manage to apply different ethical systems to different creatures, especially when those creatures come into conflict – the dog is permitted to eat the ant but the ant is obliged not to eat the dog (that is, is forbidden). We

manage such ethical conundrums, so, presumably the single god must also. Each theology wishing to incorporate moral ideas will have to decide how to add deontic logics to their strictly theological ideas and to their logics for the gods.

(iii)

Different systems do not always point to the same truth. Euclidian geometry and Einsteinian geometry are both consistent and trustworthy but one works only with 'flat' space and the other with 'curved' space. Using a religious parallel:

There are many theologies, Christian, Moslem, Zoroastrian, Hindu, Yoruba, Buddhist, and if they are not internally consistent we can imagine them being made so, perhaps in the way that Calvinists attempted to make the Roman Catholic theology of their day more so. Predestination theology would *then* be said to have truth and consistency inside the Calvinist religion, in other words predestination would work for them. Similarly, Islamic theology would work and give truth for Moslems; Zoroastrian theology for Parsees; Hindu theology for Hindus, etc. But the predestination theology of the Calvinists would not work for Moslems (who do not think of Jesus as God), nor Zoroastrians (who had two gods), nor Hindus and Yorubas who have hundreds, nor Buddhists who do not have a god at all.

A totally analytic theology?

Should theologians (and even believers) be willing to make theology totally analytic, and thus accept a complete divorce of theology from 'reality', and in particular the reality of a world with many religions? In general the answer is 'no'; there is no particular point in a 'pure' theology – every religion being practised is interested in the behaviour of people, and most with the interaction between god(s) and people. Most religions claim that their theology reflects reality, contains descriptions of what is the case, or what *is*.

No religion is willing to say that its theology is a system divorced from real life, that is, consistent and truthful, but only of use with 'If this theology is true then...' in front of its every statement or remark. The theologian who is willing to bite the bullet and declare his or her theology is purely analytic might like to point to another analytic discipline, say arithmetic, and declare, 'see, it is true that pure arithmetic is true and consistent and gives absolute certainty inside its own system; but look, it works for everyone who goes shopping or needs to count anything at all ... it has an everyday and universal use.' The mathematician has two things to say about this:

- (1) Look where we got the rules of arithmetic from – from everyday transactions. This is a case of a pure system built to reflect what is, built to reflect naturally occurring facts. Naturally it works.
- (2) Aren't we lucky that the world is a good analogy for the mathematics.

The theologian does not have parallel comments to either of these. His pure system does not reflect universal everyday facts and occurrences because we have no examples of any god interfering in the ordinary world which cannot be explained without a god; therefore, we do not have a pure (theological) system reflecting naturally occurring facts. Secondly, the world is not a good analogy for any theology.

Three riders:

- (1) The modern theologian who says that God is a symbol may say that his theology reflects everyday facts and occurrences. This stretches the imagination; it will be taken up in Chapter 10.
- (2) There may have been a time when the interference of gods was the only explanation available for everyday facts and occurrences. Unsolved reasons for occurrences can still be 'explained' that way, but scientists do not stop looking, and expecting to find scientific explanations.⁵
- (3) Ancient theologies did sometimes find an imagined world a good analogy for their theologies. For example, the gods of Mount Olympus were a disharmonious lot and their jealousies, drunkenness, infidelities, and generally wild behaviour were no doubt a reflection of human behaviour. Few modern theologies show God or the gods as behaving as immorally and inhumanely

as humans; generally God or the gods are paragons of all the virtues, showing the way, not reflecting the way the world is.

In the simplest, if not the most subtle, logic, namely propositional logic, axiomatic systems are usual. Moreover, the axioms selected to be the foundations of technically *complete* systems are more than just useful: they are as truthful (valid) as the laws which are derived from them. The way you can tell is to test the axioms by the selfsame truth tables, or truth trees, or possible-worlds semantics as you may test all propositional laws. This has the handy side effect of allowing us to accept some rather non-intuitive axioms with certainty, rather than with scepticism. No religion has such axioms – that is axioms which can be tested in several analogous ways. This may not be immediately obvious, but should be revealed as we go further.

As well as axioms?

To develop a theology the axioms must have other statements (some which will also be axioms, some will be facts, some moral judgements) added, and conclusions drawn; but, it is important to distinguish those statements in a theology which are axioms (in the sense that they are not derived from any other theological or non-theological sources). They are only one of the aspects of what make up a theology, but they are of vital importance, being the quintessence of the theological bits that a believer must believe without proof, what must be ‘taken on faith’ (in the modern meaning of ‘faith’).

Note that I do not intend to imply (by making theological axioms so vital to any theology) that theologies have in history ever been based on axioms knowingly; in fact quite the reverse – there has usually been some phenomenon, or some historical event, or some feeling about what there is and is not, that has led to the development of a theology – the axioms are usually to be discerned by the outsider listening in and noting that some of the theological statements are important to the theology but are not based on other facts, nor on sustainable arguments, and are best regarded as ‘givens’.

I am keen to whittle the givens down to as few as possible, to put less strain on our belief (or some would say, credulity). The problem of whether evidence (rather than proof) might be accepted in their favour is another matter.

‘Natural’ theology

As mentioned above in the discussion of §1, theological axioms have in the past been the subject of many attempts to show that they can be derived from non-theological propositions. The mainly logico/linguistic ‘proofs’ of the necessary existence of God are still being re-erected (mainly for demolition!) They are avoided here by declaring some theological propositions to be axioms. The main arguments have names: the Cosmological (everything has a cause, the ultimate cause is God); the Ontological (to exist is ‘greater’ than not existing, God, being the greatest, must therefore exist); and the Teleological (the universe must have a designer, call him God). Only the last appears reasonable to the man or woman in the street these days but even it received an excellent and good-humoured rubbing by Hume back in the eighteenth century.

My objection to all such attempts is the logical one that a belief system (a religion and its theology) that includes a supreme being (or beings) cannot elevate logical laws (and arguments from created facts) to be of more ultimate ‘truth’ or ‘reality’ than the supreme being. Which is more ‘basic’ to a believer: (a) God exists, or (b) *Cpp* <Everything is what it is?>. Another way of putting the conundrum: Is God subject to the rules of logic, which he-she-it must obey and are such rules even more ‘basic’ to the universe than he-she-it is? This too is no modern problem.

Arguing about such matters has a parallel in ethics. The shorthand description of the problem is: can you get an ‘ought’ from an ‘is’? Those, like Bentham, Mill (the Utilitarians) and their successors, who believe you can get moral precepts from such processes as adding up people’s

In the meantime, joining the anti-utilitarians, I point out the likelihood of a parallel between theology and morals; perhaps both are of the kind of knowledge which requires:

- (i) un-justified statements – the theological axioms; basic moral precepts;
- (ii) particular logical rules;
- (iii) facts – statements about human life for theology, about the circumstances of a moral predicament for ethics.

The main facts theology is interested in can be made in statements about human life as a whole; the main facts ethics is interested in can be made in statements about moral predicaments.

For a theology to be considered seriously it must:

3.1 Use logical laws.

These are seldom stated and often have to be discerned by working back from the way the axioms and other statements are used.

EXAMPLES OF THEOLOGICAL USE OF LOGICAL LAWS

Example 4:

Theol.4.3 God created the world,
Therefore
Theol.4.4 Without Him was not anything made that was made.

This is a slightly modified quotation from John 1:3 in the Authorised Version. It is an instance of the logical law

PL. 4.2 $\text{C}\Pi xy\phi xy\text{N}\Pi xy\phi Nxy$ < If, for all x and all y , x ϕ 's y , then, it is not the case that for all x and all y , that *not*- x ϕ 's y >
 < If all-the-gods-there-are created all-the-things-there-are, then it is not the case that no god created everything >

This is by no means obvious intuitively when laid out like this but it can be derived from the obvious logical law

$CpNNp$ < If p then *not not- p* >
 <If something is true it is not the case that it is not true >
 < the law of 'double negation' >.

Example 5:

- Theol.5.1. Ahura Mazda will come to **every believer's** aid when he or she needs it
 Therefore
 Theol.5.2 I am a believer, Ahura Mazda will come to **my** aid when I need it

This looks like a simple true deduction, and so it is, but it relies on, that is, it exemplifies, a logical law which we all agree holds in all cases, which has not been stated, it being:

Domain: Zoroastrians; ϕ = will come to the aid of ... ; ψ = needs help; x = a variable for a Zoroastrian; a = Ahura Mazda; b = a constant for a named Zoroastrian, say, Rustem, or Zorab, or Darius...

- PL. 5.1 $C \Pi x C \psi x \phi x C \psi b \phi ab$ < If, for all x , x needs help implies a will come to the aid of x , then, if b needs help, a will come to the aid of b >
 < If, for all x , x needs help implies Ahura Mazda will come to the aid of x , then, if Rustem needs help, Ahura Mazda will come to his aid >
 < If Ahura Mazda will come to the aid of every believer then if I (a believer) need help, then Ahura Mazda will come to my aid >

§ 4. Theology uses derived statements

For a theology to be considered seriously it must have:

- 4.1 Derived theological propositions produced by using logical laws on the axiom(s).

EXAMPLES OF THEOLOGICAL PROPOSITIONS DERIVED FROM THEOLOGICAL AXIOMS

Example 6:

Adapting example 5:

Domain: All creatures and God; ϕ = loves ... ; ψ = is a creature; x = a variable for a creature; g = God; b = a constant for a named creature, say, Llewelyn, or Judith, or our dog Fido ...

- Theol. 6.1. God loves all his creatures < a theological axiom >
 Theol. 6.1. $\Pi x C \psi x \phi gx$ < for all x , if x is a creature, $g \phi$'s x >
 < all the creatures there are loved by God >
 PL. 5.1 $C \Pi x C \psi x \phi gx C \psi b \phi gb$ < a logical law, see Example 5 >
 PL.5.1 = C Theol. 6.1 – Theol. 6.2 < instructions for detaching a new law, see Ch.4 >
 Theol. 6.2 $C \psi b \phi gb$ < a new, derived, theological law >
 < God loves Llewelyn >

Note that we have proved that the theology that has 'God loves all his creatures' as an axiom can also have, as a law, 'God loves Llewelyn'. The constant b has to stand for one named person at a time, but we could name some other creature with b , and so work our way through to you, or Fido, or whoever/whatever God created that you like to name.

Example 7:

<i>Theol. 7.1</i>	Olorun commanded that the world and people be made.
<i>Theol. 7.2</i>	Olorun then gave the rule of thunder to Shango, of rivers to Oshun, of iron to Ogun... but kept the destinies of people in his own hands.
Therefore	
<i>Theol. 7.3</i>	Olorun limited his rule of the world.

I have not put this example into symbolic form – it would be a considerable task and would take a lot of space for no great result. The point is made that you need no more than one theological axiom, some quite unexceptional logic, and you can add to your theology a new and derived conclusion. In this example we had two axioms and can derive *Theol. 7.3*, a theological statement with which all Yoruba worshippers of Olorun would agree.

§ 5. Theology uses non-theological (profane) propositions

For a theology to be considered seriously it must have:

- 5.1 Non-theological propositions which are added to the theology and worked on by further logic.

EXAMPLES OF NON-THEOLOGICAL PROPOSITIONS ADDED INTO THEOLOGIES

Example 8:

<i>Theol. 8.1</i>	God punishes all wrong-doers.	[theological axiom]
<i>Nth. 8.2</i>	The Pharaoh did wrong (to chase the Israelites).	[non-theological]
<i>Rule 1</i>	<i>Substitution</i>	
<i>Rule 2</i>	<i>Detachment (Modus Ponens)</i>	
<i>Theol. 8.2.1</i>	God punished the Pharaoh (drowned his soldiers).	[derived theological law]

The logical progression can be seen clearly using the predicate calculus to give us the laws and propositions we use here. Firstly, we are considering all of the universe including God, and this is called the 'Universal Domain'. Secondly we need only one noun variable, in this case 'x'. Thirdly we need some predicates (verbs) and we will use ' β ' for 'is bad', or perhaps more correctly 'does wrong'; also ' γ ' for 'is punished by God'. Fourthly we will use ' a ' to stand for a noun constant, on this case the Pharaoh.

<i>Theol. 8.1</i>	$\Pi x C \beta x \gamma x$	< for all x, if x does wrong God punishes x >
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<i>Nth. 8.2</i>	βa	< Pharaoh does wrong >
<i>Theol. 8.1</i>	$x/a = \text{Theol. 8.3}$	< in <i>Theol. 8.1</i> we may substitute <i>Pharaoh</i> for 'all x ' since <i>Pharaoh</i> is one of the things included in 'all x ' >
<i>Theol. 8.3</i>	$C \beta a \gamma a$	< if Pharaoh does wrong Pharaoh is punished by God >
<i>Theol. 8.3 = C Nth. 8.2 — Theol. 8.4</i>		< apply the Rule of Detachment (<i>Modus Ponens</i>) >
<i>Theol. 8.4</i>	γa	< Pharaoh is punished by God >

The point is that non-theological propositions (in this case a moral proposition, *Nth. 8.2*) can be added to theologies. Rules about the sort of conclusions that can be properly drawn from such a mixed argument will be dealt with in the next chapter. Another example of mixed moral and theological proposition, this time using deontic logic, is essayed in Note 6 at the end of the chapter.

Example 9:

<i>Theol. 9.1.</i>	'Prajnamam brahman, [means in English] brahman is consciousness.'
<i>Nth. 9.1.</i>	'The power which is manifest in the universe is called "brahman".'
<i>LL. 3.</i>	$CCpqCCrpCrq$ <If p implies q , then if r implies p , r also implies q .>
<i>Theol. 9.1.1.</i>	'The reality without, [the power which is manifest in the universe] is at one with one's own inner consciousness.'

These statements are lifted from a book by Bede Griffiths (1989) interpreting the *Upanishads*: I hold no candle for their accuracy among Hindus. The logical law is not mentioned by Griffiths but it is necessary for him to reach his conclusion. To give some help I have put in square brackets my own interpretations of what is being said. The non-theological statement, *Nth. 9.1*, is quite clearly about the meaning of a word (Griffiths has the word *brahman* in quotes) and is not about brahman itself. The derived theological statement, *Theol. 9.2*, also uses a metaphoric or poetic re-definition of brahmin when it talks of 'the reality without'. The closeness of the meanings is not spelt out in Griffith's text.

Again the point here is that non-theological statements, even simple definitions, help the development of a theology upon its axiom(s).

General discussion

Only the characteristic of §2,

For a theology to be considered seriously here it must have one or more unproved assumptions (axioms) about God, or gods or some equivalent

is likely to be controversial. Objections might be raised on two grounds:

- (a) that a theology need have no unproved assumptions;

- (b) that we have here no useful definitions of what is meant by 'God' or 'gods' or 'some equivalent'.

Considering (a) I could, of course, say that I am writing this thesis and I may put in limits or definitions as I like, as long as they are understandable and I stick to them. However, the limit as to what I am willing to call a theology is by no means arbitrary.

In part, my §2 characteristic arises from the notion that religions (and particularly their theologies) are systems of beliefs, not systems of facts (verifiable by experiment) nor systems of mathematics/logic (verifiable by proof). Our ordinary language definitely marks off beliefs from

however, these are mainly 'extensions' to liberal Christian theology; my extension is different in kind, but reasonable.

It could well be said that several religions do not need their 'God' or 'gods': the gods of Confucianism seem to an outsider to serve little purpose in its theology and could be said to have been 'left-over' from some more pagan state of affairs. The rituals for the gods commended by Confucius seem to be there only because of his general conservative approach – 'never do something for the first time nor for the last.' Thus the theory could be propounded that Confucianism could be shorn of its gods and still be a religion worthy of the name. Such a proposal is discussed in Chapter 16. Similarly, in mahayana Buddhism the proliferation of gods could be regarded as a hindrance to the clear statement of its theology.

There are also some strange religions about, and many even stranger could be invented. One of the most interesting invented religions I have come across is a religion which plays a major part in the plot of a novel set in an imaginary time which in its social structure, technology, the place of religion and politics, is very like the late middle ages in Spain. However the religion of the people (apart from one heresy) has a family of five gods, The Father, The Mother, The Son, The Daughter, The Bastard. It is described, for interest's sake, in Appendix 5.

In the West in the early twenty-first century one scholar-encyclopaedist⁸ suggests that there are about three new religions coming into existence every day. I consider his definition of 'new' catches too many sects or denominations as if they were fully fledged religions, however, there are at least three 'new' religions, still largely unrecognised as religions because they do not have clearly identifiable groups of worshipping adherents, yet which have reasonably well developed theologies (in my broad sense). This phenomenon (theology before, or without worship) is itself fascinating. There is a case for Zen and the 'philosophies' of the stoics, epicureans, kynics, Spinoza, and thinkers of the French Revolution to be considered as candidates for the description religions-with-theologies-but-without-worship. However I suspect modern instances must be a result of the rise of science; here are two.

(1) One twentieth century religion-less theology I have called 'Modern Pantheist' in §1 of this Chapter, and 'Gaia' in Chapter 13. I suspect the urge for this theology springs from three sources: (a) the 'un-scientific' idea that there is a spirit realm different from the physical realm; (b) the feeling that we need a peaceful world and religions all want that, so they must be the same, basically, underneath their doctrines; and (c) the new recognition that all parts of our world are interconnected, not just in their origin, but in their continued existence in more or less a steady life-supporting state.

There may be 'hippy' communities with such beliefs, and some Hindu gurus may teach something which western disciples take to mean something like this; there may also be internet 'communities' who might be described (very loosely) as worshipping such ideas. This is scratching to find a religion out of highly individualistic behaviour and very nebulous and mixed beliefs.⁹

This religion-less theology seems at first glance to be much the same sort of idea as is found in the Hindu or Buddhist notion that 'all is one', that all physical and mental (and spiritual) 'things' are the same sort or 'things' differently viewed or experienced, closely related, and bound together. However, the theology of Hindu and Buddhist thinkers is quite different from that of those who come from western scientific backgrounds. The Westerners see all life and inanimate objects as indeed interconnected (as now explored in the science of ecology), and prefer to see the world, indeed the universe, as more like an organism than a machine. Unlike Easterners this theology is not attached to notions of cycles or birth/death/rebirth except in a very scientific interpretation, and certainly not to the notion that suffering is a result of passion and that the end of passion is therefore 'good'. The western theology, sometimes equating God with the whole earth, and perhaps the whole universe, has a handy name: Gaia religion, from the Gaia hypothesis of Lovelock. This is discussed with care in Chapter 13. There is a huge literature, vigorous electronic exchange of ideas, and a subculture of people working to get the consequences of this world-view put into practice to 'save the planet'. A passionate lot – not self-denying nor world-denying – so very unlike Hindus and Buddhists and their 'theologians'.

A second religion-less theology has a great number of variants and is much more the invention of academics than of the spiritually inclined or concerned scientifically-aware humanists. Most of the various forms I have come across are those of Christian thinkers who feel that science, or new information, or new ways of interpreting old myths, have put paid to older ways of thinking about God; they are seeking new ways of doing that. Most do not deny that there is a God or gods but try out new meanings for the words.

From last century are the ideas of Bergson who decided that the 'life-force' was what we could legitimately call God. This idea seems to have been recently revised in New Zealand by Alun Richards in *Unwrapping His Message* (Richards 1997). Psychologists have seen 'God' as a name for needs and desires from the subconscious, and some theologians have moved in the same direction suggesting such revisions as: 'God is the mythical embodiment of all that one is concerned with in the spiritual life.' (Cupitt 1997a). Less obviously attached to psychological theory is: 'The fundamental symbol of our ultimate concern is God.' (Tillich 1957). Giving God the status of a symbol is now common: 'The symbol of God... sums up, unifies and represents... the highest and most indispensable ideas and values.' (Kaufman 1981) And '...the word "God" ...can usefully function as an ultimate point of reference or a unifying symbol...a focus of meaning we must now create.' (Geering 1994)

All these struggles to find a new meaning for the word 'God' suggest that the word they are using is not the concrete noun whose meaning we are used to. The meaning used, in the past, to slide around a lot ('God the creator', 'God the father', 'God so loved the world...', 'God slew the Mohabites') but did suggest something very like a human being. The new meanings use the word as an abstract noun (like 'redness', or 'fear', or 'privatisation' or 'fatuousness') or take a step back and say the word means, (or points to by being a symbol) an abstract idea ('ultimate concern', 'indispensable ideas', 'values', 'focus'). Although in most logics both concrete and abstract nouns behave the same way ('Socrates is a man' has the same logical status, being a proposition, as 'redness is a colour' or 'fatuousness is a common failing of philosophers.') in the case of theology a lot often hangs on whether something exists or not and what is meant by existing. These topics are discussed in Chapter 11.

In the meantime one might note that though worshippers of a Modern Pantheism or Gaia Religion may be difficult to spot, the worshippers of an abstract noun God, either a life-force, a concern, or a symbol, are very few, unless you are willing to say something of the order of: 'those thousands of church-goers don't know it, but they are really worshipping our ultimate concern.'

Axiomatic theology

The first theologian/philosopher to lay out beliefs in a clear systematic, axiomatic system was Spinoza. His theology is pantheistic (everything is God, God is everything). This is exciting to the historian because it is despite his living in the 1600s and being surrounded by a repressive Christian culture, and despite his being brought up a Jew. It is exciting to the logician because in his posthumous *Ethics* he carefully lays out the axioms needed for each step of his argument for a god who is all pervading, carefully lays out the arguments justifying both his axioms and his conclusions from them, and gives examples and comments and summaries at every step of the way. His logic is not innovative, but his use of it is. Of course his language is archaic and many of the concepts he uses (notably that of 'substance' and Cartesian psychology) have not stood the test of time. However, if you go along with him, his rigour and insights are compelling. His arguments are examined closely in Chapter 13.

I, of course, am not attempting to erect a new theology upon a set of axioms, merely trying to

see how new logics can affect theologies from which I have extracted what I see to be the axioms underlying the un-rigorous talk within existing religions.

A method of proceeding

1.

Having laid out what a theology is, and shown, briefly how any theology can be expanded with the use of logical laws, it is possible, and instructive, to lay out the beliefs in any theology (and the logical conclusions from those beliefs) as an axiomatic system, using "off the shelf" and adapted logics, to handle the dicta of the religion under study.

1.1 Thus in the theology of the Yoruba of West Africa, the *beginnings* of such an axiomatic system would contain such dicta as:

- 1.1.1 Olurun commanded that the world and people be made.
- 1.1.2 Olurun then gave the rule of thunder to Shango, of rivers to Oshun, of iron to Ogun
... but kept the destinies of people in his own hands.

and such logical conclusions as:

- 1.1.3 Olurun limited his rule of the world.

1.2 The theology of Zoroastrians may contain such dicta as:

- 1.2.1 Ahura Mazda created light
- 1.2.2 Angra Mainu created dark

and observed facts such as:

- 1.2.3 Dark never overcomes light, light never overcomes dark.

and such logical conclusions as:

- 1.2.4 Ahura Mazda and Angra Mainu are equal in power.

This system would require a logical calculus that allows 'observations', for example, scientific 'facts', such as 1.2.3 to be linked to theological statements.

1.3 The theology of pre-contact Maori may contain such axioms as:

- 1.3.1 All people are directly descended from the gods
- 1.3.2 The gods can help their descendants

and a moral axiom such as:

- 1.3.3 All people (including the gods) should help their descendants

and such conclusions as:

- 1.3.4 In times of trouble it is efficacious to call on the gods for help.

This system would require calculus that allows moral axioms or moral rules derived from them to be linked to theological statements.

1.4 The theology of pantheism, as instanced in some forms of Jainism and Hinduism, and in religions based on the 'Gaia hypotheses' of modern times may contain such axioms as:

- 1.4.1 God is everything;
- 1.4.2 Everything is God;

and a moral axiom such as

- 1.4.3 Treat God (everything) as you wish to be treated yourself;

and such conclusions as:

- 1.4.4 You do not wish to be killed, therefore do not kill insects.

This system does not require any additional structures than those of 1.3.

1.5 The theology of 'fundamentalist' Christians may contain such axioms as:

- 1.5.1 God (in heaven) sent his son Jesus to earth;
- 1.5.2 All people deserve to be punished for their sins;
- and moral axioms such as:
- 1.5.3 Punishments may be transferred from one person to another;
- 1.5.4 Death is a punishment;
- and a statement of historical fact such as:
- 1.5.5 Jesus was killed
- and such logical conclusions as:
- 1.5.6 Jesus was punished instead of all people.

This system would require a way of incorporating moral axioms or laws (such as 1.5.3, and 1.5.4) and historical facts (such as 1.5.5).

2.

The use of the propositional calculus and the lower predicate extension as the fundamental logic for axiomatic systems of theology is open to challenge from two sides;

2.1 Logicians with 'rival' systems:

2.1.1 intuitionist and relevance logics.

These are not my field but they were developed because of very plausible concerns about how the meanings of the propositions may affect logical processes. Logicians adept in their use may well make useful further contributions to the logics of religions.

2.1.2 model theorists concerned with more than the true/false picture of validity.

2.2 Theologians who are sure that 'God is not limited by logic.' Such arguments are very prevalent and were dealt with in Chapter 2.

3.

The status of moral dicta and matters of 'fact', when in combination with theological axioms, has not been treated in many works of symbolic logic. The following discussion may help.

3.1 The propositional calculus deals with any 'fact', true or false, that can be expressed in a proposition. Thus a belief (such as 'Olurun commanded that the world and people be made') is treated as an example of Kpq . Similarly, the scientific fact 'Water is made of Oxygen and Hydrogen', and the moral dictum 'Torturing prisoners and children is wrong', and the imaginary 'fact', 'Unicorns are like horses and like narwhals', are also examples of substitutions in the same well formed formula Kpq .

3.2 No propositional calculus can contain Kpq , or any invalid formula, **as an axiom**, without collapsing. Logic is concerned with the truth and falsity of whole *arguments* (that is *chains* of reasoning) not with the truth or falsity of propositions – except as they affect the chain of reasoning. Whether pigs can fly or not is of no interest to the logician, qua logician. He is interested that from any false proposition you may infer *anything*. The logical law is: *from a false proposition you may infer any other proposition, true or false*. It is NOT: *from 'pigs can fly' you can infer any other proposition*. That would be to judge the truth of 'pigs can fly', and that is not the job of the logician.

3.3 The propositional calculus can (of course) handle any well-formed formula (wff) such as Kpq as a **part** of a law. For example:

$$CCKpq r KCpr Cqr \quad < \text{If } (p \ \& \ q) \text{ implies } r \text{ then } p \text{ implies } r \text{ and } q \text{ implies } r >$$

< If Olorun's command that both the world and people be made implies that he is wise, then his command that the world be made implies that he is wise, and his command that people be made implies that he is wise.>

The rules of logic are self-evident, or tautological, or universally valid (the exact description is much debated) as evidenced by the way their truth (or falsity) survives the substitution of propositions for propositional variables, verbs for predicate symbols, names or nouns for 'thing' variables, etc. This 'universality' of a true logical law is part of what is meant by a calculus or logic being 'extensional', i.e., parts of it are able to be extended without altering its truth value.

However, this is not what a theologian seeks: the theologian is looking for axiomatic statements which will not invalidate the logic.

Axiomatic statements in the predicate calculus, because it strictly controls the range of things with which it is dealing, calling this the 'domain of discourse', are able to avoid the chaos-inducing effects of many propositional wffs. The predicate calculus thus gains a subtlety and usefulness very necessary for theological reasoning. However, it does this at a price: axioms expressed in the predicate calculus have a more limited scope, they are not so easily justified, their validity in an argument must be shown by tree proofs (a version of *reductio ad absurdum*, so not as clearly valid as truth tables), and though a true axiom can be shown to be *in* the system, a false cannot be shown to corrupt the whole system. Most theological axioms will henceforward be cast in the predicate calculus.

3.4 An *intentional* calculus, that is, some logic which does not depend for its validity on a true/false bi-valent model, for example some quasi-modal logic, is likely to be what fits theology best. Some of the reasons follow, others will appear later.

4.

The treatment and status of beliefs.

4.1 It has been demonstrated by Prior¹⁰ that some of the puzzles about statements of belief – especially those about one's own beliefs – can be put into a quite simple predicate calculus and do not give rise to many interesting logical problems. However, using Bx for x believes that..., and p for *Socrates is mortal*, we may have a true statement:

Bxp < Xantippe believes that Socrates is mortal >

This is true when both p and Bxp are true.

But we cannot make substitutions for p and tell from the truth or falsity of p (alone) what the truth or falsity of the whole formula will be. Try these:

Bxp < Xantippe believes that Socrates is a fool > p is false but Bxp is true

Bxp < Xantippe believes that $E = mc^2$ > p is true but Bxp is false

Therefore, the rules for determining truth and falsehood, in this branch of modal logic, like in all modal logics, cannot follow the truth-table model.

4.2 The logic of belief might at first sight look like a necessary part of a logic of theology, particularly since all theologies depend on the particular set of beliefs of the religion, for the theological axioms. However, this is not the case. The logic of belief may assist in untangling problems such as how we can believe that we believe (or more commonly, believe that we doubt) but does not assist in a 'naturalistic' proof of theological axioms, nor in sorting out which theological

dicta may be proved from others. That is, there is no truth to be added to such a theological axiom such as *God created the world*, or *Every object has an inherent spirit*, by the statement that ten billion people believe that God created the world, or even that every person who ever lived has believed that every object has an inherent spirit. Nor will such statements help in the progression from *God created the world* to *God created every person*, or any piece of theological reasoning.

The logic of belief is developed by Prior's contemporary Hintikka in his *Knowledge and Belief*, (Hintikka 1962).

5.

The status and logic of commands (imperatives)

5.1 It has been suggested, notably by Alasdair MacIntyre (MacIntyre 1957, p.200–205), that the concept of authority is central to the nature (but not the content) of all religions. Firstly there is an authoritative set of rules about how people are to live and what their fundamental attitudes are to be. Secondly there may be an authoritative person and the 'authoritative witness to that person by others.' This latter idea he expands by saying that when a religious person says 'God loves', 'God creates', for example, no evidence is offered for these statements, such as the preponderance of love over indifference, but authority is offered instead. Examples of authoritative statements are:

- (i) The Bible tells us that God loves us.
- (ii) You have learnt how it was said: You must love your neighbour and hate your enemy. But I say this to you: love your enemy and pray for those who persecute you.¹¹

MacIntyre makes the acceptance of authority, rather than any particular set of beliefs, as the mark of a 'believer'.

MacIntyre says 'It is always open for a man [person] to make his own experience his authority and so become the founder of his own religion.' He suggests that in the case of new and inspired religions (mentioning George Fox, Martin Luther and Saint Paul) 'the relationship between experience and subsequent belief and behaviour is a non-logical one resembling the relationship between an imperative and obedience to it.'

5.2 By *non-logical* MacIntyre does not mean illogical, but rather not susceptible to tests for truth and falsity. He would have been aware of the work of Hare (Hare 1949) and Duncan-Jones (Duncan-Jones 1952) on the logic of imperatives. These philosopher/logicians tease out the relationships between assertions and closely related commands, such as 'The whole class *is* writing a hundred lines,' and 'The whole class *will* write a hundred lines.' Despite the fact that commands are neither true nor false (we talk of them as clever/stupid, wise/unwise, moral/immoral, legitimate/illegitimate, right/wrong) Hare asserts that commands can be inferred from each other – for example, 'No member of the class will be excused' can be inferred from the command which says the whole class will write... Duncan-Jones refines this with a set of rules about when a command is challenged and some justification given in an assertion. For example: 'Please pass me some matches.' (command). 'I have none.' (challenge to the command with an assertion). 'There is a box by your left elbow, so shoot them over, there's a good fellow.' (justification of the command by an assertion).

The ways this can be put into symbols need not bother us, but the conclusions are:

- CR1 From a series of assertions a further assertion may be deduced.
- CR2 From a series of commands a further command may be deduced.
- CR3 From a mixture of assertions and commands we may deduce a further command but not a further assertion.¹²
- CR4 From a series of commands it is never possible to deduce an assertion.
- CR5 From a series of assertions it is never possible to deduce a command.

A further look at these rules, and a 'possible worlds' model¹³ that helps makes the reasons for them clearer will be discussed in Ch 8. However, the rule with the greatest impact is rule 3, but it needs a bit of tidying up and it is probably best written

- CR3.1* From a mixture of assertions and commands we may deduce a further command but not a further assertion. (If it appears that an assertion may be deduced from a mixture, that concluding assertion may be deduced from the first assertions alone; the commands are not necessary to the deduction and can be put aside.)

5.3 This work on how commands and assertions can be combined in logical manners, the rules of combination being, however, more restrictive than those for manipulating propositions alone, has parallels in the combining of theological laws (dicta) and propositions of fact and ethics. The five rules of Duncan-Jones can be taken over by theology in the following, slightly more logical, form (splitting *CR3.1* into two parts, *FR3* and *FR6*; *ER3* and *ER6*):

FACTS AND THEOLOGICAL DICTA

- FR1* From a series of factual propositions a further factual proposition may be deduced.
FR2 From a series of theological dicta a further theological dictum may be deduced.
FR3 From a mixture of factual propositions and theological dicta we may deduce a further theological dictum.
FR4 From a series of theological dicta it is never possible to deduce a factual proposition.
FR5 From a series of factual propositions it is never possible to deduce a theological dictum.
FR6 From a mixture of factual propositions and theological dicta we may never deduce a factual proposition. (Any factual conclusion does not need the theological premises.)

ETHICAL LAWS AND THEOLOGICAL DICTA

- ER1* From a series of moral laws a further factual moral law may be deduced.
ER2 From a series of theological dicta a further theological dictum may be deduced.
ER3 From a mixture of moral laws and theological dicta we may deduce a further theological dictum.
ER4 From a series of theological dicta it is never possible to deduce a moral law.
ER5 From a series of moral laws it is never possible to deduce a theological dictum.
ER6 From a mixture of moral laws and theological dicta we may never deduce an ethical law. (Any ethical conclusion does not need the theological premises.)¹⁴

If we use p, q, r = factual propositions; m, n, o = moral laws; t, u, v = theological dicta, we might symbolise these laws this way:

<i>FR1</i>	$C Kpq r$	<i>ER7</i>	$C Kmn o$
<i>FR2</i>	$C Ktu v$	<i>ER8</i>	$C Ktu v$ (the same as <i>FR2</i>)
<i>FR3</i>	$C K pt u$	<i>ER9</i>	$C K mt u$
<i>FR4</i>	$NCKtu p$	<i>ER10</i>	$NCKtu m$
<i>FR5</i>	$NCKpq t$	<i>ER11</i>	$NCKmn t$
<i>FR6</i>	$NCKpt u$	<i>ER12</i>	$NCKmt u$

These 12 rules (actually 11 because *FR2* and *ER8* are the same) will be useful for checking the acceptability or otherwise of conclusions reached in theological talk.

5.4 The idea that once you embark upon a theological argument you must arrive at a theological conclusion is on a par with the idea that once you introduce a moral or ethical premise into an argument you must conclude with a moral proposition as conclusion. This idea is clearly set out by Charles Pigden (Pigden 1998) in an excellent commentary on Prior's book *Logic and the Basis of Ethics* (Prior 1949). In his commentary Pigden shows how Prior's re-stating of the debate between ethics based on moral axioms and the attempt to base ethics on non-moral assertions (as the Utilitarians attempted) depend on various logical assumptions; for example, the generally agreed assertion that you cannot get more out of a logical argument than you put in at the beginning. The result is that to get an ethical conclusion you must have at least one ethical assertion in the antecedent. Pigden points out that this fact about moral arguments and their correct logical progression is by no means surprising nor unusual. He invents the delightful illustration of arguing about hedgehogs – you cannot get a conclusion about hedgehogs in an argument that has nothing about hedgehogs in the antecedent. Naturally an argument of the form:

All mammals have four limbs.

Therefore: All hedgehogs have four limbs.

has a hidden (unstated) premise in the argument, namely

Hedgehogs are mammals.

The rule that theological conclusions must rely on at least one theological antecedent premise, is not as surprising as it first looks, seen in this light.

5.5 A whole book *Imperatives and their Logics* (Mountafakis, 1975) has been written to take account of the separate factors in a command – the relationship between the commander and the commanded, the time at which the order is given in relation to the situation or object it is to apply to, the order in which several commands are given, the joining or putting apart of commands, ('If the front window is open shut the door but if it is closed open the door, or open the other window, but not both.'), the acceptance and the performance, or otherwise, of what is ordered, and so on. A very unwieldy logic is erected.

5.6 Although MacIntyre's thesis that the willingness to accept the authority of the church or any religion's office holders, or even one's own revelations and insights, is more characteristic of a religion than the intellectual assertion of any set of beliefs, I am not persuaded that the introduction into a theology of a logic of commands will assist clarity of thought on theological issues. As with the logic of belief, the psychological state of the believer or the person commanded (who has put himself or herself under authority) has no bearing on the truth or otherwise of the theological dicta and the conclusions drawn from them.

The acolyte may say that she knows Allah is merciful because it is the teaching of Mahomet and not because she has any evidence of Allah's mercy. She has put herself under Mahomet's authority, (perhaps having had it revealed to her that this is the right and proper thing to do); Mahomet has (as it were) commanded her to believe that Allah is merciful, therefore she believes and asserts that Allah is merciful. This scenario has parallels in most religions and falls foul of the theological version of the Duncan-Jones rule 5. *From a series of factual propositions/moral laws it is never possible to deduce a theological dictum.* Our acolyte has deduced, by bad logic, that because she has accepted Mahomet's authority, and Mahomet has said 'Allah is merciful' (two factual propositions) then Allah is merciful (a theological dictum). In the symbols given above:

5. $NCKpq \ t$

It is such improper attempts to justify theological dicta that led me to abandon all attempts to do so when setting up a logic for theology and to start with theological dicta as axioms.

6.

Deontic logics and theologies

6.1 A quasi-modal system based on a deontic logic lying between D and S5 looks promising and is discussed in Chapter 4.

6.2 A logical basis for ethics: *Escapism*.

There is a fine logic for the basis of ethics (if not for the details, nor for legal systems) developed by Alan Ross Anderson and later, Arthur Prior. This logic, called *Escapism* (Prior 1958), has:

- (1) an undefined deontic concept for an unspecified 'sanction' s
- (2) s is such that ' p is forbidden,' (Fp) may be defined as ' p necessitates the sanction,' ($LCps$).
- (3) ' p is obligatory,' (Op) may be defined as 'the omission of p necessitates the sanction,' ($LCNps$).
- (4) This is then simplified further with another fixed proposition e which means 'escaping the sanction'.

See Chapter 5.

7.

A logical basis for theology: the *Theologic*

7.1 A logic developing the Priorian ethical logic will be constructed. It will require a concept involving a reward given by a God or gods (such as everlasting life, heaven, or material assistance during life), and a symbol for acquiring such a reward.

7.2 A Priorian interpretation of the strength of the resulting theologic will show how, in many religions, it may be used to argue without committing logical errors.

Conclusion

Theologies, particularly those for religions with a God or gods, can be clearly stated in axiomatic form. This form is their normal or natural state since all theological expansion must be through argument or more axioms. The expansion may contain factual as well as moral premises, even commands, but there must be theological premises among the antecedent parts of the arguments. These antecedent statements must in turn be theological axioms or derived from theological axioms by good logic. The axioms are the basic beliefs of the religion, held with neither natural nor empirical evidence.

The details of how one may proceed beyond the axioms, and the types of logic necessary, have been enumerated and will be further explained in the next two chapters, Chapters 4 and 5, before the logics are applied to the basic beliefs of several religions.

Notes and References

1. Since many religions have gods, *Theol. 4.* counts as part of a theology. This statement is commonly heard in conversation when the topic of 'religion' is brought up and there is quite a bit of non-systematic literature with such sentiments, including those associated with the idea of Gaia, or with re-modelling the Christian God as something you can hypothesise from 'the universe', or some such mental construct. There may be very few pantheistic 'worshipping groups'. In York (1995) an enormous number of 'New-Age' and 'Neo-Pagan' movements are categorised and re-categorised, and re-sorted but though many have pantheistic beliefs few have them in any 'pure' form, and those with worshipping groups seem more concerned with bodily and spiritual health and salvation than with worshipping the universe. It may be best to regard *Theol. 4.* as part of the theology of an 'imaginable' religion.
2. See Penrose, Roger, 1994. Penrose is concerned to adjust our understanding of how the mind works in the light of quantum theory. Philosophers and logicians who know the work of the later Wittgenstein and of Gilbert Ryle, particularly Ryle (1949) may wonder why Penrose expects to find some mechanism behind our brain – a perpetuation of the category mistake of 'the ghost in the machine'. However, Penrose is genuinely concerned to tackle the problem of free-will vs. determinism. Since quantum events are more accurately predictable than any other events in the universe (suggesting a determined world) but appear to have no causes (suggesting a random, even chaotic, world) Penrose wonders if the mind, with its spontaneity, intuition, self-consciousness, and our feeling that its decisions are freely arrived at, has quantum events running it. See, in particular, from part 8.6, (p. 406) which he begins by saying, 'The purpose of Part II of this book has been to search, within scientific explanation, for some place where subjective experience might find a physical home.' And later (page 411), 'In order that some kind of useful *non-computable* action can be involved – which I am taking to be an essential part of consciousness – it would be necessary that the system can make specific use of the genuinely *non-random* (non-computable) aspects of **OR**.' [OR stands for *objective reduction*, where considerable amounts of matter become entangled in the quantum state. 'Entangled' is a technical term for a state where, for example, changes in the polarity of one quantum-sized object in one place can 'cause' changes in the polarity of another, its entangled object, in a far distant place.]
3. See Watts, Issac, 1726, *Logick, or the Right Use of Reason in the Enquiry After Truth*, 2nd Edition, Volume II, ii, 4, London, John Clark and Richard Hett
4. See Lovelock, James, 1988, p.206. Lovelock is the founding figure in the movement to view the Earth as a living creature, referred to as Gaia. His ideas are examined in more detail in Chapter 13. The idea that theology is a science comes in the following passage: 'Theology is also a science, but if it is to operate by the same rules as the rest of science there is no place for creeds and dogmas...'
5. Contemporary pop-theologians are as prone to base their arguments on pseudo-science as the characters in Peacock's *Crotchet Castle* who all wanted to introduce their plans for the amelioration of the world's ills with the words, 'In the infancy of society...' For example, a modern preacher in my hearing said that the reason the nucleus of atoms, with their positively charged particles, did not fly apart (following the rule, 'like charges repel') was that God held them together; this proving, to his satisfaction, that God exists.
6. The following formulæ and 'translations' give an example of how a non-theological (in this case moral) law can be expressed in a deontic logic and be part of a piece of reasoning that results in a new theological law. Logicians will note that *O* <obligatory> is not used in the 'strong' sense (see later discussions).
 Universal domain; *x* = variable for people; ϕ = charges fair prices; ψ = is rightly punished; θ = is punished by God. *E* = if and only if (equivalence). *L* = necessary. *O* = obligatory.

Nth. 7.1.1 $\Pi xEO\phi xLEN\phi xO\psi x$ < for all *x*, if and only if it is obligatory that *x* ϕ 's, then, it is necessary that, if and only if *x* does not ϕ , then it is

obligatory that $x \psi$'s >
 < for all people, it being obligatory to charge fair prices,
 is equivalent to: it is necessarily-so that if and only if
 they do not charge fair prices, then it is obligatory
 (and right) that they be punished >

Theol. 7.2.1 $\Pi xEO\phi xLEN\phi xO\theta x$ < for all x , if and only if it is obligatory that $x \phi$'s, then, it is
 necessary that, if and only if x does not ϕ , then it is
 obligatory that $x \theta$'s >
 < for all people, it being obligatory to charge fair prices.
 is equivalent to: it is necessarily-so that if and only if
 they do not charge fair prices, then it is obligatory that God
 punish them >

It is interesting that these two, a moral axiom and a theological axiom have the same basic logical structure. From *Nth 7.1.1* and *Theol. 7.2.1*, we may move by ordinary propositional logic to the conclusion:

Theol. 7.2.2 $\Pi xCO\theta xO\psi x$ < For all x , if x is obligatorily punished by God, then x is
 obligatorily rightly punished >
 < For everyone, if they must be punished by God then they
 will be rightly punished. >

7. This insight is attributed to Xenophanes, c.550BCE. The easiest source for the quotation (another part of which appears on page 4) is Russell (1954) p.59.
8. See Barret, David (2001) *World Christian Encyclopedia*.
9. The Baha'i might be thought of as part of this group but I prefer to classify them as a modern version of Islam with an added, not fully incorporated, idea that all religions must be one, because all people are one. I take the Baha'i meaning of 'all people are one' to refer to moral behaviour; another meaning of 'all are one' would be to emphasise the idea that 'one-ness' of the universe includes people – a spin off from Hindu thinking and thus very un-Baha'i.
10. See the 'For Logicians' section of Chapter 2. Prior wrote a short paper for *Analysis* (Prior 1956a) called 'The Logic of Belief'. This was accepted for publication but the editor suggested that Prior might like to take account of several suggestions (now lost) by Peter Geach. Prior never got round to revising the paper – he had just returned to New Zealand and was in the middle of writing *Time and Modality*. Geach confirmed the correctness of Prior's logic but his comments concerned the 'colloquial' interpretation of the operators and suggested a modal operator and a new law to overcome the problem. The paper is in the Bodleian.
 However, many of the ideas in 'The Logic of Belief' reappear in a paper of Prior's in *Philosophy*, Vol. XLII, pp. 326–335, (Prior 1967b) called 'On Spurious Egocentricity'. This has much on the relevance of modal logic to the problem, but no proofs in symbolic form. A further paper on the topic is in *Noûs*, Vol.2, No.3, pp.191 to 207, August 1968 (Prior 1968) called 'Egocentric Logic' and this is made use of in Chapter 12.
11. The first statement has been made in innumerable sermons. The second is from the *New Testament*, Matthew 5:43–4.
12. It has been suggested to me by Dr. Ed Mares, in conversation, that in the logic of everyday we do allow assertions (commands) to mix with statements of fact when we argue, thus invalidating Duncan-Jones Rule 3. We do, loosely, 'argue' in this way:
 There is a fireworks display tonight on the harbour.
 Believe me!
 If we catch the 8 o'clock bus, John,
 we can watch them from the wharf.

However, it is clear that the 'Believe me!' is not part of the argument when it is put into logical form, but is an attempt to validate a fact when John raised his eyebrows. We can incorporate the 'Believe me!' into the argument but only at the expense of turning it into a long winded sub-argument without any commands in it, namely that I am telling you about the fireworks and that I always tell the truth, therefore it is true that the fireworks are on.

I am willing to say that we do, perhaps, elide sub-arguments into commands, and perhaps do other equally confusing things during ordinary conversation, but that is no reason to invent new rules (new logics) to incorporate such easily avoided complications when trying to think straight. Imagine having a new logic to deal with

All men are mortal
 Jump up and down!
 Socrates is a man
 Don't shoot till you see the whites of their eyes!
 Therefore Socrates is mortal
 Wash the dishes, dry the dishes, turn the dishes over!

As we will see later, the mixing of moral laws and facts in arguments is a very important part of life, as is the mixing of commands and facts – we cannot convert a car if we own it, we cannot shut the door if there is no door to shut – but the Duncan-Jones rules generally hold, as we will see.

Do the rules of Modal logics do the same job as the Duncan-Jones rules? This is a question which needs work by logicians.

13. My thanks to Max Cresswell for simplifications here and the 'possible worlds' model later.
14. A single example will suffice to show how foolish it would be to do otherwise:
 All good people deserve to be rewarded
 God rewards all good people
 Therefore, all rewarded people are good.

Chapter 4

The Logic Necessary for the Study of Theologies

Introduction

Propositional Logic as used in this thesis

The Predicate Calculus as used in this thesis

Advantages

Disadvantages

Modal Logic as used in this thesis

Validity for Modal Logics

The Web of Modal logics

Deontic Logic: an introduction

Introduction

All theologies contain a mixture of

statements about God or gods, even if only to deny that they exist;

statements about facts about physical objects, events, feelings, ideas;

statements about morals;

reasoning about all of these, leading to new (mixed) statements.

The reasoning (the logic) needs to be subtle enough to handle all of these types of statement and to produce conclusions which cover all cases and do not create a state of chaos. This chapter gives a quick and concentrated introduction to the inter-related symbolic systems that will do this. Note: the logic will guide us to conclusions we can trust, or will reject lines of reasoning, but will not decide on the worth of the statements on which the logic is used.

The symbolic notation used in this thesis is called 'Polish'. Its main characteristic is that the 'operators', that is the symbols that operate on others, come before, like English adjectives: *Good* boy; and verbs in commands: *Multiply* 7 and 6.

Symbolic Logic is too new a discipline to have settled down to a single symbolism. The following systems of notation can be encountered

- (i) Aristotelian logic as notated in medieval times; the symbols are often grouped *aAb*, *cEd*; etc.
- (ii) The symbol systems of innovators such as Frege which have not survived except in old books.
- (iii) Polish, like the 'Reversed Polish' of early Hewlett Packard calculators, is loved by some, hated by others; it has generally succumbed, like the HP calculators, to a more 'intuitive' arithmetical style.
- (iv) Variations of the systems of Peano and Russell, the 'infix' systems. Although dominant, they have almost as many variations as there are logicians, and mental symbol-switching is one of the necessary skills of making sense of modern logic notation. The formula in Polish

$\Pi xy C LpA\phi x MKK\psi ay Nq\Sigma z\theta z$

would be found variously written in 'infix' as

$(\forall x)(\forall y)(\Box p \supset (Ax \vee \Diamond((aBy \ \& \ \sim q) \ \& \ (\exists z) Cz)))$
 $(\forall x)(\forall y)(Lp \supset (\phi x \vee M((\psi ay \ \wedge \ \sim q) \ \wedge \ (\exists z) \theta z)))$
 $(x)(y): \Box p \supset .\phi x \vee \Diamond.\psi ay \bullet \sim q \bullet (\exists z) \theta z.:.$
 $(\forall x)(\forall y)(Lp \supset (Fx \vee M((Gay \ \& \ \neg q) \ \& \ (\exists z) Hz)))$
 $(\forall x)(\forall y)(\Box p \supset (Ax \vee \Diamond((Bay \ \& \ q) \ \& \ (\exists z) Cz)))$

Rod Girle
Hughes & Cresswell
Russell (plus Lewis)
Twootie (ascii based)
Bergman, Moore and Nelson

Of course I recommend Polish, tidy and easy to read once you get used to it. However, I must otherwise admit that the symbols of New Zealanders Girle, and Hughes & Cresswell, are readily understood, reasonably universal, and Girle's texts are easy to read. Those of Bergman *et al* in *The Logic Book*, are used in modified form by proof engines¹ (computer programs that can test logical arguments) and therefore useful to understand. Twootie, mentioned just above, is one of those engines. Logicians who use infix notation will, no doubt, curse my Polish, but the symbols systems are interchangeable. A crib is available as Appendix 6. Theologians may require only the material in pointed brackets.

Most formulae get a number as a name, for easy reference. These numbers do not, generally, stick beyond the section or chapter in which the formulae are being currently used, so any particular formula may well have a different number in another chapter. There is no universal numbering/naming system, though several formulae in constant use do have common names.

All logical formulae and their number/names are here put in italics, to help distinguish them.

This thesis will assume that the reader has almost no knowledge of modern logic and will spell out, inside pointed brackets < thus and so >, firstly 'translations' and secondly, examples, which will, I hope, be useful and sufficient for the theologically inclined reader. However, it also assumes that those interested in the symbolic logic have a grasp of propositional logic, the lower predicate calculus and some acquaintance with modal logics, and will, therefore, not need explanations of what is going on in the symbols – which is relatively simple. For those who are without symbolic logic and who feel that I have made my point about logic being useful for theology I recommend any stage-one university course as long as it does not spend much time on Aristotelian logic, and the texts of Rod Girle for all three branches, propositional, predicate and modal.

Occasional explanations of the logic will be given where short cuts are being used. However, at almost every turn logicians will be asking what are the assumptions about the scope or power, or validity of the particular logic I am using. On the whole I will be very Priorian, particularly, and for example, in accepting the paradoxes of implication. Arthur Prior always had the attitude that the key 'truth' for implication was that from a false statement anything at all could follow, false or true. We might like to re-phrase that and say that once you invent a world in which impossible things happen then nothing about that world can be certain. This is a truth the writers of 'fantasy' novels have yet to grapple with and the reason why so many fantasy novels have no drama – anything could happen and why so many ordinary things happen is unexplained.

Of other matters, such as logics developed so that the *meanings* of propositions (and not just their truth and falsity) are relevant to the validity of laws, I must, from lack of knowledge, ignore. Other people may (and should) examine my arguments and conclusions and see if they are valid in other logics.

A great deal of work has gone into examining the relationships (or lack of them) between natural languages (such as English) and logical languages (such as the predicate and modal calculuses). Such an interest can be thought of as basic to 'applied' logic. For example, when using logic to examine theological arguments expressed in a natural language such as Latin, or the new arguments, in English, of theoretical theologies, the symbols must reflect the meaning the natural language is expressing. This work on the relationships can be thought of as the successor to the logic of the Schoolmen. However, the 'pure' logics of logicians inventing new logics for fun (Slupecki's invention of an operator T with a three-valued value of $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ to make a strongly complete extension of Wajsberg's System, is the sort of thing I am thinking of) may be the way to go when looking for a unique logic for a unique, otherwise unrecognised, god.

Comments for logicians will be reasonably clearly differentiated from the main flow and can be ignored, within reason, by other readers. However, my prejudices and shortcomings will be clear to logicians throughout.

Propositional Logic as used in this thesis

Propositions:

All statements, that is, whole sentences containing a subject and predicate, are called in logic, propositions. They are represented by the lower-case letters $p, q, r, s, t \dots$

Operators:

These use upper-case letters, $A, C, D, E, J, K, N.$, and are of two sorts

(a) those that operate on one proposition at a time.

For example,

N <it is not the case that> or more usually just <not>. $Np = \text{Not } p$

There are more in Modal logics but N is the only one in the propositional calculus.

(b) those that operate on two propositions at a time, joining them together according to some rule.

For example,

C <if ... then ... > or, just as commonly, <... implies ... >.

Rule for C

$C \text{ true, true} = \text{true}$
$C \text{ true, false} = \text{false}$
$C \text{ false, true} = \text{true}$
$C \text{ false, false} = \text{true}$

Or set out
as a matrix

C	t	f
t	t	f
f	t	t

It is just as common for true to be represented by the number 1 and false by the number 0.
Thus the same rule for C is usually written out thus:

Rule for C

$C \ 1 \ 1 = 1$
$C \ 1 \ 0 = 0$
$C \ 0 \ 1 = 1$
$C \ 0 \ 0 = 1$

Or set out
as a matrix

C	1	0
1	1	0
0	1	1

C is the most commonly used operator, partly because implication is the most commonly used logical idea. The rule for C is that a true antecedent may never imply a false consequent. Put another way, a false statement may imply anything at all, true or false (the idea of chaos) but from truth, truth must follow.

Other operators include

A <either ... or or both >

K <both ... and ... >

E <if and only if ... then ... > <iff ... then ... > <... is equivalent to ... >

Less common are

J <either ... or ... > (a rather more usual sounding either/or)

D <not both ... and ... >

X <neither ... nor ... nor both >

The 'logic gate' in a computer called a 'nor-gate' functions like this operator, X . In infix, ' $\downarrow$ ' (called 'Peirce Arrow'²) is used. D , written ' $|$ ', is called a 'nand-gate'.

Any formula made up of operators and propositions needs to be ‘well-formed’. Any proposition on its own or with N in front is a well-formed-formula (is a wff). Thus p is a wff, and so is Np , although they are not able to do anything on their own. $CNpq$ is a well-formed-formula since the N applies to the p and C joins the Np to the q . However, $CprN$ is not a wff since the N is not attached to a proposition; $Cpqr$ is not a wff since the C operates on p and q but not on a third item, r , which, if you like, is left dangling in space. However $CCpqr$ is well-formed, (see the next paragraph).

Rule 1. Substitution:

p/q , $\langle p$ is replaced by q , throughout $\rangle$ $\langle$ for p put q $\rangle$

$$CCpqCCqrCpr, \quad p/q = CCqqCCqrCqr$$

Laws:

The following wff is NOT a law:

Cpq < if p then q > < if God is in his heaven, then all is right with the world >
 < if God is in his heaven, then all is wrong with the world >
 < if there is no God, then all is right with the world >.

The following is a law:

C_{pp} < if p then p > < if God is in his heaven, then God is in his heaven >
 < if God is not in heaven, then God is not in heaven >
 < if the moon is made of cheese then the moon is made of cheese >.

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Rule 2. Detachment:

This rule is also called *Modus Ponens*, (*MP* for short) from the Latin 'the affirming mood'. If a law implies a wff then the wff is also a law and may be detached and stand alone as a new law. This rule is usually written

$$\alpha, C\alpha\beta \rightarrow \beta,$$

and in Polish is written briefly in proofs as '—'.

For example:

1. <i>Cpp</i>	< if something is true it is true >
	This is a law, and often called the Law of Identity
2. <i>CCppCpCqp = C 1. — 3.</i>	This longer law is made up of <i>C</i> joining the law 1. to a wff
	therefore the wff (3.) may be detached as a new law
3. <i>CpCqp</i>	(the new law) < whatever is true is true no matter what >.

Testing a formula for logical truthfulness (validity, truth or falsity).

There are three main methods:

(a) A semantic test: This sort of test relies on the 'meanings' of the symbols. Ordinary usage has remarks such as, 'does it ring true?' or 'is this normally what we mean by the words?' or 'is it intuitively obvious?' Professional logicians are not particularly keen on such a rough and ready, unsystematic sort of test and have developed very sophisticated semantic tests. Since Prior's day, for example, there are proofs using the model of possible worlds. The word 'semantics' has a specialist use in logic, referring to the principles which determine the truth-values of formulæ in a logical system.

There is a sub-class of this type of 'proof' which is, however, vitally important to type (c) below, and to many sciences, including the 'science' of theology. Some laws are accepted as true without proof; these include the basic tenets of all religions, morality, and even aesthetics. And some laws are accepted as true until proved otherwise; these include all the laws of the empirical sciences, for example, the laws of motion, the laws of electromagnetics, the laws of Darwinian evolution, the laws of human behaviour in psychology and sociology. As evidence mounts up, scientific laws, at first accepted as theories awaiting proof, become more and more likely, or are exploded and abandoned. In logic all laws accepted without proof are called *axioms*, and finding a set of intuitively obvious axioms for any logical calculus is a plus; finding a set from which everything you want to prove, and which will exclude everything you do not want in your calculus, is a logician's ideal.

(b) The use of analogy: The symbols are given 'values' according to a strict and consistent substitution rubric. If the substitutions, no matter how permuted, always result in one chosen answer, then the wff is deemed 'a valid law'. This process works for axioms as well as derived rules or laws. There are two main ways of doing such proofs:

(1) *Truth Tables.* Tables of all the permutations of possible true and false for the formula you are testing are laid out in a table. A very simple table is shown for the symbol *C* in the section *Operators*, just above. If every permutation gives the answer *true*, the whole is accepted as true. An ordinary language example points to why this sort of test by analogy is a correct way validating a law: 'If Richard Nixon was telling the truth then I'm the Queen of Sheba.' We recognise the truth of such an argument although both the propositions ('Richard Nixon was telling the truth', and, 'I'm the Queen of Sheba') are patently false. Logical laws can handle false propositions with no difficulty.

(2) *Tree Proofs*. (Also called *Semantic Tableaux*.) Instead of laying out all the possible permutations of true and false some can be ignored and only those likely to give the result *false* are examined. Better still, if the *denial* of those permutations which give *false* is true, then the whole formula you are testing is true. The name is because such a proof involves branches and when laid out it looks like a tree. Such a method relies on the idea of *reductio ad absurdum* and some logicians are doubtful about this process. The longer truth tables can then be used.

Both truth tables and tree proofs can be done by computer programs³ – they are, after all, mechanical processes – but learning how to use the programs takes extra time on top of learning how to do the proofs on paper. A short introduction to ‘proof engines’ is in Appendix 4.

(c) **A proof test:** the ‘law’ or theorem is proved from previously agreed axioms following previously agreed operations.. Note that the ‘meanings’ of the symbols, including their truth or falsity, do not enter into this process. Here is a proof:

- Axiom 1.* $CCpqCCqrCpr$
Axiom 2. $CCCpqp$
Axiom 3. $CpCqp$
Rule 1. Substitution
Rule 2. Detachment
 1. $q/Cqp = 4.$
 4. $CCpCqpCCCqprCpr$
 4. $= C 3. - 5.$
 5. $CCCqprCpr$
 5. $q/Cpq, r/p = 6.$
 6. $CCCCpqpCqp$
 6. $= C 2. - 7.$
 7. Cpp

Other common and well understood short-cuts help, such as these definitions:

$$Apq = CNpq; \quad Kpq = NCpNq; \quad Epq = KCpqCqp$$

Many are the other logics which can be built up in the propositional calculus and many are the philosophical puzzles that remain. For example it may seem strange that this logic accepts as a true inference:

If New Zealand was bombed in 1990 then Bach was the greatest European composer of the eighteenth Century.

Such an odd-sounding implication seems better when you say, ‘A false proposition implies anything at all.’ But only better, not perfect. Logicians who wish to avoid such odd ‘implications’ have started new branches of logic called ‘Intuitionist’ and ‘Relevance Logic’.

And what is to be done about propositions which stay true only for short times? For example:

I am having muesli for breakfast

And what are we to do about our instinctive ‘logic’ that allows us to accept the laws of substitution and detachment without comment or qualms – what are the rules and assumptions of this ‘meta-logic’ or ‘second-order’ logic? Such investigations are a major branch of the further reaches of ‘pure’ logic.

The Predicate Calculus as used in this thesis

Although Aristotle used what the logicians call *singular terms*, modern logics prefer to start by dealing with full sentences, calling them *propositions*. Extending the propositional calculus in order to deal with singular terms, names and predicates was begun by adding two notions that are found in Aristotle – the idea that is summed up in the word ‘All’ in ‘All men are mortal’; and the idea that is summed up in ‘a’ in ‘Socrates is a man’. In Polish notation these are expressed with Π and Σ . They are usually called the *universal* and the *existential quantifiers* and translated as ‘all’, and ‘some’ (or ‘there is at least one’).

Arthur Prior occasionally applied the quantifiers to whole propositions when the meaning was not obscure and would write

$$C \Pi p p \Sigma p p \quad < \text{if for all } p, p; \text{ then for some } p, p >$$

but even in his day this was rare.

The predicate calculus nowadays has:

- (1) The whole of the propositional calculus, operators, variables, and rules, plus
- (2) *Noun variables*, the letters $x, y, z \dots$
- (3) *Noun (name) constants* which are the names of people and objects. In Polish, $a, b, c \dots$
- (4) *Predicate (verb) variables*, in Polish and some infix systems, the Greek letters $\phi, \psi, \theta, \dots$

Intransitive verbs take only one noun variable or constant:

$$\phi x \quad < x \text{ falls} > \qquad \phi a \quad < \text{Abigail falls} >$$

Transitive verbs take more than one, which in Polish follow the verb:

$$\phi xyz \quad < x \text{ connects } y \text{ to } z > \qquad \phi abc \quad < \text{Ani gives button-B to Ceredig} >.$$

- (5) *Quantifiers*. They must take (‘bind’) a noun variable. In Polish they come before the variable they modify; if they come before an operator they bind the named variable wherever it occurs within the ‘scope’ of the operator:

$$\begin{array}{ll} \Pi x \phi x & < \text{for all } x\text{'s, } x \phi\text{'s} > \quad < \text{all } x\text{'s } \phi > \\ \Pi x C \phi x \psi y & < \text{if all } x\text{'s } \phi, \text{ then } y \psi\text{'s} > \\ \Pi xy C \phi x \psi y & < \text{for all } x\text{'s and all } y\text{'s, if } x \phi\text{'s then } y \psi\text{'s} > \\ C \Pi x \phi x \Sigma x \psi x & < \text{if all } x\text{'s } \phi, \text{ then some } x \psi\text{'s} >. \end{array}$$

You may have Predicate Calculus laws with just variables (for nouns and verbs) and the usual propositional operators. But if the variables are not bound by quantifiers, because they give no certainty about how the names and predicates are to be interpreted, and because they are just propositional calculus laws with the propositional variables made (unnecessarily) complex, they are not of interest in the predicate calculus except as starters for more interesting laws. Furthermore, it is not until all variables are bound that the whole formula (wff) can be tested for truth and falsity. (Russell and Whitehead called incompletely bound predicate formulae ‘propositional functions’ – a confusing terminology.) Noun constants, on the other hand behave like quantified variables.

There are four rules about when you may add quantifiers, two for Π (the ‘universal’ quantifier) and two for Σ (the ‘existential’ quantifier) and the proper use of these rules avoids producing nonsensical or chaos-generating laws. Using an $\rightarrow$ below, and α and β , is to show how the rule allows you to go from theorem to theorem is to avoid confusion with ordinary implication, C .

Rule $\Pi 1$	$C \phi x \beta \rightarrow C \Pi x \phi x \beta$	
Rule $\Pi 2$	$C \alpha \phi x \rightarrow C \alpha \Pi x \phi x,$	for x not free in α
Rule $\Sigma 1$	$C \phi x \beta \rightarrow C \Sigma x \phi x \beta,$	for x not free in β
Rule $\Sigma 2$	$C \alpha \phi x \rightarrow C \alpha \Sigma x \phi x,$	unrestrictedly

(6) The Domain of Discourse

The whole universe is often too unwieldy a set to deal with in everyday and applied logic, therefore, the universal quantifier, Π , is usually restricted to a set of objects, defined beforehand. This puts limits on the noun variables, which may stand for any of the set of objects, and on the noun constants which name only the objects in the set. The predicate operators will also be restricted.

The reason for such domains can be seen in the following examples, where what appears to be the same theorem is used in different domains:

Example 1: Domain = all the gods of all religions; ϕ = are just; ψ = are merciful;
 a = Athena; b = Brynhild.

Theorem: $FC K \Pi x \phi x \Sigma x \psi x A \psi a \psi b$ < if all the gods are just and some are merciful
then either Athena is merciful or Brynhild is
merciful or both are >.

This is false because Athena and Brynhild may well be just, but neither be merciful.

Example 2: Domain = all the gods of Zoroaster; ϕ = are just, ψ = are merciful;
 a = Ahura-Mazda; b = Angra-Mainyu.

Theorem: $C K \Pi x \phi x \Sigma x \psi x A \psi a \psi b$ < if all the gods are just and some are merciful
then either Ahura-Mazda is merciful or Angra-
Mainyu is merciful, or both are >.

As long as it is correct that Zoroastrianism has only two gods (any others being only heroes like Rustem or spiritual beings without the status of gods) then this (the same) theorem is true.

Advantages

The great advantage of the predicate calculus over the propositional calculus is in subtlety. For example, predicate logic can express different ideas about the same subject matter. For example, once we have established the domain and the meanings of operators and variables, predicate logic can quickly express the relationships between people:

Domain = people; γ = is a girl; β = is a boy; λ = loves; x = girls, y = boys; b = Bob, c = Catherine

$\Pi xy C \gamma x C \beta y \lambda xy$	< all girls love all boys >
$\Pi yx C \gamma y C \beta x \lambda yx$	< all boys love all girls >
$\Pi x C \gamma x C b \lambda xb$	< all girls love Bob >
$\Sigma y K \beta y \lambda cy$	< Catherine loves at least one boy >.

Here is a more complex example, from science:

Domain = sub-atomic physics; ϕ = is an electron; ψ = is a proton, θ = is attracted to; x and y are variables. Now we can symbolise the difference between:

$\Pi x C \phi x \Pi y C \psi y \theta xy$	< if every x is an electron then, if every y is a proton, every electron is attracted to every proton > < every electron is attracted to every proton >
$\Pi x C \phi x \Sigma y K \psi y \theta xy$	< if every x is an electron then, both some y is a proton and every electron is attracted to a y > < every electron is attracted to some proton >
$\Sigma x K \phi x \Pi y C \psi y \theta xy$	< both some x is an electron and, If every y is a proton then some x is attracted to every proton > < some electron is attracted to every proton >
$\Sigma x K \phi x \Sigma y K \psi y \theta xy$	< both, some x is an electron and, Both some y is a proton and some electron is attracted to some proton < some electron is attracted to some proton >.

The introduction of a noun constant, g , may be a useful way of adding God, or a god, to predicate formulæ.

Earlier logicians called fixed *predicate* constants 'modes'. For example, 'It is necessary that', 'It is believed that', 'It is said that', 'It is forbidden that', were given as examples of '...Modes or manners in which the predicate is attached to the subject'⁴; hence Modal Logic was invented. However, there are many more modes now recognised, and Physics, Biology, Mechanics, Psychology, Chemistry, Geography, and indeed all the sciences might be said to have their own modal logics following on the fixed usages of verbs (their own special predicate constants) which their logics must handle.

Disadvantages

As a consequence of allowing formulæ which are valid for one domain of discourse but invalid in another, the predicate calculus is not 'strongly' complete. Although it can be proved whether a formula is in the calculus or not (if it is in, it is valid) it cannot be proved that a formula that is outside (is invalid) will, if introduced as an axiom, bring the whole edifice crashing down. This weaker form of completeness can be lived with.

Although it is comparatively easy to symbolise and find rules for the quantification of name variables – this branch of logic is called the *lower* predicate calculus – it is quite difficult to work out the rules for the quantification of verbs – this branch being called the *higher* predicate calculus. This difficulty with the *higher* predicate calculus makes it inappropriate for a theologic, at the level introduced here.

Note that a predicate calculus formula with only some of its name variables quantified has to be read quite differently from one which is fully bound and such formulæ, with unbound variables, are best regarded as not well formed in the predicate calculus, as used here and, therefore, never allowable.

Modal Logic as used in this thesis

Modern symbolic *modal* logic was invented to deal with concepts such as possible, necessary, and impossible, but has a long history back to Aristotle and later with the Schoolmen. It quickly grew in the 1900s to be a branch of logic which has branches of its own: a recent text⁵ mentions 70, including the 'last' (called Triv, for 'trivial') in which the system collapses back to the ordinary propositional calculus. In fact it can be proved that there are an infinite number of them. Modal logic was found to have other applications than sorting out possible and necessary, for example, a logic for morals with 'obligatory' and 'permissible' as its key concepts is a part of modal logic (see below) and Prior's logic of time is also a modal logic.

In Polish notation L stands for necessary, M for possible; impossible is written as NM < not-possible >. Many authors who use an 'infix' notation also use L and M , others use $\square$ and $\diamond$. Usually L is introduced as a 'primitive', undefined concept, and M as shorthand for NLN .

If you know the truth or falsity of the propositions in an argument you can know, very quickly, the truth or falsity of the whole argument. For example:
two propositions p and q , one true, one false:

p < Brutus killed Caesar > = 1 = true
 q < Anthony killed Caesar > = 0 = false

and several different arguments tested with truth tables:

Kpq < both Brutus killed Caesar and Anthony killed Caesar > = $K10$ = 0 = false
 Jpq < either Brutus killed Caesar or Anthony killed Caesar > = $J10$ = 1 = true
 Cpq < if Brutus killed Caesar then Anthony killed Caesar > = $C10$ = 0 = false
 Cqp < if Anthony killed Caesar then Brutus killed Caesar >
< from a false statement anything at all can follow > = $C01$ = 1 = true.

We may introduce modal operators for ideas such as necessity/possibility; obligatory/permissible; believes/doubts; asserts/no-comment; attracts/neither attracts not repels; nurtures/ignores; agreed/undecided; it is said by the ancients/ it is not denied by the ancients... However, when we do, then we cannot decide the truth and falsity from the *propositions and the operators*. Here is an example, using

B = Napoleon believed that, and p for a true proposition, p = Brutus killed Ceasar.

6. $CpBp$ < if Brutus killed Caesar then Napoleon believed that Brutus killed Caesar >.

We cannot deduce the truth or falsity of

Bp < Napoleon believed that Brutus killed Caesar >

from the truth of

p < Brutus killed Caesar >

after all, Napoleon may have had some quite different theory about who or what killed Caesar.

Therefore we cannot decide the truth or falsity of the whole argument,

6. $CpBp$ < if Brutus killed Caesar then Napoleon believed that Brutus killed Caesar >.

Even more unlikely and impossible substitutions for p in 6. quickly occur to one:

p = Princip killed the Grand Duke Ferdinand in 1914, gives us

6. $CpBp$ < If Princip killed the Grand Duke, Napoleon believed that Princip killed the Grand Duke, (despite Napoleon being dead at the time, long before 1914) >.

Some other way will have to be found to deal with the reliability of modal arguments such as $CpBp$.^{6,7}

The effect of substitutions in modal formulae is another problem; for example:

7. $CKpqKqp$ < if both p and q then both q and p >.

7. $CKpqKqp$ is a law of the propositional calculus. It may have any two propositions for the variables p and q substituted into it out of the infinite number of propositions there are, and remain true. Take two widely differing propositions and do some substitutions:

7. $CKpqKqp$ p /all pigs are four footed; q / it's a lovely day tomorrow = 7.1

- 7.1 If pigs are four footed and its a lovely day tomorrow, then, its a lovely day tomorrow and pigs are four footed.

We still have a true law. Now try this with a moral law such as 'It is forbidden to kill others':

8. $\Pi xON\phi x$ <for all x it is obligatory that x does not ϕ >

8. $\Pi xON\phi x$ x / a person, ϕ / murder, = 8.1

- 8.1 For all people it is obligatory that they do no murder .

But try some other substitutions:

8. $\Pi xON\phi x$ x / a shoe, ϕ / calculate the square root of pi = 8.2

- 8.2. For all shoes it is obligatory that they do not calculate the square root of pi.

or, worse still see the effect of this substitution:

8. $\Pi xON\phi x$ x / people, ϕ / leave other people alive = 8.3

- 8.3 For all people it is obligatory that they do not leave other people alive.

Because substitutions give invalid results in modal logics, modal logics are often called '*intentional* logics' in contrast with propositional and predicate logics which can be *extended* by substitution without affecting their truth value, and are therefore called '*extensional* logics'. A confusing nomenclature.

Therefore, another way of deciding how reliable (valid) modal logic's formulae are, will have to be found. Modal logics used to be validated by using many-valued interpretations (going some way to finding finer scales than just true/false) but now the idea of 'possible worlds' has been found more useful.

Validity for Modal Logics

For modal propositions, determining their truth involves having a clear idea of what sort of world we are talking about. Again using an example from the logic of morals, the moral world of ants

makes it obligatory for worker ants to feed the young and forbids soldier ants from feeding the young; however, in the human world (ignoring the few exceptions) it is permissible for all people to feed all children, and it is obligatory only to feed your own young. Using O = obligatory and P = permissible and F = forbidden and θ = to feed, we symbolise these rules thus:

For ants	$\Pi y K \Sigma x O \theta xy \Sigma x F \theta xy$
For people	$K \Pi xy P \theta xy \Sigma xy O \theta xy$

Different moral worlds, different moral (modal) laws are true.

To find universal moral truths would involve looking at all possible worlds for universal moral truths. Similarly, to find universal truths about L <necessary> would involve looking at all possible worlds for universal truths involving this concept.

In the case of M <possible>, it is a shorter quest:

$CpMp$ < if p , it is possible that p >
 < if roses are green it is possible that roses are green >.

We have to find only one world where the law (not just the proposition, which can be true or false) is true in order to label it a universally valid modal law. The case of L <necessary> may seem much more difficult, but there is a set of laws which are universally true, namely the laws of the propositional calculus. This means that we can have as a rule of modal logic that:

RN. If α is a law of the system, so is $L\alpha$ < 'RN' for 'Rule of Necessitation' >

We can imagine, or 'see' in the mind's eye, other worlds and the situations upon them; for example we can work out what it would be like on (or 'in') a world inhabited entirely by ants. Ants may not be able to imagine what it would be like in a world with no ants, that is, in a world that worked to different moral rules. Humans, to state the obvious, *can* imagine what it would be like in a world with creatures that do not, as far as we know, exist. These are the realms of six legged tigers, sentient fish, and space travel via 'worm holes', the realms on which *science* fiction writers 'report'. However, writers of *fantasy* novels and stories, by haphazardly using magic in their imaginings, break logical rules, and their worlds are not even *possible* worlds.

The 'logic' (actually the meta-logic or second-order logic) of possible worlds used for the validation of modal logics uses the terminology of possible worlds: for worlds usually w, w', w'' , etc., and W for a class of such. The idea of being able to see, or imagine, other possible worlds from each other does not need to be more than some unnamed relationship between worlds, but it is usually called *R accessibility*⁸ so that wRw' means world w' is accessible from world w . The particular set of worlds accessible to each other in a system (for example, the worlds where a particular modal logic applies, say, ant morality) is symbolised as $\langle W, R \rangle$ and called a frame. A further symbol, V , can be set to $V=1$ or $V=0$ (true or false) and added to a frame gives a model $\langle W, R, V \rangle$. Here is how the way C works when thus described:

VALIDITY TEST FOR C : For any wff α and β , and for any world w which is a member of the set of worlds W [$w \in W$], $C\alpha\beta$ is true in that world [$V(C\alpha\beta, w) = 1$] if either, α in that world is false [$V(\alpha, w) = 0$] or β in that world is true [$V(\beta, w) = 1$]; otherwise $C\alpha\beta$ is false [$V(C\alpha\beta, w) = 0$].⁹

That is a new way of describing exactly what happens in the propositional and predicate calculuses. More interesting, perhaps, is the possible world way of describing what L <necessary> does:

VALIDITY TEST FOR L : For any wff α , and for any world w which is a member of the set of worlds W [$w \in W$], $L\alpha$ is true at that world [$V(L\alpha, w) = 1$] if for every world [$w' \in W$] accessible from w [wRw'] α in that world is true; otherwise $L\alpha$ is false [$V(L\alpha, w) = 0$].

The Web of Modal Logic

The most basic modal logic is known as 'K' (after Saul Kripke). It contains all the ordinary Propositional Calculus (with quantification if so required) plus a single new axiom and a single new rule.

The axiom is:

- K. CLCpqCLpLq* < if it is necessary that p imply q then necessarily p implies necessarily q >
 < if to be an insect it must have six legs then if this creature is definitely an insect it must definitely have six legs >
 < if it is part of God's unchangeable nature to be good then if you recognise God in some action that action will also be good >.

The new rule has already been introduced, and is called the Rule of Necessitation:

- RN.* If α is a theorem then so is $L\alpha$. < If α has been proved then it is necessarily true >.

Although K is the most basic modal logic it has some difficult characteristics and 'stronger' modal logics, which contain laws which K does not, are built on K. For example, the modal logic K does not contain the modal law

- T. CLpp.* < if p is necessary then p exists (is, must be...) >

This may be added to K and doing so expands the number of laws provable; thus it is called a 'stronger' system than K alone. The new system is named T (after Taski). One of these laws provable in T is

- D. CLpMp* < if p is necessary then p is possible >

which turns out to be the key extra law which must be added to the basic K to get Deontic logic – the logic for morals. Therefore D is not in K but it is in T, and when drawing a chart of which systems are stronger than others, D is between K and T.

Among the interesting puzzles which the development of modal logic reminds us about is this: there are ordinary language remarks in which we have to iterate (repeat or ‘double up’) our modal operators. The following example is from many a judge on the bench: ‘It is important to uphold the rule of law in general, even when that means keeping a foolish law.’ This has a modal version in

- It is not too difficult to understand a moderate amount of iteration, but it is also very easy in weak modal logics to do simple substitutions which pile up great rows of modal operators which we have no way of turning into understandable ordinary language. Two stronger modal systems, known as *S4* and *S5*, deal with iteration with these two distinctive additional axioms:

- S4 allows us to bring all iterations of L (or M) down to a single instance. Thus K3. $LL\Box\phi x$, with its iterated L , in S4 (and any stronger modal system) implies the simpler K4. $L\Box\phi x$.

Deontic Logic: an introduction

The characteristic axiom of K , in the previous section, gets re-written in D as:

- It is a little hard to see what an obligatory implication (*OC*) is, but it seems to mean, here anyway, something a bit like inevitability, though the theist might prefer it to mean 'a consequence God decrees', hence:

DK1. COCpqCOpOq < if God decrees that sin leads inevitably to hell, then being obliged to sin will mean you are obliged to go to hell >.

The Rule can keep its name, *RN*, but will be in *D* as:

RN. If α is a theorem then so is $O\alpha$. < If α has been proved, then it is true, obligatorily >.

The new axiom, the one that characterises the system *D* is:

D1. CLpMp < if p is necessary it is possible >. This is often attributed to Leibnitz.

In its Deontic form this is:

DD1. COpPp < if p is obligatory then p is permitted >
< if you must feed the hungry then feeding the hungry is permitted >

This is something akin to Kant's dictum: 'What I ought I can.'

There is a problem with the deontic version of *T. CLpp*, namely

DT1. COpp < What is obligatory is done >.

I will return to this in the next chapter.¹⁰

Another awkwardness of the translation of the symbols into English, and visa-versa, is a missing symbol for one meaning of 'permitted'. We can see the notice by the pool saying 'Swimming permitted.' and it means both, 'You may swim (It is not forbidden).' and 'You may stay ashore (It is not obligatory to swim.)' We have an expression which combines these more clearly: 'it is indifferent (to the by-laws) whether you swim or not.' *P* is the shorthand version of *NF* so *P-swim* means: It is not-forbidden to swim. *P* is *not* the symbol to use if you want to say *NO* < It is not obligatory to swim >; I use *B* for that meaning.

In medieval time handy diagrams set out the way these various translations were related.

Deontic logic has, in 2001, a long way to go in its development to be particularly helpful to the law and lawmakers. However, it provides a basis for a look at the logical basis of religions, and therefore it will be further developed in Chapter 5.

Conclusion

The logics necessary for finding and checking the logical moves made in theologies are few:

propositional logic;
predicate logic, which is an extension of propositional logic;
modal logic, which is an extension of propositional, and sometimes predicate logic as well;
deontic logic which is a branch of modal logic.

As an example, in Appendix 1, there is a logical examination of an evangelical Christian tract, handed to me on a Wellington street. I found that the theological arguments in the tract – and it is full of them – use (and misuse) propositional and predicate logic almost exclusively.

As we will see, there are other logics which can assist thinking in theologies. Two, which interested Arthur Prior, I explain and use in later chapters, namely *Escapism*, a logic for moral thinking, and *Egocentric* logic for avoiding nouns and making verbs the basic units in logical progressions. In particular I build upon Escapism to delineate how a new logic for theology, which I call the *Theologic*, might be helpful to a great number of theologies, actual and imagined, including not just Christian and those springing from Christian roots, but even religious thinking where there is no supreme being.

Notes and References

1. See Appendix 4
2. This is a rare example of humour by logicians (Charles Dodgson excepted) since the name refers to both the famous early American logician, Charles Sanders Peirce, and to a notable American car manufactured in the 1920s.
3. See Appendix 4
4. See Isaac Watts (now mainly known as a hymnist) in his *Logick*, II. ii. 4
5. *A New Introduction to Modal Logic*, Hughes and Cresswell (1996)
6. These examples modified from Hughes and Cresswell (1996) p. 5.
7. There are moments when it does appear that logicians are saying that $CLpp < \text{If } p \text{ is necessary then } p \text{ is (true) } >$. $CLpp$ is, in fact, the defining axiom of the modal system T (see below). However, the $L <\text{necessity}>$ here is the necessity of logical laws, that is, it is saying that inside this system logical laws are laws - all logical laws are necessary and if p is necessary it (the simple p) has an existence by virtue of being one of these immutable facts.
8. Arthur Prior with Carew Meredith wrote in 1956 *Interpretations of Different Modal Logics in the 'Property Calculus'*, based on an earlier 1954 paper by Prior. Peter Geach, in 1960, suggested to Prior that the 'property' (an unexplained relationship, U) could be explained as a relationship of accessibility between worlds. Prior said that Geach 'cashed out' the notion of 'reaching' one world from another as 'some dimension jumping vehicle dreamed up by science fiction'. For discussion of these matters see Copeland (1996) pp. 8 - 15 and pp. 133 - 134.
9. There is a bit of a mixture of Polish and 'infix' notation here because set theory, from mathematics, is still written in infix notation.
10. It must be possible to invent a valid system $K + D + S.4 + S.5$, that is, missing out T . $CLpp$ (or rather $COpp$). Such a system should give a new, common usage, meaning to 'obligatory' - something like 'is supposed to be done.' In the diagram we have a half-way step to this system in $KD4$. A $KD5$, as mooted, has probably been done, but I have not come across it in classical logic. However, Paul McNamara at the University of New Hampshire has looked at this idea from a Relevance Logic perspective; see McNamara (1996). If such a classical or relevance system is already 'on the shelf' theologians interested in morals in their religion should find it useful. If it has not already been delineated, and had its characteristics developed, a young logician could be put to do this as an exercise. It would avoid the difficulties of iteration but the Barcan formula is provable in $S.5$ and although one interpretation of an PO iteration (reducing it to a simple O) is not understandable, the other, OP to P , seems to be so. See chapter 7, page 142-145, and Note 10, page 149.

However, dealing with *mercy* (which subverts *justice*) has still be tackled by system makers.

The *Theologic*: Building upon Escapism

Escaping the sanction: a logical basis of ethics

Getting started

A simplification

Sanctions

Who does deontic logic apply to?

The ethical basis of deontic logic

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The *Theologic*

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Have we done away with God?

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Escaping the sanction: a logical basis of ethics.

Getting started

Modal logic begins with the Propositional Calculus and can be extended to make use of the Predicate calculus. The Propositional Calculus can be founded upon several alternative sets of unproved theses, or even from one, very long and by no means obviously true. The sets which seemed most fruitful to Arthur Prior, are those with 'C' as their basic operator, that is, those that deal with implication – a basic notion in science as well as everyday life¹. One set is due to Lukasiewicz and is the following:

1. $CCpqCCqrCpr$ (Syllogism)
2. $CCNppp$
3. $CpCNqp$

The two rules are

(R1) Substitution and

(R2) Detachment (otherwise known as *Modus Ponens*).

Various definitions are used to help keep formulæ short:

$$Apq =_{df} CNpq; \quad Kpq =_{df} NCpNq; \quad Epq =_{df} KCpqCqp.$$

For the Modal system *K* we simply add one more operator, *L*, meaning 'necessary' or 'necessarily' or 'necessitates' and the one axiom (which does not occur as a law of *K*):

- K. CLCpqCLpLq* < if p necessitates q then necessarily p implies necessarily q >
 < If p cannot avoid implying q then when p is necessary so is q >
 < if it is a law that one thing implies another, then if the first is necessary then the second is also >
 < If it is part and parcel of being a god that you are unknowable, then if you cannot help being a god then you cannot help being unknown >.

The same rules of substitution and detachment hold, and a new rule as well:

- RN. $\alpha \rightarrow L\alpha$* < if α is a law then $L\alpha$ is a law >
 < if we have proved something to be logically true we can write that it is necessarily true >.

There is also an added definition which makes translations easier:

- $Mp =_{df} NLN$.* < possibly p = not necessarily not p >.

We may 'read' or 'translate' L and M as if they were not about necessity and possibility, but about obligatory and permissible. This is to give them an 'ethical' or 'deontic' meaning. The usual reading of K is as above, but reading $L = O$ = obligatory, and $M = P$ = Permissible, it can be read as:

- KD. COCpqCOpOq* < if it is obligatory that doing p implies doing q then if it is obligatory to do p it is obligatory to do q >.

However, to get Deontic logic proper, the system D , it is necessary to add to K the single new axiom (which does not occur in K):

- D. CLpMp* < if something is necessary it is possible >.

Or, in its more usual deontic (ethical) form:

- DD. COpPp* < if some action is obligatory it is permissible >.

It is also helpful to add two definitions:

- $Pp =_{df} NONp$* < it is permissible that p be done = it is not obligatory that p be not done >
 < p is permissible = p is not forbidden >.

- $Fp =_{df} ONp$* < p is forbidden = it is obligatory that p be not done >.

We also can add four useful axioms:

- KD1. COCpp* < it is obligatory that what is obligatory be done >
KD2. COpPp < what is obligatory is permissible >
KD3. COCpqCOpOq < when doing one thing without another is forbidden (reading $OCPq$ as $NPKpNq$) then if the first is obligatory, so is the second >
KD4. CLCpqCOpOq < whatever is necessitated by an obligation is itself an obligation >

KD1. is the deontic form of *LCLpp* and might be obtained from a theorem *T. CLpp*, (called *T* after Taski, and marking out a deontic logic of its own) plus the application of Rule *RN*. But *T*, in its deontic form, *COpp* < if something is obligatory it is done > is not acceptable as a logical law without question, as anyone who has driven over the speed-limit will testify. However, we are obliged to keep the laws of the land, including the one about speed limits, which is (along with many others)

symbolised as $COpp$. Therefore, we may accept intuitively $KD.1 OCOpp$ which is about obeying laws (of this form) not about obeying a particular law.

It is possible to mix both talk of necessity and obligation, possibility and permissibility, and in what follows this is done. For example, we could have

$KDD1. CLpPp$ < if something is necessary then it is permissible >

and from this we can prove

$KDD2. COpMp$ < if something is obligatory it is possible >

or, in the more famous phrase from Kant

< what I ought I can >.

As in this case, the notions of necessity and obligation seem almost the same and it may be a useful aide mémoire to think of L as often standing for 'logical necessity' to help keep the ideas apart. One of the results of this section will be to arrive at a new way of looking at moral obligation and that may also assist in keeping the notions separate.

Although it is clear nowadays that axiom D is the defining thesis for deontic logic it was not always so clear, and part of what follows, although designed to show some of the problems deontic logic throws up, also shows a fairly typical example of how logicians work.

Here are some of the laws which are provable in the Deontic system (D), choosing the most interesting; the first is proved, just to show how such proofs are done:

$KD5. LCpp$ < that something implies itself is necessarily true >

Proof:

1. $CCpqCCqrCpr$

1. $q/CNpq = 1.1$ < In axiom 1, for q substitute $CNpq$, the result is 1.1 >

1.1 $CCpCNpqCCCNpqrCpr$

1.1 = C3 — 1.2 < 1.1 is of the form $C\alpha\beta$, so detach β (1.2) >

1.2 $CCCNpqrCpr$

1.2 $q/p, r/p = 1.3$

1.3 $CCCNpppCpp$

1.3 = C2 — 4

4. Cpp

4 x R3 = $KD5$ < apply Rule RN ($\alpha \rightarrow L\alpha$) >

5. $LCpp$

$KD6. CLpLCqp$ < if something is necessary then it is necessarily the case that it is implied by everything >.

This is a modal version of the so-called paradox of implication: anything true is true no matter what, and so it may be implied by falsities — the converse, also a law, that something false will imply anything at all, including truths.

$KD7. CLpCOqOp$ < if something is necessarily the case any obligatory other thing will imply that the first is obligatory >.

This is a version of $KD6$. with deontic operators replacing the ordinary modal operators in the conclusion.

KD8. $CLpOp$ < what is inevitable is obligatory >.

There have been grave qualms about this one. It seems to suggest that some action we are forced to carry out may have dire consequences but at the same time our action is an obligation – to be good we must do it, despite its bad consequences.

< The drowning man must breathe so he is obliged to breathe,
(even if it means pushing his companion under) >.

Logicians have a very careful restricted view of necessity (and of all logical terms and processes). This is in order to avoid such rough-and-ready arguing as this example. They can see that the necessity-to-breathe is really a necessity-to-breathe-in-order-to-stay-alive; therefore, to them the example ought to be:

< The drowning man must necessarily breathe to stay alive, so he is
obliged to breathe in order to stay alive>.

The drowning man may support his companion and himself drown but still keep this logical law. If some action is necessary it will always be done, so the obligation to do it is always met.

KD9. $CLpPp$ < what is unavoidable is permissible >
 KD10. $CNPNpNLNp$ < if it is not permitted to avoid doing something it is not necessary
to avoid it >
 KD11. $COpNLNp$ < if it is obligatory to do something it is not necessary to avoid it >
 KD12. $COpMp$ < what I ought I can >.

A simplification

Arthur Prior has shown in 'Escapism: the Logical Basis of Ethics' in *Essays in Moral Philosophy*, (Prior 1958) that one of our four Deontic axioms, KD4 can be replaced with the much simpler KD8, now that we have found it. However, Alan Ross Anderson (Anderson 1956) has taken a different tack in simplification, and one that makes a spectacular difference, as well as providing a logic full of concepts closer to our 'ordinary' or legal way of looking at obligations and the consequences of actions.

Sanctions

Anderson's method is to avoid O < it is obligatory that...> as an undefined notion. He introduces a new 'fixed' proposition, that is a proposition which does not vary in meaning, but otherwise behaves like p , q , r , etc., that is like a propositional variable. The new idea, the new propositional constant, is an unspecified sanction ' s '. (Prior uses uppercase ' S ' which looks like an operator; I prefer a lowercase bold ' s ' which looks more like a variable.) This could be a legal sanction such as a fine or a period in prison, or a moral sanction such as humiliation².

The meaning of obligation can be found this way:

$Fp = LCps$ <it is forbidden to do p = doing p necessitates the sanction, s >
 $Op = LCNps$ <it is obligatory that p = the omission of p necessitates the sanction, s >

Modal logic gives us the equivalence, $LCNps = LCNsp$, so we also have:

$$Op = LCNsp \quad \text{<it is obligatory that } p = \text{to avoid the sanction you have to do } p >$$

A further simplification is to introduce the idea of 'escaping the sanction', e , another propositional constant and one which is defined thus: $e = Ns$ <escaping is the same as no sanction>. Now we can write $LCNsp$ as $LCep$ and get a briefer version of the meaning of obligatory:

$$Op = LCep \quad \text{<it is obligatory that } p = \text{escaping (the sanction) necessitates doing } p >.$$

Now we are quite close to common usage; if a law must be kept, then behaving so that you escape the punishment for breaking that law is how to keep it.

The simplification proceeds apace, for example:

$$KD13. CLCpCqrCLCpqLCpr = CLCeCqrCLCeqlCep = COCpqCOpOq \quad (\text{our } KD3)$$

$$\begin{aligned} KD6. CLpLCqp &= CLpLCep &< \text{what is absolutely necessary is necessitated by escaping} \\ & &\text{the sanction} > \\ &= CLpOp &\text{our } KD8. \end{aligned}$$

At the end of this simplification we are left with

$$KD2. COpPp$$

as our sole deontic axiom.

If we define Pp < it is permissible that p > as $MKep$ < escape is compatible with p > then a further simplification appears in $KD2$:

$$\begin{aligned} KD2. & COpPp \\ KD.2 & Op/LCep, Pp/MKep = KD2.2 \\ KD2.2 & CLCepMKep \quad \text{< if escaping necessitates } p \text{ then it is compatible with } p >. \end{aligned}$$

This will be false only if escaping is impossible (the impossible – and only the impossible – makes everything necessary, and is not compatible with anything: $CLNpLCpq$.) The conclusion is that

$$KD2. \text{ < what is obligatory is permissible >}$$

is equivalent in force to the much shorter

$$KD2.3 \quad Me \quad \text{< it is possible to escape the sanction >.}$$

We could in fact make this as the sole special axiom for Deontic Logic, that is $K + KD2.3$.

So far I have kept clear of the problems of iteration but they lurk in the background. Prior feels that the usefulness of allowing the Rules, T , $S4$ and $S5$ to be applied (for example, they reduce iterations to a single L or M) outweighed the snags (mainly in allowing-in such moral laws as $COpp$ <what is obligatory is done >). My recourse, (against the natural instinct of logicians) in order to get onto interesting theological problems, is to allow the addition of extra unproved (but intuitively sensible) axioms where these prove useful. I do not commend this procedure for anyone seeking beautiful systems.

An example of my short-cutting occurs now in order to show up some problems with the Andersonian system with an undefined sanction, s , defined as $LCps$.

A modal law

KD15. CLCpqCLCqrLCpr

can become, by substitution of *r/s*

KD16. CLCpqCLCqsLCps < what necessarily implies what necessarily implies the sanction, itself necessarily implies the sanction >
< what necessarily implies what is forbidden, is itself forbidden >.

This can be called the Paradox of the Good Samaritan: helping someone who has been robbed with violence is an act that can only occur if the person has been robbed with violence ('X helps Y who has been robbed' necessarily implies 'Y has been robbed'.) But the robbery (being wrong) necessarily implies the sanction; the helping (since it implies the robbery) implies the sanction too, and is also wrong.

A way out of this paradox is to deny that *KD16. CLCpqCLCqsLCps* is to be a law of our calculus for morals.

A quite different method is to accept it as a law but to change our interpretation (translation/definition/meaning) of the Deontic symbols; especially the way we may use Deontic logic in Morals. This sounds like a draconian step, but we certainly introduced the symbols with very little subtlety and no discussion of how the meaning we assign to them squares with common moral usage of the terms we use as their 'translations'. The change that is suggested in the next section may prove useful.

To whom does deontic logic apply?

Each person might regard deontic logic as applying to the measures he or she should take to avoid the sanction that threatens him or her. From this point of view a wrong done by someone else (the robbers mugging the traveller) does not concern the person whose deontic logic is being used (the Samaritan) as a wrong. The sanction does not hang over the Samaritan because it is his deontic logic that he is applying to the scene he comes across; on this occasion he does not have to bother about *LCqs*. In other words, the robbers' robbery (*q*) does not necessitate the Samaritan incurring the sanction (*s₁*). But for the robbers' deontic logic, *LCqs* almost certainly does apply - they robbed the traveller (*q*) and that implies some sanction (*s₂*), that applies in their deontic logic, for example, that they should be put in prison for their actions.

The ethical basis of deontic logic

Prior (1955) has pointed out that personalised deontic logic, as just considered, has as a provable law

KD17. Oe < We have an obligation to escape from the sanction >

and such a law looks suspiciously like a 'naturalistic' way of defining what an obligation is, and so getting an 'ought' from an 'is'. (And if it works for morals, perhaps there is a similar system to be found for defining God from 'natural' laws and given those laws are facts so must our God be a fact, i.e., exist.) Here is how the argument for morals might go:

The obligatory (what we must do) is whatever will bring about X.

for example, < we ought to do whatever results in us escaping punishment >

Why should we do whatever will bring about X?

for example, < why ought we try to escape punishment? >

(Because) *Bringing about X is a logical law.*

for example, < if X is 'escaping the sanction', X is obligatory >.

However, KD17. *Oe*, is proved this way:

4. *Cpp*
 4. x Rule RN ($\alpha \rightarrow L\alpha$) = KD 4.1
 KD4.1. *LCpp*
 KD4.1, p / e = KD4.2
 KD4.2. *LCee*
 KD4.2 x $_{df} O$ < $Op =_{df} LCep$ > = KD17
 KD17. *Oe*

Thus

Oe < it is obligatory to escape >

is just another way of saying

LCee < escaping necessarily implies escaping >
 < necessarily, if you escape you escape >.

One cannot feel happy about a system of ethics based on the idea that the obligation to escape means nothing more than 'to escape you must escape'.

At this point if we look back to the introduction of the idea of the sanction and escaping from it we see that to be universally applicable to all moral situations and judgements this sanction has to be universal too. Similarly escaping (from the sanction) means (for universal morals) not just *dodging* punishment but *not deserving* it. The idea has to be that any wrongdoing not only deserves the sanction but in fact *necessitates* it. This is the idea well expressed by using *v* rather than *s*: we should escape not just punishment (the sanction for breaking the code) but escape (avoid) violating the code. Here we are with a theoretical universal moral and legal system where every crime not only has an appropriate sanction written in the Book-of-All-Possible-Crimes, but has an infallible crime detection and infallible punishment system. Perhaps the universal crime is failure to be perfect, and the sanction you are trying to escape is also not-being-perfect. This seems an admirable system of morals for a perfect God to impose – or expect.

Note that for someone who does not believe there is a universal moral system, applicable to all human actions, but rather that there are only individual moral systems applicable to individual people, then the sanction will be different for each individual. In the case of the Good Samaritan parable one of the *robbers* might maintain that for him (or her), as a robber, universal moral principles do not apply and that he (or she) should be judged as good or bad only on whether he (or she) gets caught or not. For this person, the robber, getting caught is the sanction, escaping getting caught is 'escaping the sanction'. In this person's moral code robbery and thuggery is perfectly acceptable, indeed good, behaviour as long as he (or she) is not caught – in fact not being caught is the proof that the behaviour was morally good. Using the idea of 'violation' we can see that the robbers are keen – even morally obliged – to do lots of robbery in order not to violate their own moral code. Conversely, from their point of view as robbers, the constabulary are violating the robbing moral code by restraining them from robbing.

The god's own moral code

Uncomfortable though it may at first seem, this is surely the moral logic of every god, whether a good god, a wicked god, or merely a morally indifferent god. The god being (presumably) not bound by any moral laws but his-her own, some sort of individualistic sanction, such as *disbelief by his-her created creatures*, or *not being caught doing a callous act*, will do. *Be involved in the lives of my own creatures*, has been suggested as the Christian god's code. It will be necessary for the god to be logically able to break (violate) his-her own code, remembering the consequences of putting any god 'outside the laws of logic': if the god cannot violate his-her own moral code (or does not have a code to violate, or admits no sanction) that would make nonsense of a Moral god. To be a moral creature the god must be able to be immoral – even if he-she never is.

This is a sort of final end to the human theory of morality which gave a 'divine right' to Kings (and even highly placed clergy) to do whatever they liked, and have it called 'good' or 'righteous' because God backed it up.

Further, those who believe that the 'universal' moral code for human beings is the code given to us by God and that the ultimate sanction is 'being caught out and punished by God' have a logically similar code to the robbers: if you can manage an act which God does not see and does not punish, then your act was 'good' or 'righteous'. However, most theologies, and certainly the one I call Death Protestant (DP) in Chapter 6, include the idea that God sees all acts, so the sanction is reduced to 'punished by God'. This becomes in some fundamentalist Christian eyes 'If I am prosperous I am not being punished by God, therefore my acts – for example rack-renting or running sweat-shops – are good in God's eyes, and therefore morally good.'

The non-fundamentalists (who read morality differently) are then driven to confront the problem of evil. Early biblical writers were well aware of it – 'Why do the wicked prosper?' is a constant cry, for example in the *Psalms* and in the *Gospels*. No Jewish or Christian thinker grasped the first horn of the dilemma and declared God to be wicked, not even Job who was part of a moral experiment God and Satan were running. Such an answer is, however, well known in Hindu, Zoroastrian, and Manichæian religion and in William Blake's writings.

Grasping the other horn involves saying that God *is* punishing the rack-renting fundamentalist but in ways which the fundamentalist does not, perhaps, realise. This is the answer in Christian writings which emphasise the spiritually corrupting effects of money, etc., or, at a further extreme, detail the fate after death of the immoral.

Slipping between the horns would involve rejecting either the Anderson/Prior deontic logic of sanctions and escaping, or pointing out that theological moralists who want to keep *Escapism* as the best deontic logic need only accept, for God and for human kind, that the sanction to be escaped is a failure to 'be perfect'.

Conclusion

Thus we have found a deontic logic which will do for a multitude of personal moralities, will work for a universal morality without a God or gods, and which will also work for god-talk (theology). Of course it leaves us none the wiser about what we ought to do. Logic provides a frame for right reasoning but does not tell us which propositions/ideas/facts/hopes/fears/beliefs to put into the frame.

However, there is a great deal still left to do to discover more of the helpfulness, and the puzzles of deontic logic. For example, further subtlety can be produced with the move from a propositional deontic logic to a predicate deontic logic. So far theorems such as *KD2.COpPp* have been read as, for example:

or more simply as

However, we can expand p into a full predicate *form* such as

And further, by the use of quantification, get proper, truth-testable formulæ such as:

QKD2.4 $CPxO\phi xP\phi a$ < if it is obligatory for all x to ϕ , then it is permissible for a to ϕ >
 < if it is obligatory for everyone to obey Shango then it is permissible for Llewelyn Richards to obey Shango >

As you will see later in the chapter, I have followed Prior in one matter. He was not averse to quantify over propositions, that is, for example, writing

Modern logical practice, especially when looking at ways to represent natural language (e.g., English) in symbolic form, would prefer to use predicate logic with its clear necessity to define, before-hand, the domain (objects, people, ideas, numbers...) to which the variables and constants will be confined. However, using quantification of propositions with care can simplify our formulæ, for ease of translation at least, and is not used here as a fully fledged and justified 'stand-alone' system.

There are many other issues logical which will have to be worked through before anyone could be fully satisfied with a single logic for ethics. For example there are more paradoxes than the Good Samaritan; there are problems about implication which counterfactuals raise; we should have a clearer account of rules for the mixing of alethic logic (L and M) to deontic (O and P) than are given here; we need more work on the best way of describing truth and validity in such logics (many valued truth tables or possible worlds). There are many other interesting topics but for the theologians we hurry on to the next section.

The Theologic: Building upon Escapism

Introduction: Deontic/Theologic parallels

To create a useful modern logic for theology an additional idea may be added to a modal logic as 'strong' as S5 and a Deontic logic of similar strength. The best concept is that of pleasing the god, or the gods, of the religion you are examining. A Christian might like to say that this theologic is based on the idea that you *can* get to heaven, you *can* escape hell.

The basic idea can be expressed in a wide variety of ways, each fitting in with the theological language favoured by the religion you have, or are studying. For example, Olorun may be pleased when his commands are obeyed and always reward those who obey those commands; Ahura Mazda may be pleased when some action by a person assists in his fight against darkness, evil, sin, personified in Angra Mainyu and ensure that that person is rewarded after death; the Christian God may be pleased when a sinner repents and as a reward add his or her name to the scroll of the elect and make his or her life much more spiritually satisfying; Tangaroa may be pleased with the prayer of his present day descendant and calm the waves that are swamping the canoe; Krishna may accept the fakir's efforts and grant him a quicker path to absorption into 'the one'; a Buddhist seeker's efforts may be successful and so he or she attain nirvana; Gaia may be *said* to be pleased (using a poetic turn of phrase) when efforts to stop the use of CFCs are successful and the ozone hole (therefore) begins to fill in, thus individual virtue is rewarded by longer life for the earth and so for all humanity; the harmony of all may be achieved, so that the Confucian virtues reign...

I use 'X' for all these ideas, roughly translated as 'the god is pleased'. Thus

Xp can be read as 'the god is pleased when'.

Y is a useful shorthand for 'the god is is not worried when', that is $Yp =_{df} NXNp$.

Z is used to mean 'the god is displeased when', that is $Zp =_{df} XNp$.

We can then see how axioms from the Escaping calculus have Theologic parallels.

$KD1.$	OCO_{pp}	< it is obligatory that what is obligatory be done >
$Th1.$	XCX_{pp}	< the god is pleased when what he-she is pleased about is done >
$KD2.$	$COpPp$	< what is obligatory is permissible >
$Th2.$	$CXpYp$	< what the god is pleased with, he-she is not worried about, when it happens >
$KD3.$	$COCpqCOpOq$	< when doing one thing without another is forbidden, then, if the first is obligatory so is the second >
$Th3.$	$CXCpqCXpXq$	< when the god approves one-thing-following-another, then, if he-she smiles on the first then he-she smiles on the second >
$KD4.$	$CLCpqCOpOq$	< whatever is necessitated by an obligation is itself an obligation >
$Th4.$	$CLCpqCXpXq$	< whatever necessarily follows from the god's pleasure is itself something that the god is pleased about >.

However, one of the doubts about the parallelism between Modal logic and Deontic logic does not apply when the Theologic is considered. The Modal logic *T* has as its defining axiom:

KT1. *CLpp* < if something is necessarily-the-case then it is a fact >.

The list of facts which are facts by necessity is a tightly restricted one and contrasts with the list of facts which are truly contingent: mathematical and logical laws are the usual facts thought of as 'necessary' (and they are certainly so inside the particular system you are working with at the time of speaking). Any fact which can be *imagined* to have been otherwise is considered not to be necessary, but contingent.

The formulæ corresponding to *KT1.* is, in Deontic logic:

DT1. *COp* < if *p* is obligatory then *p* is done >
 < if everyone must love God then everyone does love God >.

This sounds intuitively false – many an action in our lives is said to be obligatory but not done. For example, it is obligatory (under the laws of New Zealand) not to drink and drive, but is nevertheless often done – the police arrest hundreds of people every year who have been drinking and driving; as I was writing this the morning paper had the names of 38 people convicted of this offence in the month of January 2001 in the city of Wellington.

Prior would argue that we are not dealing, in deontic logic, with such a weak notion of what obligatory means; the example of drink-driving is not of something that is properly *obligatory* but of something that *ought* to happen (if the laws of the land are to be kept). In the deontic logic which Prior pursues, 'obligatory' has almost the same meaning – and certainly the same strength – as 'necessary'. His test that an action is truly obligatory is that the action is always done. It may seem that this would work only in the land where all obligatory actions are unfailingly done, not one where there is any chance of moral 'slippage', backsliding, or down right evil. Such a deontic logic appears to be designed for ant society, or a society such as in Orwell's book *1984*, or for a version of pre-destination. However, it may be better to think of *COp* as meaning < if doing *p* is obligatory-if-the-law-is-to-be-kept then doing *p* is what keeps the law >. A similar reading of *O* is < you are obliged in this system > rather than just < you ought in this system >.

There is another deontic law which seems counter-intuitive:

KD8. *CLpOp.* < what is necessary is obligatory >.

We looked at the grave qualms about this law on page 92, using a drowning man as our example. This contrast between a 'strong' deontic logic and a usage which is more closely allied to ordinary usage, is also clear when we arrive at the deontic law

KD12. *COpMp*

which as well as its translation as

< what is obligatory is possible >

is sometimes translated as the Kantian dictum

< what I ought I can >.

Prior, wisely for his purposes, does not use this translation and has several arguments for preferring to keep deontic logic 'strong'. For example, the strong interpretation allows him to proceed to incorporate parallel deontic laws to those of modal logic's *T*, *S4* and *S5*.

This problem might lead us to wonder if there is any point in having special deontic operators at all if they do not reflect our common meaning of 'obliged' (and 'allowed', 'permitted', 'forbidden', 'ought', 'should', 'may', etc.). However, the parallel problem does not arise in our Theologic. The operator '*X*' has many many translations but none of them give rise to confusions: God's or the gods' pleasure, or the inevitable good consequences of certain actions, are not 'weak' in any sense and paradoxes and choices of interpretation are not necessary.

The parallel to *KT1*. and *DT1*. is

- ThT1. CXpp* < if the god is pleased that *p* then *p* >
 < if Tangaroa is pleased that the fisherman Rawiri will not drown then
 Rawiri will not drown >
 < If Allah is pleased to bless Bushra then Bushra is blessed >
 < If Olorun is pleased that Shopona gives Babatunde smallpox then
 Shopona gives Babatunde smallpox >
 < If Ahura Mazda is pleased that I give assistance against Angra Mainyu
 then I give that assistance >
 < If Yahweh is pleased to drown Pharaoh's army, Pharaoh's army is
 drowned >
 < If Christ is pleased to see every sinner saved then he will see every
 sinner saved >
 < If I am pleased to use my talents then I use my talents > (see
 Hampson, Chapter 12.)
 < If becoming divine involves murder then I murder > (see Jantzen,
 Chapter 12)
 < If the symbol for my concern includes my being forgiven then I am
 forgiven > (see God-as-symbol, Chapter 11.)
 < If obtaining nirvana requires that I meditate then I meditate >
 < If Gaia will be in better shape by the extinction of all people then all
 people will become extinct >

This last may seem a bit uncompromising on Gaia's part, but the Gaia theology is about a very mechanical 'being'. Gaia is only metaphorically described as having some human characteristics and saying 'Gaia (the world) will be in a better shape' is a possible translation for 'Gaia will be pleased'. Having a sense of compassion or pity is not possible for Gaia (where Gaia = all things, moral and amoral, human and inanimate). Determinism or chaos are the only possible alternatives for Gaia.

That problem aside, it should be noted that *CXpp* is a law that commits us to a theology with a god or gods who 'interfere' – who do not just stand aside, possibly with their hearts in their mouths, almost certainly with sorrow, and watch what is going on.

However, note that from *CXpp* we cannot infer

- ^FCpXp* < whatever is the case the god likes it >.

Thus the rich Christian cannot argue from *CXpp* that 'God likes what I am doing and, therefore, is rewarding it'; but only that God likes me to be rich (whether for reward or for punishment is not stated), therefore I am rich.

The parallel to *KD8*. is:

- Th8. CLpXp* < if *p* is necessary, the gods welcome *p* >
 < if the laws of arithmetic are necessary Ahura Mazda and Angra Mainyu
 use them >

< if Queen Anne is dead Jesus will not resurrect her ³ >.

The parallel to *KD12*. is:

Th7. CXpMp < if the god likes *p* then it is possible that *p* >
 < what God wants can be done >
 < if Shango likes women to dance in his honour all night then it will be
 possible for women to dance all night. ⁴ >
 < if the symbol of all that is good stands for (amongst other things) good
 health for all people, then good health for all people must be possible >.

This last is an attempt to show how my Theologic can manage to encompass even the theology of those who wish to make the word 'God' act as a symbol of certain abstract ideas rather than its more usual task as a name for a 'being', ontological status various, but more 'actual' than symbolic.

These examples of laws, which in their deontic form must give rise to doubts about their usefulness in dealing with common moral problems, show no signs of producing parallel doubts in their theological guise. They may, of course, produce problems of their own which do not have deontic parallels; for example we may have to look out for the consequences of any law (if there is such a law) such as

Th20. CXNpNp <what the gods dislike cannot be done>.

Deontic logic has, as well as laws, rules for manipulating formulæ. These are the two rules of propositional calculus:

R1. Substitution

R2. Detachment

and the rules of the predicate calculus if the predicate extension of the propositional calculus is used (it is not used in this chapter, so I leave the rules out, here);

the Modal rule:

RN. If α is a law so is $L\alpha$

and the Deontic rule:

RO. If α is a law so is $O\alpha$.

Now we must add the Theologic rule:

RX. If α is a law so is $X\alpha$

The rule *RO* (if α is a law so is $O\alpha$) underlines the difference between the deontic and the ordinary use of the word 'obliged', and the word 'law'. Ordinary usage allows this rule to be used without comment (and with very little extra added to our knowledge); for example, if it is a law that we drive on the left-hand side of the road we are obliged to do so. But, in the strong sense of obliged being used in deontic logic, the law 'drive on the left' cannot be a law ever broken; it must be a law with logical force, for example, an axiom or derived from other axioms. We have seen in Ch.4, §3.2 that introducing a generalised form of such propositions as *Cpq* < If driving, keep left > as an axiom leads to the collapse of the propositional part of the logic we want to use. In order to keep away from chaos we must have a very strong meaning for 'obliged', strong enough for the rule *RO* to be stable.

However, again in our Theologic the problem of the 'strength' of our translation does not

matter since it seems perfectly sensible that our God is omnipotent or our gods together make up an omnipotent force. RX (if α is a law then $X\alpha$) must be correct since God or the gods make the laws – even the logical laws, which are a summary of how things work. Note again, that our rich Christian cannot claim that his riches are a reward from God since p is not a law, but just a humble proposition in FCpXp , which is, we have seen, not a law.

Simplifying

In Escapism the Anderson/Prior simplification is obtained by making not 'O', which is thought of as meaning 'Obliged', as the most basic (and undefined) deontic concept, but to use an unspecified sanction. Thus ' p is forbidden' can be written, and defined, as ' p necessitates the sanction.'

$$Fp = ONp = LCps$$

' p is obligatory' is defined as 'the omission of p necessitates the sanction'

$$Op = LCNps$$

which by ordinary modal logic

$$= LCNsp < \text{avoiding the sanction necessitates doing } p >$$

and by using another introduced character ' e ' for Ns (escaping the sanction) this becomes

$$= LCep$$

A similar process can be applied to the Theologic.

A new pair of fixed propositions may be introduced (either will do as the basic one, choose whichever you prefer). For the parallel to the sanction s I choose g which can be read as 'going to hell,' (or 'going to *gehenna*' as its mnemonic). For the parallel to escaping the sanction I chose h which can be read as 'escaping *gehenna*' or 'going to *heaven*'. The equivalents in various religions can be easily found:

g	=	die; be mortal	h	=	live; be immortal
g	=	have a terrible life	h	=	have a satisfying life
g	=	suffer	h	=	enjoy
g	=	get karma out of balance	h	=	keep karma in balance
g	=	get further from nirvana	h	=	get closer to nirvana
g	=	everlasting punishment	h	=	everlasting bliss
g	=	hasten ecological disaster	h	=	help save the planet
g	=	fail to recognise or develop your full potential	h	=	recognise and/or develop your full potential
g	=	become secular	h	=	become divine
g	=	disharmony	h	=	achieve harmony

and many more.

A set of axioms for the Theologic can now be suggested (paralleling Prior's choice for Deontic axioms).

Firstly there will be the propositional calculus with the two rules for substitution and detachment; its predicate extension, if required, with the rules for quantification; then a postulate (axiom) set sufficient for ordinary modal logic including the distinctive T, S4 and S5 axioms and the definition of $M < \text{possibly} >$ thus: $Mp = NLNp$, and the rule RN . $< \text{If } a \text{ is a law so is } La >$. Then the Theologic is added to Modal logic in the same manner as the Anderson/Prior simplified Deontic logic using an undefined theological concept, in this case, h . Otherwise the Priorian Escapism and the Theologic are very similar and Theologic axioms (and laws derived from them) are Escapism in Theologic disguise. Here are some of them:

- Th1. $XCXpp$
- Th2. $CXpYp$
- Th3. $CXCpqCXpXq$
- Th4. $CXpXXp$ (from S4)
- Th5. $CYpXYp$ (from S5)
- Th6. $CXpp$ (from T)
- Th7. $CXpMp$
- Th8. $CLpXp$

The substitution of g or h (which are propositions like p and q , but with a fixed meaning) into ordinary modal laws produce the simplifications. For example:

- L1. $LCpCLCpqq$ $p/h, q/p = L1.1$
- L1.1. $LChCLChpp$ $\times \text{Df. } X (Xp = LChp) = Th1.$
- Th1. $XCXpp$ $< \text{God likes the idea that, if he likes something, it be done} >.$
- L2. $CLCpCqrCLCpqLCpr$ $p/h, q/p, r/q = L2.1$
- L2.1. $CLChCpqCLChpLChq$ $\times \text{Df. } X = Th3$
- Th3. $CXCpqCXpXq$ $< \text{if God likes the idea of } p \text{ implying } q \text{ then if God likes } p \text{ then God likes } q >.$
- L3. $CLpLCqp$ $q/h = L3.1$
- L3.1. $CLpLChp$ $\times \text{Df. } X = Th7.$
- Th7. $CLpXp$ $< \text{if it is absolutely necessary then God likes it} >.$
- L4. $CLpp$ $L/X = Th8.$
- Th8. $CXpp$ $< \text{if God likes something to be the case, then it is the case} >.$

As you can see all the Theologic laws so far come from a standard Modal logic (the system S5) except

Th2. $CXpYp$. $< \text{if God likes something then God will not stop it} >.$

Therefore, Th2. $CXpYp$ is the sole special Theologic axiom.

We can carry the simplification even further.

If

$Xp = LChp$ $< \text{God likes } p = \text{Of necessity, to get to heaven do } p >$

then

Yp (or $NXNp$) $= NLChNp$ $< \text{God is not worried about } p = \text{it is not necessary to avoid } p \text{ to get to heaven} >.$

However, a more spectacular move is:

if

$Yp = MKhp$ < God is not worried about p = getting to heaven is compatible with p >

then our special Theologic axiom

Th2. $CXpYp \times Df.X (Xp=LChp), \times Df.Y (Yp = MKhp) = Th2.1$

Th2.1. $CLChpMKhp$ < If getting to heaven necessitates p then it is compatible with p >.

This can be false only if getting to heaven is impossible for everyone (the impossible, and only the impossible, necessitates everything and is not compatible with everything). So $CXpYp$ is equivalent in force to the much shorter

Th9. Mh < It is possible to get to heaven >

Thus *Th9. Mh*, with its very agreeable message, becomes our sole special axiom in our Theologic.

Have we done away with God?

In most of my examples of how the Theologic may be interpreted I have used the word 'God', even giving it an honorific or 'proper-name' capital initial. This was a mere convenience and I hope it is clear that a remarkable number of religions, old and new, so-called 'primitive', and so-called 'higher', and their theologies, will find the Theologic fits what they wish to express in a rigorous fashion. In Chapter 4 some of these were spelled out and others will appear in PART 2. Here are some examples: the symbol 'X' can be used as follows:

Yoruba	X = to please Olorun or some lesser god who is more directly involved
Maori	X = to keep tapu and noa realms correctly in their places
Zoroastrian	X = to assist Ahura Mazda against Angra Mainyu
Moslem	X = to please Allah
Jewish	X = to please God
Christian	X = to follow Jesus
Gaia	X = to increase the natural ecological balance
Symbolic	X = to incarnate the denotation of the symbol [to mix three jargons!]
Feminist (D)	X = to <i>God</i>
Feminist (J)	X = to become divine
Feminist (H)	X = to please me
Buddhist	X = to obtain nirvana
Confucian	X = to get the best possible for all

It is interesting to note which of these do not mention a god or gods (although the Feminists D and J are fudging rather).

For the logician qua philosopher a serious problem is raising its head (as it does for Escapism). In Escapism we can prove the simple rule

Oe < we have an obligation to escape the sanction >.

Xh < the god likes us to escape gehenna – that is, to get to heaven >.

In the Theologic we are able to prove Xh <God likes us in heaven>. Therefore, the theological naturalist, say, Anselm or Descartes, could say, 'Pleasing God is what we must do to get to heaven.' The theological Calvinist, say Barth, replies, 'But why is getting to heaven pleasing to God?' Now we have Anderson/Prior/Richards, to the delight of Anselm, *proving* that getting to heaven pleases God.

LCee < escaping the sanction necessarily implies escaping the sanction >

The parallel in the Theologic is to look at the proof of Xh : $\langle$ the god likes us to get to heaven $\rangle$. This is true because (by the definition of X) it is just a way of saying

LChh < getting to heaven necessarily implies getting to heaven >

However, this conclusion may be not because $X < \text{the god likes } >$ means too little, but because $h < \text{getting to heaven } >$ means too much. There are two laws provable in the Theologic⁵:

Th11. *ChIpCXpp* < if we get to heaven then the god liking everything we do implies everything we do >.

These two together give us a definition of getting to heaven

$h = \Pi pCXpp$ < getting to heaven means that if the god likes everything we do,
we do it >
< we get to heaven only if we do everything the god likes us to do >.

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Job, but did not take the experiment too far, and somehow failed to satisfactorily explain his actions (perhaps if he had told Job that he had taken up Satan's suggestion, Job would have accused him of callousness, or a lack of omniscience). The good side of the necessity is that getting to heaven is not just failing to wind up in gehenna, but not deserving to. The bad side appears to be that no one will ever get to heaven, the hurdle (never doing anything that God dislikes) being set far too high for mere mortals.

The Christian God is seen as both just and merciful. The idea that good actions necessitate a place in heaven fits in with the idea of a just deity. It also fits with a strict interpretation of karma as a distributor of good and bad results, and also with a Gaia-type cosmology with necessary consequences following from ecologically sound or unsound actions. However, how a merciful God can handle his-her desire to 'save' the sinner from the inevitable results of sinful actions and perhaps forgive a certain percentage of 'bad' actions done by the backslider or the ignorant or the wilful, is not spelt out in the Theologic.

From a logical point of view the quickest route to being sure we have a merciful god is to declare that the god loves everything everyone does. This is a sort of 'over-the-top' solution and would fit well in a pantheist religion which results in no one deserving gehenna. I have heard this preached but the preacher was generally believed to be mentally ill. More confusing to the logic is to say that God forgives everyone, sooner or later. Catholic theology used to have everyone saved after sins had been adequately punished in an intermediate hell, called purgatory, after death. I understand belief in purgatory is not now necessary to membership. Protestant theology has several ways round the justice/mercy problem: some theologians (right back to Pelagius) say God is by nature more merciful than just, and no one winds up in hell; others say that God's sacrifice of his son has paid the price, for every sinner, so justice has been done by that merciful action. (Merciful, that is, to everyone except to Jesus, i.e., to God himself, who got only justice.)

Another tack is more congenial to present-day thinking. For Christians from medieval times to Victorian times, heaven was envisaged as a place for the good dead. It was either similar to a new earth on which we would all have resurrected bodies or was a vague spiritual place which our souls would inhabit. These ideas are summed up in the earthy epitaph: 'Here lies the body of Mary Ann / Safe in the bosom of Abraham...' In contrast, some of Jesus's sayings point to a quite different idea of heaven, notably, 'The Kingdom of God comes not at some future time. You cannot point out the sign of its coming. The Kingdom of God comes not at some special site. You cannot point out the place of its coming. The Kingdom of God is already here, among you, now.' *Matthew* 24:26-6; and, 'Split the wood, I am beside you; lift the stone, I am among you.' *Gospel of Thomas* 77:2. Thus, being in heaven is not a consequence at the end of a lifetime of decisions and actions but a state that goes with each decision and action. These ideas can be summed up in the phrase from a 1930s pop-song, 'I'm in heaven when we're dancing cheek to cheek.'

In this latter case *h* stands for a relationship with our god, or a state of mind, or a moral balance, which each action brings about, rather than each action resulting in just a tick in a box on a report card to be added up on the last day. Many Christian theologians have thus 'spiritualised' the idea of heaven and certainly it is more congenial to the modern person who is sloughing off the medieval idea of God as a King in a physical land directing the sorting of sheep from goats at Armageddon field. Following the spiritualising line we can see the Theologic as showing the structure common to a multitude of different personal decisions and actions and even emotions, as well as showing the structure common to a great number of religions.

The spiritualising of heaven is a bit like our common remark that 'goodness is its own reward'. Doing actions which the god likes are their own reward. Gehenna or hell becomes something like, 'doing what the god dislikes (knowingly?) is uncomfortable, alienating, disastrous...' Thus the structure of doing good is revealed as the same as the structure of getting to heaven. Such parallels are nice to come across, even if it leaves us none the wiser as to what we precisely ought to do or believe.

Conclusion

Escapism is an extension of Modal logic applied to morality, and so it is a Deontic logic. It brings out the characteristics of the moralities of many religions, even when no deity or gods are involved. This is even the case when morality is seen as personal to each individual human. Interestingly it also looks like an ideal logic for any god's own morality.

The theologic, although based on Escapism, does not deal with moral precepts except when 'moral' or 'ethical' is defined as strongly dependent on a god's wishes or rights. Nevertheless it can handle a great number of theologies and 'ontologies' (that is, descriptions of what is). It also gives a basis for right reasoning about personal beliefs.

Notes and References

1. The primacy of C ('If ... then ...') as a propositional operator goes back to the Pre-Aristotelian logicians; however, for various reasons – I suspect mainly historical since *Principia Mathematica* was so early on the modern scene – a lot of the teaching of symbolic/mathematical logic begins with A , (the less usual concept of an 'either...or ...' which includes, '... or both') as its operator. Early valve computer programmers favoured $X (= NA)$ and $D (= NK)$. The former called a 'Nor-gate' sends out a current on an output wire only when there is no current at either or both of two input wires; the latter, called a 'Nand-gate' sends out a current on its output wire except when there is a current in both of the two input wires. Transistors are so versatile nowadays that any set of operators could be used, for example, the full 16 tabulated by Bochenski (1949); or go the other way and use any single one and N .
2. It has been pointed out to me by Dr. Ed Mares the same effect can be got without a sanction (a code-book-punishment-deserved) but with just a note that a violation of the code has occurred, and this is one of the meanings Anderson gave to the fixed meaning proposition, calling it ' v ' rather than ' s '. See Mares (1992). A further paper (Mares & McNamara, 1995) looks at a deontic logic for our common ideas of 'it was the least one could do in the situation' and 'they did more than one had to do.'
3. This may seem a bit abrupt but it flows from the idea that when the dead are dead then that they are dead is a historical fact, and history cannot be changed. Historical facts are necessary facts (this can be argued, of course). Therefore, neither Jesus nor any god can change that fact. The god could, perhaps, stop a person dying by some miracle, but once they have died, that death can not be undone. Resurrection is another matter: a god could resurrect Queen Anne to have a second life. But it would remain true that she had died, once, on the 2nd of May, 1703. Therefore the example is not entirely accurate and perhaps it would be better stated:
If Queen Anne is dead Jesus cannot resurrect her exactly as she was, that is, cancelling the fact that she had died, expunging her funeral from history, etc.
4. In Nigeria it is assumed that Shango, like human beings, is not good at seeing in the dark. Since women should dance for Shango but men are physically stronger, men dress as women during certain festivals to keep the dancing vigorous and sustained at night, and thus more efficacious. This fact was revealed (literally) to me in the middle of a Nigerian night by the dancers themselves who thought it a huge joke that the oyebo (white man) was thereby embarrassed, and just as much fooled as Shango.
5. Here is a proof of these two theses of the theologic (*Th10.* and *Th11.*) It uses two parallel theses from Prior in *Escaping: the Logical Basis of Ethics*, namely his 44. *CLppCOppe* and 47. *CeIpCOppe*.
In brief, we can get 44. from the axiom *CLpp* with *p/Cep* and substitutions in the law *CCpCqrCqCpr*; and get 47. from 45. with the application of the Rule *II2*. To get the theologic versions substitute X for L and h for e .

PART 2

LOGIC AND ACTUAL THEOLOGIES — APPLIED

Section 1: Christian Thought

Section 2: Most-Modern Christian Thought

Section 3: Pantheism

Section 4: Religions Without a 'Supreme Deity'

PART 2

Section 1: Christian Thought

Chapter 6

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Conclusion

History

Dates for the birth of Christianity can be argued over. The gospel *Matthew* starts with a genealogy of 'Jesus Christ, the son of David...' back to Abraham; *Luke* starts with the revelation to Zachariah that his son (John) comes to prepare the people for Jesus's coming; *John* says 'In the beginning was the word...' But more recent historians and theologians talk of the death of Jesus as the beginning of a separate religion, or the discussions and enthusiasm after Jesus's death among his followers as the real beginnings. I find the latter to be a good place to find the start of Christianity as a branch of Judaism¹, but by the time of Constantine Christianity had so changed that, in the West at least, it is a new religion and had settled into a form which lasted till the Reformation, and then, somewhat changed, until the present day.

In the present day we have an extraordinary number of different Churches and theologies all calling themselves 'Christian'. The reference book for these is Barrett (2001). David Barrett is a theologically fundamentalist academic who has overseen the two volume *World Christian Encyclopedia*, for Oxford Press. This encyclopedia covers all religions, has about 10,000 entries and sees a rise in new religions at about the rate of three per day. Barrett has a very broad definition of 'religion' and all new sects which call themselves Christian get an entry. The result is that all the new pentecostal, charismatic, fundamentalist, and theologically conservative churches are listed and give the impression that world-wide Christianity is by far the fastest growing religious 'family'. From inside the 'family' it is certainly clear that the pentecostal, fundamentalist, and conservative churches are the fastest growing part of the family, and evidence for this is clearest in Africa and South America. To take two widely separate examples: in Nigeria in the 1960s, living in a village where the founding prophet of the *Church of the Lord* lived, I saw something of the success of the 'Aladura' ('praying') churches.² The *Church of the Lord*, a theologically fundamentalist and pentecostal church, was founded against the advice of the missionary churches of the day during the 1918 influenza epidemic but had itself become a missionising church with missionaries and congregations in Ghana, Sierra Leone, and London. Now Lagos has so many different sects with huge church compounds along the main motorway out of the city that at times of church festivals the motorway is closed by the press of worshippers for days at a time³. The Quakers – surely a heresy by most standards since its 'conservative' members in the West deny the divinity of Jesus – now has more members in Africa (mainly Kenya and Ruanda) and Central America (mainly Guatemala and Bolivia) than in the West, and these members are fundamentalist in theology as the result of missionary work by fundamentalist Quakers from the USA⁴.

In the West many of the religious have turned away from the rules of the organised religions and re-organised in new groupings, often parochial, often emotionally charged, and often at right angles to the established paths. Thus charismatic, evangelical, pentecostal and theologically reactionary 'congregations' have grown up inside otherwise 'liberal', 'respectable' and 'apostolic' churches and have, depending on local influences, broken away as new organisations or formed almost independent sub-congregations. People vote with their feet and the highly trained and rule-obeying priesthood finds itself without support; buildings are sold; charities go bankrupt; committees cease meeting; publications fold; lobbying of government becomes weak; hands are wrung but not bells; and churchmen and women work feverishly to see where they have gone wrong – was it wrong not to admit married priests? to condemn contraception? to refuse to re-marry the divorced? to bless the soldiers? to condemn genetic experiments? to ban rock bands from the services? to give up the Latin mass? to preach against fornication? to accept homosexuality? Where did we go wrong?

Such reactions to ever-dwindling congregations rely on poor logic, as I pointed out when discussing the wealthy exclusivist-church members who believe they are being rewarded for their piety. Perhaps God is rewarding the main-line churches for sticking to their beliefs about the priesthood, homosexuality, contraception, rock music, and so on, by cutting away those who are not true believers and leaving only the elect who concentrate on the proper work of worshipping him-her.

In the year 2003 in New Zealand I see most Churches as more conservative and theologically straight-jacketed than fifty years ago. This may be because the more theologically liberal failed to convince most adherents that the new ideas were better than the old ideas, or it may be because the new ideas were not better than those of the past. In the past twenty years the debates in the old Churches tend to be resolved in favour of what was done before the modern theologians began their re-interpretations. Here are three very different problems; each involves a debate over which is stronger, to re-interpret the command to love your neighbour, or to continue doing as in the past before the problem arose.

(1) There are debates over accepting homosexual people as members; does the command to love these neighbours mean accepting their habits or is the example of God destroying Sodom more righteous?

(2) There is the debate about whether women may be priests; is the New Testament 'there is no longer male or female, bond or free...' stronger than the tradition of apostolic succession in the male line only?

(3) There is a debate whether contraception is acceptable; the collision is (partly) between overpopulation and the fact that there was no moral rule that encompassed what science has now made possible.

I see the old Churches choosing to follow the clear rules still preserved in print, rather than those which need imagination to interpret; and where there is no rule in black and white they prefer to make no new rule and to sanction what was done (or not done) in the past. The result is that there is a problem with attracting people. Most Churches lay down creeds that must be accepted before membership will be granted; those that do not are few and far between, most notable being the Quakers, and they have to put up with the problems concomitant with having no theology, mainly the problem of attracting only people with strong personally developed beliefs, some rational and socially concerned, others mystical and inward looking.

Theological change

The God-religions were already in shock as the effects of the scientific (and particularly the Darwinian) revolution seeped through to ordinary people after the Second World War. In the 50 years of peace in the West, religion has become less and less relevant to ordinary lives: the important past functions of the Churches have been taken over by the state. For example, charity work has

been taken over by comparatively liberal state pensions and welfare provisions; care of the sick is provided by the state or by extensive use of insurance (available because incomes are so much higher); mental health and life's shocks, once treated by confession and the comforting ear of the clergy, is now given over to 'counsellors' and treated by psychologists and the new drugs; the marking of important moments in your life, (birth, marriage, death) and even events in the year (mid-winter, spring) are now in the hands of secular professionals and the retail trade.

At the same time, in the rich West, those people who are religiously inclined can (with money, fast travel and with the vast flow of knowledge) learn about alternatives to the religion of their own part of the world. A major spin-off from Christianity itself has been a new liberal attitude to belief (summed up as 'the Human Right of freedom of religion'). With no compulsion to join the local religion, many Westerners now espouse a non-western religion. Also, various new religions have sprung up for the religiously inclined, for example, female-centred forms of belief, attempts to revive Gnosticism and North American native religions and to make branches of tantric Buddhism available to Westerners. And for the gullible there are the fads for self-knowledge, self improvement, and a multitude of superstitions about fairies, spirits, souls, angels, astral planes, crystals, energy-webs, extra-terrestrials, the effects of star movements, and religions created for movie and TV series. (So many people at the last British census put down 'Jedi' as their religion that it may have to be included as an option in the next census.) All these can be lumped together and called 'new-age' beliefs.

In the 'main line' Churches in the West there was a growing divide between the trained clergy and the people in the pews. After the 2nd World War the ideas worked up by theologians who were trying to cope with the findings of science began to filter down to the clergy. For example, the descriptions by anthropologists of the place of myth in other societies had to be acknowledged by theologians and then by those training the clergy. This led to the movement to 'de-myth' the Bible stories. For example Adam and Eve in the Garden of Eden was recognised as a myth wonderfully describing, among other things, the liberating effect of knowledge, and its enslaving effect; it was no longer seen as history.

Once this process got under way it was very hard to see where to stop. Having seen the stories in the Law and the Prophets as myths, what was one to do with the Gospel stories and the Letters of the New Testament? Was Jesus real or a myth?

Some theologians said we should hunt for the historical Jesus and put most of the rest of the New Testament aside as sometimes useful, sometimes obstructive, myth. Other theologians said we should accept that the Jesus of the 2000 years of Church history (the Christ) was more important, the historical Jesus unknowable and unimportant. This divide has not been bridged; the established churches including Catholic, Orthodox, Protestant, and the new evangelical sects all favour worship of the Christ, as described by St Paul and the particular tradition they belong to. Those looking for the historical Jesus are a small group of academics but will be a powerful influence because of their scientific rigour.⁵

New myths began to be invented. For example, a very worthwhile modern myth was proposed by Dietrich Bonhoeffer⁶ before Hitler had him executed. He described Man (people) as 'Come of Age', no longer forced to believe in God for lack of any other explanation of the universe, no longer dependent upon God for psychological or cosmological assistance, and now able to decide to live with God, or to do without God. Theologians who have reached this point, whether Christ-as-Church-defined traditionalists, or Jesus-the-historical-man scientists, I call 'Modernist'; they do not question the nature of God as defined by earlier theology (omnipotent, omniscient, all good, etc.) and some, following Karl Barth, will say that God is so 'other' that until a person 'experiences' God that person should leave talk about God's nature alone.

Post-Modern Theology

Since the ideas of de-mything took hold there has been a further shift in the language of non-fundamentalist Christian theologians. In the talk of many of them the word 'God' no longer refers

to an extra-terrestrial creator, or a sustainer, or a father. The new meanings of 'God', all in competition, struggling for understanding and acceptance, include using the word as

- (i) a symbol or point of reference, or
- (ii) a focus of understanding, or
- (iii) shorthand for the universe, or
- (iv) something totally in the mind, or
- (v) for ourselves.

Some look back to Ockham, Spinoza, Bergson; some quote Teilhard de Chardin or Lovelock; others, the feminist theologians, quote male theologians, ancient and modern, mainly to show up male prejudices, and hope to turn theology to very different paths. Some are churchmen and churchwomen looking for a new theology for churches unhappy with old myths. Some are the mystically inclined but historically and scientifically naïve looking, in a romanticised past improperly understood, for a 'better' faith. However, all these ideas must be examined with just as cold a logical eye as older theologies – as far as is possible at this stage in their development. Perhaps they can avoid the logical pitfalls of past theologies.

The post-modern (for want of a better name) theologian is one who thinks that de-mything must go even further and we must stop using the word 'God' as in any way referring to a 'being'. They say that God is not something among other things, is not something in, or outside, the universe, is not an eternal being, is not the divine inhabitant of the world. But they do not stop there. Here are examples of the sort of talk they prefer:

'God' understood as a symbol, is religiously, and ethically more important to us than the objectivised, realist 'God'.⁷

Though the word 'God' can no longer be used to name an objective spiritual being, it can usefully continue to function as an ultimate point of reference or a unifying symbol... a focus of the meaning we must now create.⁸

The fundamental symbol of our ultimate concern is God.⁹

God is the mythical embodiment of all that one is concerned with in the spiritual life.¹⁰

The symbol of God claims to represent to us a focus for orientation which will bring true fulfilment and meaning to human life. It sums up, unifies and represents in a personification what are taken to be the highest and most indispensable human ideas and values.¹¹

Why indeed must 'God' be a noun? Why not a verb – the most active and dynamic of all? Hasn't the naming of 'God' as a noun been an act of murdering that dynamic Verb? And isn't the Verb infinitely more personal than a mere static noun? The anthropomorphic symbols for God may be intended to convey personality, but they fail to convey that God is Be-ing.¹²

But to place ourselves at the centre [as she has described] in this way is not to exclude God, since God is to be understood not as set over against us, but as one with our self-realization. We may think that which we have named God to be a dimension of all that is: something which we may recognise, on which we can draw, and which allows us to be all that we have in us to become.¹³

Some of the expositions, particularly from those who have grasped the direction of thinkers such as Lovelock and Teilhard de Chardin, appear to make the earth, including human kind, the new God.¹⁴ The use of the word 'Gaia' for the new pantheistic view of an indivisible world is usually the most obvious marker. Christian versions talk about God being incarnate not just in Jesus but in the whole human species, or in the universe as a whole. Another idea is that there is a 'cosmic drift towards complexity and meaning' which has brought humankind to its present state —

apply to them? The next chapter examines, the logic of the ideas of those theologians who want God to be a symbol rather than a being; the next examines a welter of ideas from feminist theologians. Pantheistic ideas and their logics are in the next Section.

Selecting a theology

Christian theologians have a sub-class of their discipline called 'systematics' and heavyweight Christian theologians write books with titles such as 'A Systematic Theology'. Few logicians, if they cared to dip into these works, would find them very systematic – there is usually very little in them which systematically sets out the pre-suppositions of the author, the logical systems being used, the problems of interpretation, the status to be given to authority, revelation, and scripture. However, for many years systematic theologies have been regarded as more academically respectable than 'popular' theologies.

'Systematic' theologies are few. There are indeed very few religions with written statements of any sort, both in total and in proportion to the total, since most religions have been those of non-literate societies. Of those religions with written theologies very few indeed are 'systematic' in any useful way to someone searching for logic in them. Most of us have a list of religions of which we have had some experience. In a first attempt to compile a list I wrote down twenty religions (and many of them are broad categories which should be further refined) and of them only fifteen have 'scriptures' and only five have had experts who left behind systematic accounts of their beliefs, tenets, teachings which have survived.

Trend Indicator.* Scriptures / Commentaries / Theology / Systematics				
Religion	Written Scriptures	Scriptural Commentaries	Written Theology	Systematic Theology
Christianity (Western and Eastern)	✓	✓	✓	✓
Jewish (Orthodox and Liberal)	✓	✓	✓	
Islam	✓	✓	✓	
Buddhist (both vehicles)	✓	✓	✓	
Baha'i	✓	✓	✓	
Zoroastrian / Mithraism / Parsee	✓	✓		
Jain	✓	✓		
Hindu	✓	✓		
Confucian	✓	✓		
Dao	✓	✓		
Greek / Roman	✓			
Shinto	✓			
Aztec	✓			
Aboriginal (Australia)				
Celtic				
Early Maori				
Yoruba				

that is, no written
scriptures
from here on

that is, no systematic
accounts from here on

* Trends only; no accuracy claimed or implied

Due to my ignorance, the list of non-literate religions is likely to be much bigger, and the work of historians, archaeologists and anthropologists will enlarge it further; therefore, the generalisation will stand until, perhaps some thousands of years hence, an equal number of new religions (all literate and with theologies) have appeared.

Religions can raise intense emotions and intense intellectual debate. Naturally such debates among non-literate people are lost, and among many non-western peoples have been lost as the technology for preserving them was inadequate (e.g., papyrus paper in damp climates), or waning popularity gave no incentive to preservation, or battles, economic hard times, changing politics, even changing climate obliterated the written scriptures, tenets, and debates.

Systematic theologies may be few but they are not far between: by volume, almost all written systematic work has been done inside the Judaeo/Christian tradition. This again may be confirmed by list making. Christianity in particular was born into a literate society: Jesus is depicted as reading; the books of his sayings were being collected only 25-30 years after his death; and its tenets were being written as creeds 300 years after that. Theological argument was intense in the centuries around Constantine as different beliefs were upheld, or condemned as heresies, and the religion split and split again. In the western church – only one of several – an orthodoxy was established and is the one whose theological debate has been best preserved and is most accessible to scholars today. The box indicated the trend.

Creeds

The western Christian tradition has preserved several creeds and the most famous of these are the Apostles' and the Nicene¹⁵, both based on earlier statements of the 300s. They were debated, edited and adopted in the 400s but went on being revised and either rejected or accepted at least till the 800s. The shorter creed (the *Apostles'*) with its fourteen propositions has remained since then virtually unchanged and is used by Catholic and Protestant churches; the Catholic and Anglican churches also use the longer Nicene regularly in services.

The Apostles' Creed

1. I believe in God almighty
2. And in Christ Jesus, his only son, our Lord
3. Who was born of the Holy Spirit and the Virgin Mary
4. Who was crucified under Pontius Pilate and was buried
5. And the third day rose from the dead
6. Who ascended into heaven
7. And sitteth on the right hand of the Father
8. Whence he cometh to judge the living and the dead.
9. And in the Holy Ghost
10. The holy [catholic] church,
11. The communion of saints,
12. The remission of sins,
13. The resurrection of the flesh,
14. [And] The life everlasting.

The 'Nicene' Creed.

We believe in one God the Father All-sovereign, maker of heaven and earth, and of all things visible and invisible;

And in one Lord Jesus Christ, the only-begotten Son of God, Begotten of the Father before all the ages, Light of Light, true God of true God, begotten not made, of one substance with the Father, through whom all things were made; who for us men and for our salvation came down from the heavens, and was made flesh of the Holy Spirit and the Virgin Mary, and became man, and was crucified for us under Pontius Pilate, and suffered and was buried, and rose again on the third day according to the Scriptures, and ascended into the heavens, and sitteth on the right hand of the Father, and cometh again with glory to judge living and dead, of whose kingdom there shall be no end:

And in the Holy Spirit, the Lord and the Life-giver, that proceedeth from the Father, who with Father and Son is worshipped together and glorified together, who spake through the prophets:

In one holy Catholic and Apostolic Church:

We acknowledge one baptism unto remission of sins. We look for a resurrection of the dead, and the life of the age to come.

However, although they use the Creeds, it would be hard to find a Catholic or Protestant clergyman or woman today who believes in the reconstitution of our skin, bone, neurons, chromosomes, Malpighian tubules, ovaries, etc., <resurrection of the flesh> (*Apostles' Creed*) or that Jesus flew into space <ascended into the heavens> (*Nicene Creed*) or that Jesus has a chair <sits on the right hand of the Father> (*both*). Considerable effort by modern apologists has gone into the re-interpretation of the Creeds in a less literal way. However, historical research into the cosmology or world-view of fourth century Christians (as well as common sense) suggests that the Creeds were meant quite literally by their writers. A long essay could be written on whether it is legitimate for a religion to still be called by the old name when its doctrines have slid from concrete to metaphoric.

The old literalist interpretations are not dead. Some sects, for example the Jehovah's Witnesses and most Mormons, do believe in a physical 'fleshly' resurrection for the elect on the earth. Yet, despite what the Apostles' Creed says, they would be among the first candidates to be excluded from any list of 'true' Christian churches if it were put to a vote by the older denominations. This would be mainly for other reasons, but partly because they believe such 'strange nonsense', that is, take what is generally now thought of as a metaphoric doctrine, literally. This rejection of the older doctrine is despite the fact that the resurrection of fleshly bodies is a belief with more power to change people's behaviour than the poetic picture of how Jesus and God sit when ruling. Resurrection bodies (a) can be given a new and reasonable scientific interpretation (the person's actual electrons, may not re-combine, but electrons, being indistinguishable one from another, it does not matter which ones get together, just that some are arranged in the original numbers and patterns) and (b) give rise to far fewer scientific, philosophic and logical problems than immortal souls.

Evangelical sects and conservative theologians, finding the idea in the Bible, maintain the idea of resurrection bodies in their preaching and in lists of their doctrines; but even when written down the idea can be 'fudged'. For example, *The Doctrines of the Salvation Army* enumerates their doctrines in eleven paragraphs and in the last says, 'We believe in the immortality of the soul in the resurrection of the body...' Thus, despite not appearing in the old creeds, the idea of immortal souls has been accepted and amalgamated with resurrection bodies. In *What Catholics Believe* (1998, Wellington, Catholic Enquiry Centre, Ch.10, p.16) resurrection bodies are not expected until the 'second coming of Jesus' when 'our rising with Jesus will be fulfilled in the resurrection on the last day.' Interestingly, they say, 'What happens to this earth at this time we don't know.' However, souls are mentioned several times; for example in explaining purgatory it says, '...it's possible for a soul to be purified after death...' (Ch.10, p.14.)

However, very few church members believe in literal resurrection bodies and the theory of immortal souls was a clear winner centuries ago. Some theologians, making this point, say that the history of Christian theology is the history of the victory of Gnostic thought over Hebrew thought.

The creeds were written during times of great theological controversy and were used as weapons in the fight against what were branded as heresies. Thus the Nicene was amended to specifically note, against the theologian Arian, that Jesus is 'begotten, not made, of one substance with the Father'. But other 'heretical' suggestions were not specifically condemned nor countered in the body of a creed. For example, in the early 400s Pelagius was condemned as a heretic for denying original sin, for teaching that the unbaptised may have eternal life, that God forgives the wicked, that people are responsible for their own actions. We note that, despite those ancient condemnations, most of the ideas of Pelagius are very acceptable to modern protestants; 'We are all Pelagians now.' was how Walter Hendry, a Presbyterian minister put it to me in 1950.

That the creeds are now unacceptable (when understood unchanged) is important to the problem of selecting theologies to study. Therefore, to find a list of basic beliefs we have to look further afield than the most common creeds. The hunt is not made any simpler by the fact that credal statements are just that – statements which set out beliefs necessary for (1) membership of the religion, (2) for membership of the denomination or sect, and (3) for membership of the particular flavour of the denomination/sect. For our preliminary investigations we need select only the most basic belief statements, particularly those common to almost all of the Christian Churches. I intend to use, for studying Christian beliefs, statements of beliefs collected from pamphlets and short works intended to introduce Christianity (or a branch of it) to enquirers, neophytes, and unbelievers. A simple tract, handed out on the streets of Wellington, is reproduced in Appendix 1. I am confident that the basic beliefs I have found to work on are universally agreed by theologically conservative Christian Churches (though the language I use to express them in will sound very strange to evangelical believers). Ideas such as those about souls or resurrection bodies, or the seating arrangements in heaven, all ideas that can be derived logically from the basic beliefs, and all ideas that are particular to a few branches only (such as the importance of holding worship services on particular days of the week, or using particular set prayers in particular rites) I will leave aside.

Using simple statements prepared for people inquiring about a religion or denomination has some disadvantages, in particular the lack of subtlety of blunt statements (a problem shared by creeds) and the problem of what ‘register’ of the language is being used. Is one to take the statement that Jesus is sitting at God’s right hand literally, or poetically, or symbolically? Surely nowadays, poetically or symbolically and understood as a metaphor underlining Jesus’s importance. However, nowadays it is not even to be understood as one of the core beliefs of Christianity, its acceptance making or breaking whether a person is admitted as a member.

There is also the problem that some essential beliefs may not be mentioned in either the creeds or in ‘popular’ pamphlets. I have found at least two which are essential to the sort of Christian belief I will look at in this section; these are beliefs about morality, and are seldom recognised, stated or argued about by Christian believers. Perhaps naturally enough they are parts of a ‘Western’ moral system and, as will become important when we look at non-western theologies, not as universally agreed with as most Christians imagine them to be.

Philosophers of religion have many books and journal articles examining very closely the problem of how metaphorically to take the credal statements. This is a most important topic when it comes to deciding whether religious language is the same as profane language, whether the two are entirely different even though they use the same words, or whether religious language is a branch of the total language but using words with ‘stretched’ meanings. For example, Stuart Brown in his *Do Religious Claims Make Sense?* (Brown 1969) enumerates and carefully examines seven positions which try to explain the ‘intelligibility gap’ between what religions claim and what unbelievers understand the religious to be saying.¹⁶ I.M. Bochenski looks at the logical foundations of what he calls ‘analogy’ in his *The Logic of Religion*, (Bochenski 1965).¹⁷ In *Metaphysical Beliefs* (Hepburn 1957) Ronald Hepburn writes about ‘Poetry and Religious Belief’ and examines living images and dead dogma, archetype and myth, insight and imagination, cosmological and religious ideas, and the analogy with poetry.¹⁸ In the same book, Alisdair MacIntyre in ‘The Logical Status of Religious Belief’ looks at, among other topics, whether religious language is so idiosyncratic that we can have no hope of a philosophical (or logical) account of it.¹⁹

Another reason for rejecting the creeds as the basic propositions for any logical analysis of theology is the very mundane one that they have too many clauses for my purpose; some clauses are repetitive or too fulsome; and, at times they are just incomprehensible to modern readers. Amongst the latter I include those clauses defining the trinity; these are unnecessary to a formal system (in which God = Jesus = Holy Spirit will be quite adequate), no matter how necessary they were in the 3rd Century.

The Selection

Late 20th Century 'Conservative Mainline' Protestant Theology

For a first 'run' I have chosen (because I know it so well) a set of beliefs held in the late twentieth century by many Protestant Christians. I call it 'DP' as a contraction of 'Death Protestant' and in contrast with 'LP' for 'Life Protestant' and several other Protestant theologies. The 'death' and 'life' labels refer to whether the theology places greater importance on Jesus's death (and resurrection) or his life. The old categories of Christian theology such as 'liberal', 'conservative', 'Barthian', 'catholic', 'modern', and so on, hold little interest to the logician at this stage in this investigation; however for a quick and enjoyable introduction to them and the reasons for seeing them as separate entities I refer those interested to Arthur Prior's 'Can Religion be Discussed?' in *New Essays in Philosophical Theology* (Prior 1942).

Here are the beliefs I calculate to be essential to the 'Death, Protestant' version of Christianity:

The DP Axiom Set

- DP1. The universe was made by God.
- DP2. God allowed people to be creators too.
- DP3. People made things God did not like.
- DP4. [People deserved to be punished for disobedience.]
- DP5. [Punishment due to one person may be, legitimately, transferred to another person, and the second person suffers the punishment and so expiates the crime of the first.]
- DP6. God punished himself instead of people.

The square brackets in DP4 and DP5 are because these two ideas – necessary to the consistency of the whole – are not strictly theological, that is, they have no reference to God, and are, both, ethical ideas.

Possible ways of putting these axioms into predicate calculus and deontic form can be essayed. They might start thus:

Domain: all objects, people, thoughts, feelings, ideas, generalisations ... in other words, the universe: usually called the Universal Domain (UD).

g , a constant for God

$x, y, z \dots$ variables for any of the members of the universe

πx x is a person

θx x is a thing (not a person)

μxy x makes y

ψxy x is punished by y

O Obligatory; P Permitted; L Necessary;

M Possible; W Willing; X God permits; Z God forbids

DP1. $\Pi x \mu gx$

< whatever x may be, x was made by God >

DP2. $\Pi x \Sigma z C K \pi x \theta z X \mu xz$

< for all x and some z , if x is a person and z is a thing, God permits x to make z >

< God permits everyone to make some things >

DP3. $\Sigma z \Pi x C K \pi x \theta z Z \mu x z$

< for all x and some z , if x is a person and z is a thing, God forbids x to make z >

< there is some thing (or are some things) that God forbids everyone to make >

DP4. $\Pi x \Sigma y \Sigma z C K K \pi x \pi y \theta z C K N P \mu x z \mu x z O \psi x y$

< for all x and some y and some z , if x and y are people and z is a thing, then if it is not permitted for x to make z , and x does make z , then it is obligatory for x to be punished by some y >

< if anyone does something forbidden then it is obligatory for them to be punished by someone >

DP5. $\Pi x \Sigma y \Sigma z C K K K \pi x \pi y \pi z O \psi x y P K \psi z y N \psi x y$

< for all x and some y and some z , if x and y and z are people and it is obligatory that x be punished by y then it is permissible for z to be punished by y and x not to be punished by y .

< for everyone if it is obligatory that they be punished then it is permissible that someone else be punished and they escape punishment >

DP6. $C \Pi x \Sigma z C K \pi x \theta z Z \mu x z \psi g g$

< if DP3. then God punishes God >

< if people do what God forbids, God punishes him-herself >

These formulæ will not be used as we tease out the implications of the DP axioms, but they could be used to investigate their implications, as they are and in combinations, and refinements essayed.

Reductionism

Against my inclusion of DP4 and DP5, it might be argued that God's universe, as created, requires a system of justice and even a system of transferable punishments. This is the beginning of the slippery slope which reduces all theological axioms to just one, namely:

DP1: God made the universe.

To make this reduction, though, you need a comprehensive description of the universe and of God. For example, you need an indication of how justice and the transferability of punishment is part of the universe, as well as whether there are things, people, numbers, ideas, pains, emotions, figments of the imagination, and quarks... I am making here a logical, rather than a religious point, of course. For a religion to be propagated it needs a lot more than the six theses I have enumerated here; in particular it needs some description of the consequences that flow from them.

Using an axiom so complex that it contains all the ideas you need for a full system in itself alone has consequences, even if the axiom looks as simple as DP1. The simplest is the difficulty of accepting the single axiom as intuitively true.²⁰

In selecting the six DP theses I hope I have found a reasonable minimalist set of premises: axioms which are easily understood and easily argued from. The problems of reductionism and DP1. are discussed in the next chapter.

Time

It should be noted that I have kept to the past tense in the premises in their first form. There are several reason for this, mostly to do with the difficulty of formalising time relationships. However, for visualising purposes we can note that everything that is [a] happening (is true) in the present and [b] will happen (will be true) in the future, is going to become [c] past (and true of its time). So, you might like to think of the logic that is being developed as one most suitable for the end of time, when everything has happened, and can be safely summed up.²¹ Putting symbols such as t_1 , t_2 , t_3 , ... or writing out 'At such and such a time' at the beginning of every statement is superfluous and confusing. If time distinctions become necessary, I will delve into that separately. In the meantime I avoid confusing (and redundant) time indicators by leaving them out wherever possible.

Notes and References

1. I would like to make a clear distinction between Jesus the man and the Christ the Son of God. Jesus, his character and his teachings (though not with any certainty the events of his life in any detail) can be gleaned from scientifically responsible linguistic and historical research. The methods and present day results of this research can be seen most clearly in Crossan (1991) *The Historical Jesus*. However, before Crossan's work was published, and from a quite different perspective, the insights of a Catholic priest advocate of 'Liberation Theology' in Nolan (1997) *Jesus Before Christianity*, come to much the same conclusions. To call the historical Jesus *the Christ* (the foretold 'saviour' of the Jews) is to state a religious belief and state it in a theological manner. It might be possible to call those people enthusiastic about the life and teachings of Jesus, (if they make no claims about his status as the Son of God) *Jesus-ians*, and those who make the claim that Jesus was the Son of God (in a more than poetical sense) *Christ-ians*. History is pretty blank about what exactly was happening in the 30 or so years between the ministry of Jesus and the first scriptural writings about him, but in some of the earliest writings we find the term being used without hesitation. For example, Paul in about 50CE in his first letter, *1 Thessalonians*, says in 3:2, '... [we] sent our brother Timothy, who is God's helper in spreading the Good news of Christ, to keep you firm and strong in the faith.' In *Matthew* (c.90 CE) 16:16 we hear the writer's conviction that the subject was being discussed whilst Jesus was alive.

The birth of Christianity, especially what we can find out about the nearly blank 30 years, is the subject of Crossan (1998).

2. A New Zealander, the late Harold Turner, studied the Aladura churches of West Africa after one day, on impulse, joining in a Church of the Lord procession through the streets of Freetown, Sierra Leone. His work resulted in articles and books and the founding of a library of the scriptures of many new churches, located at the University of Aberdeen. The most accessible of his studies are Turner (1997) and Turner & Mitchell (1996).
3. Personal experience in 1962-4. The situation in 2002 was described, during a phone conversation, Christmas 2002, by Sheila Solarin, retired Headmistress of Ikenne Secondary School, still living in Ikenne, 60km from Lagos.
4. Figures from the Friends World Committee for Consultation (FWCC), compiled in 2002, available from Friends' House, Euston, London.

Quakers in Africa	140 000	
Quakers in Latin America	50 000	
Quakers in Africa and Latin America		190 000
Quakers in USA	90 000	
Quakers in Britain	16 000	
Quakers in Britain, USA		106 000
Quakers in the rest of the world		44 000
Quakers world-wide total		340 000
5. For the most rigorous studies see John Dominic Crossan, for example, Crossan 1991, *The Historical Jesus*, San Francisco, HarperCollins.
6. See Bonhoeffer, Dietrich (1945)
7. Lloyd Geering, *Tomorrow's God*, p.157.
8. Lloyd Geering, *Tomorrow's God*, pp.221 & 223.
9. Paul Tillich, *The Dynamics of Faith*, p.1,45.
10. Don Cupitt, *Taking Leave of God*. p.166.
11. Gordon Kaufman, *The Theological Imagination*, p.32.

12. Mary Daly, *Beyond God the Father*, p.34.
13. Daphne Hampson, *After Christianity*, p.284.
14. See Chapter 13.
15. The quotations here are from Bettenson, 1953, *Documents of the Christian Church*, (World Classics edition 1943 and reprints) Oxford, OUP, pages 33 and 34.
16. Stuart Brown (in Brown, 1969) has a list of claims for an '...apparent "intelligibility gap" by which the unbeliever is not able to attach sense to the claims of religion.' These are the following:
 1. Religious claims are simply unintelligible (he calls this the *U-theses*.)
 2. Religious claims are unintelligible as they stand but can be rendered intelligible, by a particular re-interpretation of them (the *R-theses*).
 3. Religious claims are unintelligible as they stand but can be rendered intelligible, as a result of conceptual change (the *C-theses*).
 4. Religious claims have become unintelligible as a result of conceptual change, but can be re-expressed in such a way that they can once more be understood (the *D-theses*).
 5. Religious claims are not, strictly speaking, either 'true' or 'false', but are expressions of a non-factual 'perspective' by which human life may be lived (the *P-theses*).
 6. Religious beliefs are superstitions (the *S-theses*).
 7. Religious beliefs are unintelligible to the unbeliever by virtue of his or her being an unbeliever (the *B-theses*).
17. Bochenski (1965), in his Section 37 (starting on page 114) which is part of a discussion of different theories of the meaning of religious discourse, says that the theory of *Analogy* can be characterised as saying, '... whenever a term of PD [profane, i.e., non-religious, discourse] is used in RD [religious discourse] the meaning it has in RD is partly identical with that which it has in PD and partly different. For example, when the term "Father", which is a term of PD, is used in RD, it means there something only partly identical with its meaning in PD.'

Bochenski goes on to a conclusion that will be quite surprising, if not disquieting, to those who feel that poetic analogy is the basis of religious talk. He suggests that the difference between the ordinary use of a concept (such as 'Father') and its religious use is that the two uses are related by certain formal logical properties of relations, namely: reflexivity, symmetry and transitivity.

He sees this as a way of assuring us that (i) religious discourse is not meaningless, (ii) it allows us to say that the object of religion (in his case God) has 'extreme transcendence', and (iii) it allows even very strict reasoning about it. Would that it were so. In a technical appendix (Section 50, pages 156- 162) he teases out some of the logic of relations needed for study of analogy in a modern way, and leaves us with the comment that the whole field merits more attention than has usually been given to it. One can but heartily agree.
18. Ronald Hepburn makes a good point when he says (page 86) 'I am confident of two things; that the theologian's appeal to poetry can perfectly properly clarify some aspects of his use of language, if used with caution; secondly, that without such caution the appeal to poetry can easily result in a blurring of necessary distinctions and a smothering of unanswered questions. This danger is not surprising, for historically there has been about as much disagreement over the nature of the poets' use of language as that of the theologian!'
19. See Chapter 11. for a quotation from McIntyre (1957) pp.176-7.
20. For example, the 'Classical' Propositional Logic can be fully developed from 3 short axioms plus the standard rules, or from one long axiom plus the rules. The first three short axioms are reasonably easy to assent to intuitively:

(1) $CCpqCCqrCpr$	<the syllogism>
(2) $CCNppp$	<if <i>not-p</i> implies <i>p</i> , then <i>p</i> >; (consequentia mirabilis)

<if something being false implies its truth, then it is true>

<if you cannot deny something then it is true>.

This depends on the 'paradox of implication' that from a false statement you can infer anything at all, including the truth of the statement.

(3) $CpCNpq$ <if p then, *not*- p implies q >

< if something is true then, if you deny that, you imply anything at all>

<false ideas lead to chaos>.

But the single axiom

(4) $CCCCCpqCNrNsrtCCtpCsp$

<If the implication of p by q implies that it is not the case that r implies that it is not the case that s implies r implies t , then, if t implies p , then s implies p >

is intuitive only to those who do this sort of thinking every day, and maybe not even then!

21. In lectures Prior suggested that looking at time with a sort of 'God's-eye' view from the end of time, a notion he attributed to Thomas Aquinas, was a handy way around some problems. Thomas was, naturally enough, worried about whether God's omniscience extended to matters of the future and what effect this had on predestination. Ockham and his followers continued the argument. See Thomas's *De Veritate*, Question 2, Article 12, 'Does God see singular future contingents?' and Ockham, *Tractatus de Praedestinatione*, Boehner, P (Ed.), 1954, Franciscan Institute, pp.56-101b. Prior's examination of the problems of time and theology 'The Formalities of Omniscience' is an object lesson on how theologians should be proceeding on such matters if they wish to be seriously considered as pursuing the Queen of the Sciences. This paper is Prior (1962), later reprinted along with other of his time studies in Prior (1968).

Chapter 7

A Christian Theology: Axioms 1 & 2

Introductory Remarks about DP1

1. *Is it necessary to have DP1 at all? God from chaos*
 2. *The logic of nothing before the universe. Time before time? A pre-creation logic (Logic⁻¹).
Nothing else but God. Does God obey logic? A pantheistic solution.*
 3. *Non-Theological Problems*
- Conclusion*

Introductory Remarks about DP2

- Some Preliminaries*
- The structure of moral argument. Sanctions. The 'Good'; The origins of moral rules*
- Symbols and meaning. The three parts to any moral situation*
- Further problems.*
1. *Iteration. Iteration and free-will in practice*
 2. *The Barcan formula. Time*

Conclusion

Introductory Remarks About Axiom DP1.

DP1. The universe was made by God.

Only two sets of logical problems present themselves immediately for *PD1*.

- (1) Is it necessary to have *PD1* at all? Could there be an even more axiomatic proposition from which *PD1* could be derived?
- (2) Has the (unacknowledged) notion in *PD1*, that nothing existed before God made it, have any logical fish-hooks?

Of course, a single axiom on its own is not much use to anyone; it is only as we move on to try to understand the way the axiom meshes with other axioms or with the results of empirical science, or with ethical ideas, or even with our own emotional reactions to the axiom, that we make any progress towards a full theology. But before the meshing begins we do need to start from a logically sound point.

1. *Is it necessary to have PD1 at all?*

GOD FROM NATURE

Attempts have been made to start a theology from just one axiom plus the laws of logic, and the most famous is the ontological 'proof' of God's existence. The axiom usually chosen is not *DP1* nor is it one which fulfils the conditions what I have defined for a theological axiom. Philosophers generally agree that it is an attempt to prove God's existence from a 'natural' fact, (hence 'Natural

Theology') not from a single axiom which already assumes there is a God. Thus the argument is not circular. It is usually (from Descartes, not Anselm) such a proposition as 'Existing is more perfect than not existing.' The form of the proof is a *reductio ad absurdum*, a form of proof very tricky to run successfully, so tricky that in fact a whole school of logic (Intuitionist Logic) denies it as a legitimate way of arguing. In classical propositional logic the argument might be put as follows.

Use

p for *God exists*

q for *God is perfect*

then Descartes' proposition could be stated as:

Ont.1. CKCpqqp < if we have both: God's existence would imply God is perfect; and, God is perfect; then, God does exist.>

Unfortunately for the ontological argument this is not a logical law and should more properly be written using some indication to point out that it is a false statement; I use a superior ^F.)

^F*Ont.1 CKCpqqp.*

A proof that this is not a law of the propositional calculus can be found by using the techniques explained in Chapter 4. Many more subtle versions of the ontological argument have been tried, and all have so far been found unconvincing; even Catholic scholars now reject it as a good proof of God's existence.¹

Prior (1976) has a technical paper, 'On some proofs of the existence of God' first printed after his death in a collection of some of his papers called *Papers in Logic and Ethics*, collected together by Geach and Kenny.

GOD FROM CHAOS

This sort of imagining suggests that God was not subject to the laws of logic before creation (if a meaning can be found for 'before creation', see below). In this case the act of creation itself was illogical, that is, chaotic. In the most ordinary of modern logics (the Classical Bi-valent Propositional Calculus, used above) there is almost a recognition of this way of thinking since the existence of God can be proved much more quickly from false premises than from true : Lukasiewicz's Standard C-N System has the 3 axioms already quoted:

L1. CCpqCCqrCpr < the syllogism >

L2. CCNppp < if denying something implies it is true, it is true >

L3. CpCNpq < if something is true then from its negation you imply anything at all. >

Now change p into Ga , meaning < God makes *Adam* >

L3. p/Ga = G1.1.

G1.1. CGaCNGaq < if God makes Adam, then, if God does not make Adam, then anything at all >

This still says that contradictions lead to chaos, and that is fine. However:

L3. q/Ga = G1.2

G1.2 CpCNpGa < if something is true, then, if it is not true, God creates Adam (or any and everything) >

This says that a contradiction leads to God. This is a sort of up-side down proof of God's existence from a contradiction: God exists if there is chaos. We are used to the idea that God existed even when everything else was in chaos ('and the world was without form...' *Genesis 1:2*) and that he-she-it changed all that; but we are not used to the idea that that very chaos proves he-she-it existed. However, note that this paradox does not 'prove' that God exists if there is chaos, merely reminds us that in a system of chaos you can prove anything. For example in a chaotic situation you can also prove that God does not exist; both are equally true. When everything is true (and everything is false) that is chaos.

2. The logic of nothing before the universe

The Schoolmen argued about whether God had to obey the laws of logic. They assumed that God had created the laws of logic (they breathed theism as we breathe science-ism) but they were right to discuss whether, once He (they thought of God as male) had created the rules of logic, He had, Himself, to obey them. Nowadays we do not want to dodge the idea of how one can behave before logic is invented or created; we want to try to make sense of how a 'logic-less' god could create logic.

Some people have suggested that we have here a 'chicken and egg' question: God or logic, which came first? There are many logical snares in asking this.

A *theist* might want to argue that God, the creator, in the act of creating invented the laws of logic and mathematics, because these are, in fact, the laws by which his-her-its universe works and that these laws did not exist before the act of creation: God, in deciding to create a universe containing identifiable objects, created, automatically, a certain set of logical (and scientific laws). For example, the creation of the first object created the following law of arithmetic $1-1=0$ and the logical law

$C_{pp} < \text{if something exists (or is coloured, or whatever attribute you care to name) it exists (or is coloured, etc.)} >$

The creation of the second object brought about the law of arithmetic $1+1=2$ and the logical law

$C_p C_q C_N E_{pq} K_{pq} < \text{If } p, \text{ then if } q, \text{ if } p \text{ is not equivalent to } q \text{ then we have both } p \text{ and } q. >$

A *different theist* might argue that logic and mathematics, as possible sets of rules for one or more possible universes, existed before God. Mind-games before God are as much a *possibility* as electrons before God and any creation, therefore the scenario goes something like this: Should there be a God, and should he-she-it create such a universe as Llewelyn Richards would then know in 2002, both God and the universe will run according to the following logic and mathematics...

Atheists might argue that the laws of the universe are more intuitively axiomatic than God's existence. This is a position I would be prepared to assent to if 'axiomatic' means 'intuitively obvious' (for example $2+2=4$ is more intuitively obvious than God is Love). But 'axiomatic' can also mean 'non-intuitive but basic to what follows'. For example, i , the square-root of minus one, is not intuitively obvious in the same way that *one* and *two* are, (when asked you can point to two objects, but you cannot point to the square-root-of-minus-one objects). Nevertheless, i is basic to predicting electron flows.

I assume that Death Protestant Theology asserts *DP1*. *The universe was made by God* as axiomatic in the sense that it is basic to what follows, that is the theology that is built upon it. I suspect that if *DP1* is to be an axiom because it is 'intuitively obvious', the number of people passionately asserting this would be few among the clergy of the major denominations, who can

usually see the circularity and futility of saying 'God' means 'the maker of the universe'. This point about our intuitive or pragmatic (for the development of a theology) acceptance of *DP1*, is important for two reasons:

- (i) those believers who say that they intuitively accept that God made the universe are the *true believers*; the rest of us are poetaster theologians, trying out the theory to see if it hangs together, not committing ourselves at this early stage to the theology or the religion;
- (ii) the *true believers* need not read any further on this matter: their belief about the creation of the universe is a belief, not subject to proof or disproof. They may, however, read on to see if the logical consequences of their belief are acceptable to them.

There are plenty of people who believe *DP1*, and say they know it is true intuitively (or have been commanded to know it is true). This will not stop the logically minded, believer or unbeliever, from asking if the belief is sensible or nonsensical, reliable or unreliable, useful or useless, well based or shaky, credible or incredible, worth elevation from belief to knowledge or downgraded to ignorance or prejudice; and at the end of such an investigation they may either join the believers in their belief, continue to be sceptical, or try to talk the believers out of that particular belief.

TIME BEFORE TIME?

For *Southern Stars*, a local Presbyterian church paper, in 1959, Arthur Prior wrote a short and (comparatively) simple article called 'Creation in Science and Theology' (Prior 1959). In true Priorian style, after looking briefly at what Thomas Aquinas had to say, and so making a clear distinction between 'coming to exist', (a logically difficult idea because, what was there before?) and 'starting to exist' (much clearer because we often make things and so start their existence), he gets on to the differences, then much talked about, of the 'big-bang' theory of sudden instantaneous creation, versus, the 'steady-state' theory that matter and energy is being continuously created, and has been for all time. Continuous creation has lapsed as a theory since 1959 because there appeared to be very little evidence for it and a lot of evidence against it. Prior had logical doubts about it too, which he mentions. However, the 'big-bang' theory has just as many problems, and Prior points out that one line of argument for this theory is logically untenable. Here is part of his paragraph:

The basic thing that has led so many scientists to believe in one big state a few thousand million years ago is that the universe as we now see it is full of decay processes – radioactive elements disintegrating, and so on – and if you assume that these have always followed the laws of decay that we observe, and then trace them back, we find we reach a point where these things are in a state that couldn't be accounted for by the decay process, or by any process we know of; so there must have been a sheer beginning at least of the universe as we know it. Now there is something that seems very queer indeed about this argument. One of the premises that it starts from is that the processes in this universe have always followed the laws they seem to be following now. But the conclusion drawn, if I have rightly grasped it, is that things *haven't* always gone on in the way they're going on now, but before a certain time either didn't go on at all or went on very differently. Using this premise that the laws of the universe are constant, we draw the conclusion that the laws of the universe aren't constant. Now that much, as far as it goes, needn't be illogical; but its logic is obviously tricky and needs to be carefully watched. It's an old logical law, and I think a sound one, that what implies its own falsehood must be false. If so, our observations, being what they are, the constancy of natural laws implies its own falsehood, then it *is* false; that is, natural laws aren't constant, and in particular the observed decay processes haven't gone on for ever by their present laws. So far the logic is impeccable. But once we have gone that far we can't use the principle that things go on as they do in order to establish just how and when this uniformity has broken down, e.g., to establish that the universe began at such and such a time, or even that it began at all. If there is no uniformity of natural law then we don't know what the past is like – that seems to be the only proper conclusion to draw.²

Given such a limitation on our knowledge from present events, what sort of sense can be given to the idea that God once existed in some sort of state in which it was possible for him to make decisions about whether to make a universe at all (and if so, what sort of universe to create)?

It is easy to reject the idea that God lives in a time which contains our 'number-1-time' as a sub-set of that 'God-time'. The reason for rejecting it is our horror of infinite regressions:

- (1) God¹ lives in Time⁻¹ and created our Time⁺¹ for us to live in.
- (2) If God¹ lives in Time⁻¹ then who created that time?
- (3) An earlier God, God² who lives (lived?) in Time⁻² and creates Time⁻¹ for our God to live in.
- (4) Who created that time, Time⁻²?
- (5) God³ ...

We can see looming an infinite regression to God[∞] and Time^{∞-1}.

This progression, involving the creation of more and more entities, is called 'growing Plato's beard'. As an interesting aside it is worth noting that although it is a vital maxim in science that such progressions are generally unacceptable and 'Ockam's razor' must be used to shave off Plato's beard (this is in philosophy sometimes called rejecting the multiplication of unnecessary entities, in science it is often called applying the principal of parsimony, and in politics is more jovially known as KISS - keep it simple, stupid) nevertheless there is not any easily formulated logical rule nor scientific method which justifies this type of action. A few logical and mathematical processes do accept regressions, but reluctantly; for example Russell's 'theory of types' used to avoid the paradox which asks, 'Is the class of all classes which are not members of themselves, a member of itself?' is not regarded as a very elegant solution, but no other has been found. Gödel's incompleteness theorem shows that in arithmetical theory we must have either incompleteness or an infinite regression of 'completions'; and therefore his proof is accepted as a proof of incompleteness. The principle (accepting the simple explanation before the complex one) was visible in the way early scientists worked, and mathematicians and logicians have always delighted in finding simple, minimalist, proofs; it could be called an aesthetic sensibility rather than a scientific principle, but it has evolutionary 'validity'.

A PRE-CREATION LOGIC (*Logic*⁻¹)

If we reject the idea of an infinite regression of 'types' of time and still want to make some sense of God being not 'bound' before the creation, by logic, (and we do not want to say that God was chaotic) we could grasp the other horn of the dilemma by saying a different logic existed before the creation. This is a rather unfair stretching of the word 'logic' and from this point onward, to argue thus requires, for clarity, *logic* and *logic*⁻¹ (post- and pre-creation logics). Some sort of account of what existed before the creation will now be necessary to make a stab at the sort of animal *logic*⁻¹ would be.

It might be relatively easy if God is the only entity then existing, and we ensure that it is impossible for attributes to be given to God. In such a case almost the only logical procedure open to us is to state identity.

$\Pi x Ixx$ <for all x , x is identical to x >
 <For all God, God is God>
 <God is all there is>.

This introduces a new concept, the idea of two or more objects in a domain being *identical*. If we want to make the point that God exists we might prefer to start from the following:

the Universal Domain (that is, everything), I = identical to (as above), x = a variable, ϕ = is God

$\Sigma x K \phi x \Pi y I y x$ < there is some thing which ϕ 's and everything is identical to it >
 < there exists something that is God and everything is identical to it >
 < God is, and is all that there is >

This would have to be the first axiom of a *logic*⁻¹.

Would God be able to do any logic at this stage? He-she would be restricted to logic about existence, identity and possibly a very restricted calculus about equivalent propositions. Equivalence is a fairly dull relationship and in this case even duller than usual. Any logic that has two or more propositions usually has the chance of the propositions having different 'truth values', that is, one may be true and the other false. Thus equivalence usually has four possibilities:

Using 1 for true, 0 for false: $E p q$ may be

$p/1, q/1$	$E11 = 1$
$p/1, q/0$	$E10 = 0$
$p/0, q/1$	$E01 = 0$
$p/0, q/0$	$E00 = 1$

But with $E p p$ we have only 2 possibilities:

$p/1$	$E11 = 1$
$p/0$	$E00 = 1$

However, if the only proposition we can state about God is that 'God is God' (always true), then in *logic*⁻¹ we have only:

$p/1 \quad E11 = 1$

Prior¹⁰ notes that

$C \phi x \Pi x \phi x$ < If x ϕ 's then everything ϕ 's >

looks like a good way of asserting that there is only one object. However, as he points out, it can be shown that adding this formula to the Lower Predicate Calculus collapses it into the simple propositional calculus with superfluous symbols, so nothing has been gained. (For such reasons the rules of quantification were invented, and also the idea – and the symbol I – for 'identical with'.)

NOTHING ELSE BUT GOD

Now it must be admitted, from the evidence above, if not from common sense, that a world or a logic that has only one proposition, or term, or name, or predicate is extraordinarily restricted. To introduce to our *logic*⁻¹ a second propositional variable q , a second name variable y , or a second predicate variable ψ would raise the interest level. Similarly the idea of negation, or falsehood, even if only to state, 'it is untrue that God is not God', breaches the dam and a host of interesting devils pour in.

Here are some examples of introducing a second propositional variable to the 'Equivalential Calculus' – that part of the Propositional Calculus which is restricted to the operator E < is equivalent to > or < if-and-only-if >.

Immediately the rules of substitution and detachment apply. Only one axiom is needed, for example:

$EE p q EE p r Er q$ (from Lukasiewicz)

and from that we can quickly get easily understood laws such as

Epp	< p is equivalent to p > < if-and-only-if p then p > < iff p then p >
$EEpqEqp$	< if-and-only-if p is equivalent to q , is q equivalent to p >
$EEpqEEqrEpr$	< the syllogism with 'iff' (i.e., 'if-and-only-if') instead of 'if' >

Substitution applies and the number of propositions expands to infinity immediately - it is now possible to say all sorts of things about God, true or false. As yet there is no way to make a true statement out of denying a false one, for example, for q we could have the false proposition 'God is hate' but we have no way yet of saying (truly) that 'It is not the case that God is hate.' The simple way round this is to add the operator N but a more interesting proposal is to define a new notion - a proposition that has a fixed value. The best candidate for this is a standard false proposition. A lowercase 'o' or a zero is usually chosen for this and it can be the proposition

Πpp <For all p , p >
<everything is true>
<chaos>.

So:

$$o =_{Df} \Pi pp.$$

Then we can define N this way

$$Np =_{Df} Eop \quad \text{or} \quad Np =_{Df} Epo.$$

This idea of a standard false proposition is a very powerful one when coupled with the propositional calculus with C rather than E , and a standard, fixed, proposition will be put to good use later.⁴

A predicate calculus can then be built upon the expanded E -calculus and we can consider ideas such as a world with two gods in it, God having attributes other than godliness, and we can now deny that God is hate, with a law such as

$$\Pi pNEpNp \quad < \text{proof: } p/1 = NE1N1 = NE10 = N0 = 1 >$$

However, we need to be sure what we are doing by introducing a new term variable: we are allowing our world containing nothing but God, existing in Time⁻¹, to contain something other than God.

DOES GOD OBEY LOGIC?

In the 1940s a Catholic theologian, Ivo Thomas, (Thomas 1940) in 'Logic and Theology' in *Dominican Studies* Vol.1, No.4, looking for ways in which modern logic might throw light on theological dicta and debate looked back at what St Thomas Aquinas (1225-74) had to say about logic and God. Interestingly, Aquinas opts for a different solution to the 'does God obey logic?' problem. He says that God does not do logic but instead knows all facts by simple intuition.

As God, since he knows himself, knows in a way that is his own, that is, by simple intuition, not by discursive thought, so we, from those truths that we possess in adhering to First Truth, come to a knowledge of other truths, according to our own mode of cognition, namely by proceeding from principles to conclusions.

In Boethium de Trinitate (Against Boethius on the Trinity) Q.2, art.2.

This suggests that we do not need to invent, or deduce, a logic *for* God, but only one *about* God – not one for his-her-its use, but one for our use. Unfortunately this does not make the problems go away: we still have to decide what God can do, on his-her-its own, and what he-she-it can do as soon as there are other things created which are not God. Harking back to Chapter 2 on what logic is, we can rephrase the questions by saying: logic deals with *what there is*, putting the facts into handy parcels (terms, propositions, functions, predicates, operators... and so on) which we can handle in languages that contain more than pointings and ostensive demonstrations of happenings. The fact(s), before creation, are not many, but just one (and this is perhaps a hidden premise in *DP1* and most monotheistic religions) namely, that God *is*. That God needs no logic (and we have seen how limited such a logic would need to be, pre-creation) is a way of saying that, pre-creation, there is nothing but God.

How do we then deal with possible worlds, possible occurrences, possible physical laws, possible rational beings, and so on, which it is assumed God had to choose from? If God, seeing everything by intuition, has that seeing as part of his nature, *we* can find lots of logical ways of expressing the relationships between the different possible worlds God sees intuitively. Before creation there is an infinite number of these if God is all powerful, and the act of creation at least gets them under control by limiting the universe to a finite (though extraordinarily large) set of possible physical objects, occurrences, beings, etc. Before creation, if God is able just to see (intuit) all possibilities, then the only way for *us* to deal with what he intuit is to describe the rules these possible worlds (would) run to. So, although God is not *doing* any logic we must do a lot of logic to understand the situation, as Aquinas pointed out.

Next, creation having occurred, is God bound by the rules of logic? Of course, because logic is our way of getting a handle on what is going on, and to say God is logical is just to say things are as they are. Aquinas would have us believe that God never says to him-herself such things as ‘**If** I make people mortal **and** that includes making Socrates a man **then** that will include making him mortal,’ nor, ‘**If** I help Joshua get into Jericho by bringing the walls down, **then** will he kill everyone, **or** spare Rahab the harlot, **or** spare everyone?’ nor, ‘**Does Cpp follow from CCCpqpp, and CpCqp and CCpqCCqrCpr?**’. No matter: though God may not use logic, it is *our* way of describing what God does, even if he-she-it gets to the same conclusion some other way.

A PANTHEISTIC SOLUTION

There is another way to try to avoid the difficulties in giving sense to God-before-the-universe. That is, to say that ‘God’ is a short-hand name for ‘all-that-there-is’ (that is ‘the universe’). Immediately *DP1*. vanishes as trivial: replace ‘God’ with ‘The universe’ and *DP1*. becomes ‘The Universe was made by the universe.’ This is either

- (a) a badly phrased tautology for ‘all that there is, is all that there is’; or
- (b) not meaningful (being a category mistake, universes not being the sort of thing that can make themselves, just a jars cannot make jars); or
- (c) means the universe is self-creating; or
- (d) possibly, the universe had no beginning.

This way of avoiding the logical/linguistic problems of trying to talk about God before the universe, is not (as far as I know) the reason why such religions as Hinduism equate ‘God’ with ‘the universe’. Nor is it why recent theologians from the Christian tradition have said such things as, ‘God is the ground of our being’ or ‘God is the life force’, as they look for new definitions or meanings for the word ‘God’ which occurs so often in scriptures. Such topics are discussed in Chapters 10, 11 and 13.

3. Non-theological problems

The sort of problems which have just been surveyed add weight to the sort of talk physicists essay when discussing the 'big-bang' theory of the earliest moments of the universe. When pressed they do not just fudge the problem of what there was before the creation (for example, before the big-bang, which they prefer to call a 'singularity', an event which happens only once). Instead they say we cannot even talk about what was there before, mainly because the singularity began time as well as space and energy/matter. Pressing them to explain how we can say that time had a *beginning* at the singularity they know they are on shaky logical and philosophical ground and prefer to stop thinking about such things at that point.⁵ One cannot blame them.

They also puzzle about what set time going the direction it does go (future events become present, then past, rather than past events becoming present then future). They can do this because their mathematics work just as well for 'reverse' time as for 'forward' time (time as we experience it). Also there are many quantum events which can be explained 'better' (that is, more parsimoniously, in a simpler manner) if time occasionally runs backwards for electrons.

Logic is akin to mathematics in its theory and practice; can it deal with 'backwards' time? Yes. In fact the logic of time is a vast study of its own, but unlike physics it has not featured in proposed explanations of phenomena. In a sense the study of time-logic has been preparing for the discovery of other worlds (universes) where time does 'run' differently: where time has a clear beginning or end, where time runs smoothly or in jerks, where time is circular, where time bifurcates, where time is 'bent' by space, and so on.

So far only science fiction writers have tried out imaginatively some of the strange worlds that might be found if time was not as we experience it. The simplest of these is to imagine all time running the opposite way to the way it does for us. In such a case we would (as far as classical science, mathematics and logic are concerned) experience no difference in our lives. What we now call *the future* (things which we cannot know) would be (in backwards time, looking from outside, where we are) *the past*, and already known. But those living in backwards time would no doubt call what *they* cannot know (it is the past to us but they do not know that) 'the future', because that is how they experience it. In backwards time the electron no doubt rotates (or whatever it does) the opposite way (seen from outside) but to the physicists in the backwards time universe they are going the 'right' way.

Now try a harder bit of imagining: if we experience no difference living in a universe where time goes 'backwards' how can we tell if time is not shunting from forwards to backwards instantly every 1000 years, or every year, or every day, or every second, or every pico-second...?

Conclusion

On the topic of *DP1. God created the universe*, it appears that *DP1* brings with it a great number of logical difficulties.

When we consider God and time it appears that from a logical point of view, at (or 'before') creation things were deadly dull, with not even God doing anything or able to do anything. Other seeming possibilities are:

- (a) not sensible, since they give rise to multiple, unending, regressions; or
- (b) not sensible, since we cannot give a meaning to 'before time'.

If it was argued that in such a world it would be possible to state negatives, then the logic would suddenly expand (as would the problems of the meaning of terms naming non-existent 'objects'). Perhaps a law such as $NCpNp$ <God does not imply no God> would be allowed, and double negation $ENNpp$ <God is equivalent to it not being the case that there is no God>.

For the theologian who wishes to keep this axiom DPI . I would recommend that the theologian embrace the notion that God existed in a 'minus-1-time' before the big bang, in a universe which consisted of God and nothing else at all, and he-she-it was not able to do anything until the big bang occurred when he-she-it moved into plus-1-time (our time, created by the big bang) and was thus liberated to carry out some actions (to be specified) usually (and loosely) known as 'creating the universe.'

This is a tough recommendation for any theologian to swallow because it leaves God, for as long as Time⁻¹ lasts, helpless.

Should the theologian decide to abandon any literal meaning for DPI and regard it as a poetic or metaphorical or mythical or symbolic way of talking, possibly expressing a feeling of awe, then this has major consequences for DP Theology. The main consequence is to abandon not only DPI but also any theological conclusions based upon it (such as: 'If we are pleased to be alive we should thank God for making it possible.') The theologies whose logic is discussed in Chapters 10, 11, and 12, and 13 have, in the main, taken this route.⁶

Introductory Remarks About Axiom DP2.

DP2. God allowed people to be creators

Following the chronology of the creation story in Genesis Chapter 1 we could say that God allowed plants, fish, birds and land animals to be creators (to procreate) and when he had created man and woman he similarly told them to 'be fruitful and increase...' Was this God commanding or allowing?

For theologians of the 18th and 19th centuries this was an important point; if God commanded people to create, then God bears at least some of the responsibility for what happens next; if He merely allowed creation by people then they carry most of the responsibility. Nineteenth century debate focused on whether or not God 'predestined' people (personified in the figures of Adam and Eve) to make mistakes ('fall') and thereby set in motion the events which led to Jesus' death. The subtleties of the arguments led to the delineation of positions called lapsarian, pre-lapsarian, supra-lapsarian, and variations upon these. Arthur Prior wrote several early articles in church and theological journals teasing apart the variations, the most interesting – and entertaining – being *A Calvinistic Romantic*. (Prior 1940) These works are discussed very thoroughly by Per Hassle in 'The problem of Predestination, a Prelude to A.N.Prior's Tense Logic' (Hasle 1999)

Predestination is still a popular theory nowadays, with sects such as the exclusive Brethren convinced they know which individuals are predestined by God to be saved, and which are predestined to be cast into everlasting fire. In the DP Theology which I have selected predestination is denied (by implication) since God just *allows* people to be creative. However, allowing or commanding, at this point morality (or ethics, the words are interchangeable here) has been introduced; any axiom that introduces the idea that some things are permissible (allowed), or forbidden (not permissible) or obligatory (commanded) brings with it the need for a logic of ethics.

The logic of ethics, for a theology, may be seen as exclusively concerned with only one source for its obligations, permissions or prohibitions; in the DP case that source is God. Thus ethics can be defined for DP theology as the study of what God does or does not like. This logic has already been developed in Chapter 5 and in this chapter we are concerned, mainly, with more 'day to day' implications of such a morality; it will not concern us that it is next to impossible to know what God does or does not like (the circularity of arguing from scripture, or inspiration have already been canvassed, not to mention the impossibility of giving a meaning to 'God' anyway); the logical job is to look at how, should a way of knowing God's desires be found, we may draw valid conclusions about the morality of actions.

Some preliminaries

A problem which occurs early in this quest is that some words will have to receive specialist meanings; luckily this means limiting, not expanding the meanings. A lot of words in ordinary secular morality carry multiple meanings: for example, there are multiple meanings of 'good' to untangle in such a statement as, 'He is a good burglar, however, a good confession, like a good stretch in prison, will do him the world of good.' However, in theological ethics we can limit the meaning of 'good' to being a shorthand way of saying 'actions which God likes'.⁷

Again I am being careful to avoid another complication: 'bad' has been used for 'actions God punishes'. Such a definition is helpful if you are looking for a way to detect God's will and there is a temptation to argue as follows: those people who are obviously being punished (usually by being

poor or sick) must be suffering the consequences of disobeying God's will. Therefore, doing the opposite actions will be doing what God wants, and thus we know God's will on those matters. The problems of such a *via negativa* (walking backwards to enlightenment) were tackled in the book of Job and those who are sure it is a valid argument are called 'Job's comforters'. In the end God acts 'justly' and gives Job back family, wealth and health – not a particularly enlightening conclusion. Christians have, very deeply ingrained, the concept that God is merciful, beyond the rights and wrongs of individual cases. This completely upsets the notion that you can tell God's will from human actions he 'punishes' – he obviously rewards or allows many actions he would rather had not happened. 'The rain it raineth on the just, and on the unjust feller, but mostly on the just because, the unjust hath the just's umbrella.'

For the 'post-christians' the inevitability of punishment for 'wrong' actions is also a problem and not yet tackled, as far as I can see. Many of them, seeing the destruction of the earth's ecological systems by foolish actions, call the prophesied ensuing famine, pollution, sickness, etc., the inevitable retribution of the laws of the universe; and they call the universe God. Note that the *inevitability* being cited is a scientific inevitability (result) not a logical or moral inevitability, so this God is not a moral creature – that is, not by this argument. The logics necessary for a theology for 'post-christians' will be discussed Chapters 10, 11, 12 and 13.

It will be as well to remember the discussion in Chapter 3 §5, of the logical lessons from studying the logic of commands.

The structure of moral argument

Take any moral situation, action, remark or admonition, for example:

1. You *ought* to help your brother carry that shopping basket.

This continues to be a moral admonition no matter how we change the specifically moral word, for example:

- 1.1. You *ought not* help your brother carry that shopping basket.
- 1.2. You *should* help your brother carry that shopping basket.
- 1.3. You *should not* help your brother carry that shopping basket.
- 1.4. You *may* help your brother carry that shopping basket. [*may* = *are permitted to*]

And even if we make stronger remarks:

- 1.5. You *must* help your brother carry that shopping basket. [*must* = *are obliged to*]
- 1.6. You *must not* help your brother carry that shopping basket. [*must not* = *forbidden to*]
- 1.7. You *may not* help your brother carry that shopping basket. [*may not* = *forbidden to*]

Teasing out the parts of these statements we see we have (i) some general moral admonition, rule, imperative, or law, which should (but perhaps may not) be followed; in this case 'You ought to help your brother'; and (ii) the situation to which the admonition applies – two children and a basket to be carried.

SANCTIONS

The stronger remarks (1.5 to 1.7 above) sound much like the laws of the land: You must pay your taxes; you must not cross against a red light; you may not keep your children away from school without permission and good reason... Laws carry sanctions if you do not do as the law tells you: arrest, fines, imprisonment. Laws are codified moral judgements plus a sanction for not complying.

Conversational moral remarks (often used when teaching morals) carry much lighter sanctions than the laws of the land: 'You should...' usually has the unwritten, unspoken tag, 'or you will not be brotherly,' or 'or you will not be helpful to me,' or 'or you will make people wonder how I am

bringing you up.' Notice that because of the stated or unstated sanction (or punishment) usually implied in moral talk and legal talk, there is an artificiality in going straight from translating the modal '*L*' <necessary> to the deontic '*O*' <obligatory> since it is not possible to avoid what is logically necessary but it is possible to avoid the morally obligatory. We have a fine series of words for those people who do generally avoid what one ought to do – what it is morally obligatory to do – and these are: 'wicked', 'immoral', 'criminal'... We also have words for those who avoid specific obligations – 'untruthful', 'dishonest', 'a liar', 'an adulterer'... However, for someone who tries to avoid doing something that is logically necessary (for example, tries to say that up is down) we can only say 'fool', or 'ignoramus', or even 'insane'.

For the logic of ethics I have so far described, all terms and all instances are 'black or white'. It is rather as if all moral remarks are laws and the police force and justice system is so efficient that every crime is inevitably uncovered, every crime has a set sanction and so there is an inevitable punishment. (You may recognise an echo here of certain theologies which lay much emphasis on the all-seeing eye of God, on a last judgement, and inevitable punishment for sinners.) However, in deontic logic we must remember that there is a mirror image of the *criminal* justice system (call it the *philanthropic* justice system) and also of the *Police* Force (call it the *Award* Force). It is a necessary task for the Award Force to go round inevitably detecting each goodly act, and for the Philanthropic Justice system to inevitably reward each good act according to its merits.

There are now logics for ethics which avoid a sharp and mutually exclusive contrast between good and bad. One of these has been developed, following a lead from Alan Ross Anderson (who suggested the 'sanction' simplification of Escapism) by Edwin Mares and Paul McNamara (Mares 1992, 1997; McNamara 1990, 1998). The results are relevance logics which give a sense to the commonsense morality of moral indifference and supererogation and the idea of 'doing well enough'. Fred Feldman (1986) has a close look at what he calls 'Informal Deontic Logic' in his book, *Doing the Best We Can*, a title which captures the idea of getting away from the 'black and white' morality implied by early (that is, mid 20th Century) deontic logic.

These new logics do not invalidate the older deontic logics, as logical systems, but they do remind us of, and reflect, the complexities of moral decision-making in everyday life where having to choose the best out of a bad bunch is often our lot. Theologies, struggling to find general moral rules for people to follow and perhaps descriptions of a perfect society for people to aim at (whether to please God or on general humanitarian grounds) may be forgiven their emphasis on moral systems which point out the best, and insist that the best is possible, not just some lesser 'best we can' or 'well enough'. Nevertheless, the Christian is ever hopeful that God will accept, 'in His mercy', the best we can, and forgive us for not attaining the best. Kant's dictum, *what is obligatory is possible*, is surely God's dictum, but God may accept that *what is obligatory is next to impossible* for people.

THE 'GOOD'

We often use the word 'moral' to describe an action of which we approve, and would probably call a *good* action. Thus the words *good* and *moral* are used as synonyms. This usage is quite legitimate, of course. In fact it could be said to be the main use of 'moral', since we have the word 'immoral' which is a synonym for 'bad'.

However, the philosophical/logical use of 'moral' has no opposing word and the description 'a moral argument' does not mean a good (efficient, logical) argument, nor is there in the philosophical/logical use any opposing description 'an immoral argument'. Using the word 'ethics' for the philosophical/logical concept is quite a good way to avoid the two meanings of 'moral'. 'Ethics' is not used in the singular (except a shorthand for 'ethical system'), and has no opposite 'in-ethical'. The combination 'non-ethical' is a synonym for 'a-moral'.

It has been long argued in philosophy that morals (ethics) is the study of 'the good' – that is, a study of what was forever and unalterably good or bad. This attitude is called absolutism and is

opposed by relativism which sees good and bad changing over the years and from culture to culture. Theology has generally been on the side of absolutism since God is usually seen as the fountain or prime exemplar of goodness:

*Love divine, all loves excelling,
Pure unbounded love thou art.*

Charles Wesley

In fact so many theologies have God's goodness as a given, that it has been used as an argument against relativism for a long time.

*The shepherds [the rulers] have rebelled against me;
the prophets have prophesied in the name of Baal,
following things with no power in them.
So I must put you on trial once more
— it is Yahweh who speaks —
and your children's children too.*

Jeremiah 2:8

The absolutist/relativist argument can get very close to home when people of different cultures live in the same street. The Muslim who closes his shop on Friday, the Jew who closes his shop on Saturday, the Christian who closes his shop on Sunday, may all three claim to be doing what is good and that the other two are behaving 'immorally'. But all three almost certainly agree on many moral ideals, such as children obeying their parents, giving help to the needy, never torturing babies, and closing your shop one day a week.

The debate continues and is particularly pertinent to anyone who abandons a separate active 'interfering' God in favour of some personification of the universe, some symbolic or psychological God.

THE ORIGINS OF MORAL RULES

Some philosophers argue that moral statements are reducible to non-moral statements, for example, to long statements about the sum of human happiness. This particular suggestion is usually labelled 'utilitarianism' and connected with the names of Bentham and Mill. Utilitarianism has always seemed shaky because of an ultimate question 'Why ought we increase human happiness?' which cannot be asked, let alone answered, in a utilitarian world.

A typical recasting of an ordinary moral statement such as

'You ought to help your brother carry the basket'

into a utilitarian form becomes:

'Helping your brother with the basket will increase the sum of human happiness.'

So we are seeing a rough equivalence between 'ought' and 'increase happiness.' o = i-h.

When we try to answer the following question with a utilitarian answer

'Why ought we increase human happiness?'

the answer quickly becomes, by logical substitution, (of i-h for o) something akin to:

'Increase human happiness to increase human happiness.'

and so rather unconvincing, though, like all logical laws, tautologically true.

We have already come across 'natural theology' with its attempt to obtain God from natural (non-theological) phenomena or laws; similarly utilitarianism has been called 'natural ethics'; summarised as 'the attempt to get an *ought* from an *is*'; and roundly criticised as committing 'the naturalistic fallacy.' Nevertheless, neo-utilitarian philosophers have pursued the day-to-day implications of their attitude with great success, especially in the late 20th century mood of interest in such topics as Marxist ethics, business ethics, medical ethics, sexual ethics, and feminist ethics.

Although personally quite convinced of the illogicality of utilitarian ethics, again I skirt such issues and keep closer to my topic by classing all statements with 'should', 'ought', 'may', 'must', 'is obliged to', 'is forbidden to', 'is allowed', etc., as moral (ethical) statements, none of them able to be reduced to statements about utility, happiness, or punishment avoidance. Thus ethics and theology can be seen as closely related in logical form, with both depending on axioms (which there is no point in seeking to justify) and both involving statements of fact. However, although ethics can be put into logical form without reference to God, theology depends quite substantially on ethics: in DP, two of the most important axioms are ethical, *DP4* and *DP5*, and neither theological nor factual. This asymmetry will be noted in all theologies in later chapters.

Symbols and meaning

Ethical laws in their simplest logical form are propositions made up of a moral operator upon a proposition:

<i>Op</i>	< it is obligatory that <i>p</i> >	< you must always listen to the teacher >
<i>Fp</i>	< it is forbidden that <i>p</i> >	< you must not cross against the lights >
<i>Pp</i>	< it is permissible that <i>p</i> >	< you are allowed (not forbidden) to own a cat >
<i>Bp</i>	< it is permissible that <i>p</i> >	< you are allowed (not obliged) to own a cat >

As in modal logic it is not necessary to have all these symbols and they can be reduced to any one you choose: for example,

<i>Fp</i> = <i>ONp</i>	< it is forbidden = it is obligatory that not >;
<i>Pp</i> = <i>NONp</i>	< it is permissible = it is not obligatory not >

However, since the symbols have simple translations, immediately understandable, and it makes most processes shorter, all will be used. This includes the meaning of 'permissible' as 'not obligatory' to which I give the symbol '*B*' so that *B* = *NO* = *PN* = *NFN* if there is likely to be confusion in a translation from ordinary language.

Because moral laws apply to actions it is quite common for deontic propositions to be written using *a* and *b* and *c*, etc., instead of the *p*, *q* and *r*, etc., usually used for full propositions on their own. Thus the proposition *p* in *Op* usually has no more meaning (but a more complex full 'translation' into ordinary language) than *Oa*.

However, it is sometimes important to bring out a subtle difference in the import of moral laws by referring to both the actor and the action (that is, both parts of a proposition, noun and verb). This is done by adding the usual deontic axioms to the predicate calculus, with variable for actors (*x*, *y*, *z*); and constants for named actors (*a*, *b*, *c*); predicates for actions (*φ*, *ψ*, *θ*); and quantifiers (*Π*, *Σ*). Typical moral laws will then be written out in this manner:

<i>M1. ΠxOφx</i>	< For all <i>x</i> it is obligatory that <i>x φ</i> 's >
	< Everyone must cross at the green light. >

< Everyone must love God with all the heart and soul and mind >
< Praise God from whom all blessings flow >

Here is an example of how a subtlety can be brought out:

KD1.1 in predicate calculus, with the domain being all people and all bicycles, ϕ = loving God and your neighbour, ψ = riding a bicycle, $\Pi 1$ and $\Sigma 2$ applied.

KD1.1 $C \Pi x OC\phi x \psi x \Sigma x CO\phi x O\psi x$ < If everyone's being obliged to love God involves riding a bike then someone being obliged to love God implies him or her being obliged to ride a bike >

KD1 as above, but with just $\Pi 1$ applied to the whole:

KD1.2 $\Pi x C OC\phi x \psi x CO\phi x O\psi x$ < If everyone's being obliged to love God involves riding a bike then everyone being obliged to love God implies everyone riding a bike >

KD1.1 is true; think of the case of Red Riding Hood hurriedly cycling over to deliver her sick Granny some medicine. *KD1.2* is untrue: it compels everyone of us to cycle over with medicine to Red Riding Hood's sick Granny, (for which Granny would not thank the millions of cyclists at all) and it condemns all of us who cannot ride a bicycle to break an obligation.⁸

THE THREE PARTS TO ANY MORAL SITUATION

In ordinary life we are confronted with situations where it is unclear what the proper moral course of action is. This also applies to the formal moral systems we live under, namely the laws, and much time in law courts is taken up with deciding if x was right or wrong to have done action ϕ . In making such decisions three factors come into play.

(A) *What are the facts of the case?* Were the Bishop's candlesticks found in the boy's possession?
Was this without the Bishop's permission?

(B) *Which moral rule should be applied?* Rule (i) It is good to feed your starving family.
Rule (ii) It is wrong to steal.

(C) *Has right (logical) reasoning been applied?*

This last, (C), is not so easy to see, but if the judgement was

- (1) that the Bishop's candlesticks had indeed been stolen; and,
- (2) that moral rule (ii) [It is wrong to steal] is the right moral rule to apply; then,
- (3) if we have a judgement of the court that the thief should be punished, then the following reasoning has been used and we can examine its logical validity.

M2. If stealing incurs punishment, then, if the boy has stolen from the Bishop, then the boy incurs punishment.

Using ϕ = steals; ψ = incurs punishment; x = the boy; and the usual rules for Π and Σ we get:

M2. $C \Pi x C \phi x \psi x \Sigma x C \phi x \psi x$

and this is a valid expansion of $CCpqCpq$; which is a valid expansion of Cpp , which is an elementary logical law; therefore right reasoning has been used.

This leaves us rather unsatisfied. We may be willing to accept the Bishop's argument that he wants the boy to have the candlesticks, (matter of fact) therefore the boy did not steal them. But still the logic will be impeccable (understand ' ϕ ' to mean 'does not steal' and ' ψ ' to mean 'does not incurs punishment'). Legal council might say that the candlesticks belong to God and that therefore the Bishop had no right (or an inadequate understanding of God's intentions) to give them away (matter of fact); to which no doubt the Bishop would argue that he is closer to God than the lawyer... Or there might be legal argument about whether the Bishop can give the candlesticks after they have already been stolen – might it not be better for him to agree that the candlesticks were stolen but then plead mitigating circumstances at the sentencing and even give them away when they are back in his possession? More likely we will feel unsatisfied because we feel that feeding one's starving family is more important (more morally correct) than not stealing; in which case we would be more worried about the court's notion of morality than about any matters of fact.

This reminds us that moral choices have to be made, no matter what the facts are, and no matter how impeccable the logic.

However, the strangest thing about this case of morality as I have laid it out is that the only logic involved is not modal nor deontic; the logic is the predicate calculus extension of ordinary propositional calculus. This is because, once the morality or legality of the situation has been cleared up (and that may involve deontic logic), the individual parts of the court case are clear and a 'dispassionate' or 'scientific' or 'legal' conclusion is required. If all the parts are clearly established the conclusion should follow naturally with simple logic.

Where does the deontic logic come into play in the story of the Bishop's candlesticks? Moral debate is not about the facts but about the hierarchy, or moral weight, of moral dicta, and what can be correctly inferred from a particular dictum. It is wrong to suddenly push people away, except if it saves them from being run over by a bus. Not pushing people is less morally worthwhile than saving people from death. Does this mean, however, that I ought to practise pushing people when they are not expecting to be pushed, in order to get the technique right for the occasion when I might need it?

This problem can be seen to involve an examination of a deontic formula of this sort (from Chapter 5):

- KD3. COCab COaOb* < If it is obligatory that doing *a* implies doing *b* then if we are obliged to do *a* then we are obliged to do *b* >
 < If it is forbidden to do *a* without doing *b* then if we are obliged to do *a* then we are obliged to do *b* > (reading *OCab* as *NPKaNb*)
 < If caring for people involves being ready to push them out of the road of buses, then being obliged to care for people involves being obliged to be ready to push them out of the road of buses >
 < If it is forbidden to be called a caring person if you are not prepared to push them out of the road of buses, then being obliged to care for people involves being obliged to be prepared to push them out of the road of buses >

So it would seem that from *KD3*, we are obliged to practise sudden pushes. (And we may decide that the best way to do this is to practise on real people when they are least expecting it.)

In the candlesticks problem we have to make up our minds which moral dictum to follow

- (i) it is good to feed your family; or
- (ii) it is wrong to steal.

If we decide that the 'stronger' or 'higher' morality is about feeding your family, would this involve

us, via a version of *KD4*, in practising stealing? If we decide that the 'higher' morality is not to steal, then does this involve us in practising not to steal, perhaps by arranging almost overwhelming temptations to steal, even starving one's family from time to time? A theological version: if loving God involves being ready to be eaten by lions does the obligation to love God (see many a catechism) imply being obliged to go where there are hungry lions in order to be ready to be eaten?

Such moral debates are very pertinent in a world where different societies attempt to live peacefully together. In certain societies actions are allowed, or even encouraged, which in other societies are abhorred. It is easy to name actions which are morally right in one society and morally wrong in another: monogamy and polygamy are reasonable examples, eating with the left hand is forbidden in some present day cultures, permissible in others, expected (obligatory) in others.

Clashes of 'moral culture' are also found inside societies. They take place in homes, suburbs and marketplaces and are not usually noticed by the members of that society. For example, New Zealand Christian Churches say one of the highest moral rules is the positive form of the 'Golden Rule' (do for others what you would like them to do for you) but this is enshrined in no law of the land, is seldom praised when practised by children, and is generally scorned and discouraged by business theory and practice (which regards buying cheap and selling dear as a virtue).

Further problems

Logic cannot decide amongst moral rules, just as it cannot decide on the facts of any case. But logic is essential if moral rules are to be applied, or conclusions deduced from facts. I have introduced deontic logic as the proper systematisation of the moral rules you choose to apply, so that the ramifications of those rules can be properly discovered and moral chaos does not descend. But there are other decisions to be made before we reach the moral content of theology. For example, we cannot yet get on to the problem of whether the system of morality that flows from the idea that 'you ought to...' means 'God is pleased if you...' can be satisfactorily symbolised, and how does God stand on the idea that everything that is not obligatory is forbidden?

Here are some of the logical/linguistic problems:

1. Iteration

To remind ourselves: the most basic modal logic is known as *K*. It contains all the ordinary Propositional Calculus (with quantification if so required) plus a single new axiom and a single new rule. The axiom is

K1. CLCpqCLpLq <If it is necessary that *p* imply *q* then necessarily *p* implies necessarily *q*>
<If to be an insect it must have six legs then if this creature is definitely an insect it must definitely have six legs.>

The new rule is called the Rule of Necessitation:

RL. If α is a theorem then so is $L\alpha$. <If α has been proved then it is necessarily true>

Now we can immediately start building up a new logic by simple substitution and application of the rule. For example:

PC1. Cpp x RL = Ki2.
Ki2. LCpp
Ki2. p/Lp = Ki3.

Ki3. LCLpLp

However, watch what happens if the variable is already modalised (has an *L* in front).

K1. p/Lp, = Ki4.

Ki4. CLCLpqCLLpLq Now again:

Ki4. p/Lp = K5.

Ki5. CLCLLpqCLLLpLq

What sense can be given to 'necessarily necessarily necessarily *p*'?

The symbol '*M*', usually translated as 'possibly', and as shorthand for '*NLN*' <not necessarily not> can be treated in the same way:

Ki5. p/Mp = Ki6.

Ki6. CLCLLLMpqCLLLMpLq

Ki6. p/Mp = Ki7.

Ki7. CLCLLLMMpqCLLLMMpLq

What sense can be given to 'necessarily necessarily necessarily possibly possibly *p*'?

These repeated *L*s and *M*s are called 'iterated modalities'. It would seem proper to find some method of reducing them to something understandable by the human brain. This was done by inventing new systems with new axioms (ones not found in *K*) which bring iteration under control. The usual way of naming these new major systems (each 'stronger' than the last) is *D*, *T*, *S4* and *S5*. The distinctive axioms are:

<i>D. CLpMp</i>	<If it is necessary it is possible>
<i>T. CLpp</i>	<If it is necessary it is>
<i>S4. CLpLLp</i>	<If it is necessary is is necessarily necessary>
<i>S5. CMpLMp</i>	<If it is possible it is necessarily possible>

However, for a logic or morals (and for the morality of God) one of these is too powerful.

The problem is in System *T*, an intermediate stage to *S4* and *S5*. The distinctive axiom of *T*, (*CLpp*) with the deontic interpretation of '*L*' as meaning obligatory gives us *COpp* <if *p* is obligatory, *p* is done>. This may be true for ant societies, and may have been the aim of fascist ethics, but it does not allow free-will, that is, it does not give us the chance to be naughty, to disobey, to be immoral.

Luckily, there can be a valid logic which adds the distinctive *S4* axiom directly to *D*, bypassing *T*. This is called *KD4* and may well give the working moralist (for example, a lawyer or theologian) what they require.⁹ The problems that the *S5* axiom raises and the fact that some sense can be given to mixed iteration, (see below) may mean that a *KD5*, when it is developed, is still unacceptable to a theologian. However, someone looking for a basis for ethics and some solution to the problems utilitarianism has highlighted will find a different path to a satisfactory logic for morals.

ITERATION AND FREE-WILL, IN PRACTICE

It is not too difficult to understand a moderate amount of iteration. For example:

<i>Op</i>	<everyone must rest on Sunday>
<i>OOp</i>	<everyone must keep the rule that everyone must rest on Sunday>

This sort of reasoning occurs in many legal situations. A law against smoking cannabis is in place, but is more often disobeyed than obeyed. In court, in a particular instance, a lawyer might argue that flouting a universally ineffective law is no crime. The judge will, however, probably rule that the rule of law will fall into disrepute if laws are broken, even bad laws. Thus we have an obligation to uphold the law, even when the obligation in the law is foolish. The judge's argument is that *OOp* is stronger than *Op*.

We are already clear about the idea that some moral (and some legal) rules are 'stronger' than others. 'Do not push people' is much weaker than 'save life' when pushing will save a life. Legislation often has specific clauses making it clear where in the hierarchy of laws this new law stands with clauses of the sort: 'this Act overrides all previous acts on this subject...' In the cannabis example our judge considers that the rule 'obey the law' is stronger than any particular law, even though there is probably no act of parliament saying 'Obey the law of the land'. However, the moral rule to protect human life, is probably even 'stronger' than the double moral rule to keep the laws of the land (which include, as it happens, the laws against murder and manslaughter). Someone who breaks a law whilst saving life is more likely to get a medal than a prison sentence. The motorist speeding to hospital with a woman in labour springs instantly to mind.

So it would appear that although double (iterated) obligations may appear 'stronger' they are not necessarily of more moral importance than single un-iterated obligations. You may get a prison sentence for breaking the law against supplying cannabis, and if you are a repeat offender the Judge may consider giving you a longer sentence for failing to uphold the system of law, but they are separate crimes, and the first is not a sub-class of the second. International declarations such as the Convention on Human Rights try to keep the order of the rights in a hierarchy of importance. Thus the first 'Human Right' is often said to be the right to 'Integrity of person', that being lawyer-speak for a right to life – to not be killed. The right to be fairly treated by the law comes further down the list.

For these reasons it seems that a system of reducing the iteration of one modality (say, *LLL*, or *OOO*, or *PPPP*) is a sensible thing to do. The addition to D of the S4. thesis will do this.

The meaning of such iterations as

OPp <everyone **must** keep the rule that everyone **may** rest on Sunday>

POp <everyone **may** keep the rule that everyone **must** rest on Sunday>

give greater difficulties. S5 collapses mixed iterations to the furthest right, but consider this:

OPp seems to have a surplus *O*: once we have the rule that resting on Sunday is permitted (not forbidden) it does not seem necessary to make such a rule obligatory – after all, all rules are obligatory (but not always kept!). Thus, a rule which allows us to collapse a mixed iteration to the last (the furthest right) of the deontic operators seems sensible.

But, *POp* seems to mean just *Pp*. To have a rule for obligatory rest, then to make keeping the rule only permissible, seems perverse. A rule to accommodate this collapse of mixed iterations would be to keep the first (the furthest left).

So it appears we can have no rule to collapse mixed iterations; adding the S5 axiom to D deals satisfactorily with *OPp* but not (to my mind) satisfactorily with *POp*.

An explanation for accepting *POp* as sensible (although a bit weird) is that permissible is a weaker form of obligatory so if we are willing to say: a rule is obligatory implies that it is obligatorily obligatory then we can also agree that it is the weaker form – possibly obligatory. It is a bit like saying we have a rule but the jury is still out on whether it is to be accepted. I find this rather unconvincing and would be happier to accept a reduction of *POp* to *Pp*.

There are other reasons for adding the S4 axiom to D but not adding S5. This is discussed in some detail by Chellas (1980).¹⁰

For theology and free will one has to decide if God, when giving 'permission' (making it possible) for people to disobey, is saying a certain action is not-forbidden, or not-obligatory.

2. The Barcan formula

Provable in the system S5 or in the proposed KD5 (when it is extended with the predicate calculus) is a formula named after Professor Ruth Barcan-Marcus. I will call it *DB1*.

DB1. $C \Pi x L \alpha L \Pi x \alpha$ < If everything is necessarily α then of necessity everything is α >

The expanded form is

DB1. $C \Pi x L \phi x L \Pi x \phi x$ < If everything necessarily possesses a certain property, ϕ , then it is necessarily the case that everything possesses that property. >
 < If (the world being made of pansies) every pansy must be pink then it must be that every pansy is pink >
 < If God makes everything good then everything was made good by God >
 < If **everything** must exist, then it must be that everything exists >

The implication is that since everything does in fact exist, then it must, of necessity exist. This is an idea that, for many people, goes too far and is therefore unacceptable, particularly since it seems to imply that possibilities (other possible worlds) cannot exist, or that the world was always as it is now.

It also suggests Descartes' 'best of all possible worlds' theory to explain evil. It also looks misleadingly clever since surely by saying 'everything' we are already saying nothing special (everything must exist because that is what '**everything**' means.) Thirdly, such arguments get us into trouble (as the schoolmen knew) because they are of the form 'If in a lottery someone's *ticket* is bound to be the winning one, there is *someone* whose ticket is bound to be the winning one.' This can be symbolised for us $\Pi x C \phi x L \phi x$, and was known as *necessitas consequentis*, and because it relies on the necessity of the consequent (2nd) proposition it is false. It was known to the Greek Chrysippus as a 'proof' of fatalism in the form, 'Since a person either does *X* or does not do it, he either necessarily does *X* or necessarily does not.'

TIME

So far I have hesitated to introduce any way of dealing with time and considering its effects on logical argument. But it is true that things can be true at one time and false at another. (For example, 'I am 65 today'.) And the morality of acts is highly dependant on time – it is quite immoral to suddenly push people when there are no passing buses likely to run them over. A way of dealing with the Barcan formula has been suggested which involves time; there are others, but the time method is relatively understandable. Naturally enough, it is a Priorian way of looking at the formula.¹¹

La can be read as 'it is and always will be that α ', and the Barcan formula as, 'if everything will always be ϕ , then always everything will be ϕ '. This interpretation also seems to make the Barcan formula something we will want to do without, especially if we are not fatalists and do not believe in predestination. Even if everything now existing will always be ϕ , it does not follow that it will always be the case that everything then (in the future) existing is ϕ .

However, if Πx is read as 'all past present and future things', then the formula reads 'if every thing was, is and will be ϕ , then it will always be the case that everything is ϕ '. In this case the Barcan formula is acceptable. Here we have, yet again, the necessity to choose the logic to suit the job: if you are going to try to deal with a changing and mysterious universe where the future cannot

be certain then you must choose a logic of morals without the Barcan formula. If you want a logic to have a 'God's eye view', or to deal with things 'from the end-of-the-universe' then you may keep the Barcan formula in your system of moral logic.

Conclusion

In the second half of this chapter we have been looking at the sort of moral logic that will be necessary once we have decided on the sort of morality DP theology commits us to. The axiom I chose (DP2.) with God allowing humans to choose, that is, to make ethical decisions, gives us an ethics which denies determinism or predestination, that is, it allows free will.

We found logics that can handle free will, in particular, those deontic logics which do not admit $T. CLpp < \text{If } p \text{ is necessary } p \text{ happens} >$ in its deontic form $DT. COpp < \text{If } p \text{ is obligatory then } p \text{ is done} >$. We can allow some iteration, but not the reduction of mixed iteration allowed by S5, and we do not allow the Barcan formula.

However, it is not necessary to have such logics until people do make free will decisions which God does not like – if we are good all the time there would be little use for logics countenancing free will. The 'fact' that people did 'disobey God' is introduced in DP3. and the ensuing complications will involve the whole of the next chapter.

Notes and References

1. For example, Bochenski 1965, *The Logic of Religion*, sets out in his last chapter several ways in which religious ideas may be justified as worthy of belief. These are, (i) the blind leap (of faith), (ii) rationalism, (iii) the trust theory, (iv) the deductivist theory, (v) the authority theory, (vi) the acceptance of a religious hypothesis. Of these he finds the authority theory best, and even (ii) rationalism does not involve the ontological, or any of the other historical 'proofs of God's existence'.
2. Prior (1959). My photo-copied version, from the Bodleian Library's copy in the Prior Papers, has no page numbers but the quotation is from the sixth page of the article.
3. Prior (1995) pp.84-85.
4. The Polish logician Wajsberg in 1937 suggested the system which gives the full Classical Propositional Calculus by using three axioms which Taski and Bernays had suggested in 1930 for Bi-valent C-pure (the fragment with only implication)
 1. $CCpqCCqrCpr$ (syllogism)
 2. $CCCpqp$ (Peirce)
 3. $CpCqp$ (paradox)
 plus his own
 4. Cop
 and the definitions

$$N =_{Df} Cpo \quad I =_{Df} No$$
 For a fuller explanation see Prior (1995) pp.50 - 52.
5. Stephen Hawking in his 'popular' *A Brief History of Time*, pp.9 - 10, after mentioning Aristotle's, Augustine's and Kant's views, has nothing more than this to say about the beginning of time:

If there were events earlier than this time [of the 'big bang'] then they would not affect what happens at the present time. Their existence can be ignored because it would have no observational consequences. One may say that time had a beginning at the big bang, in the sense that earlier times simply would not be defined. It should be emphasised that this beginning in time is very different from those that had been considered previously. In an unchanging universe a beginning in time is something that has to be imposed by some being outside the universe; there is no physical necessity for a beginning. One can imagine that God created the universe at literally any time in the past. On the other hand, if the universe is expanding, there may be physical reasons why there had to be a beginning. One could still imagine that God created the universe at the instant of the big bang, or even afterwards in just such a way as to make it look as if there had been a big bang, but it would be meaningless to suppose that it was created *before* the big bang. An expanding universe does not preclude a creator, but it does place limits on when he might have carried out his job!
6. A trivial example (and one to argue about) is the effect of there being no red objects; does this mean there is no abstract quality of redness, no class of red objects for God to be the sole member of, and one cannot say, 'God is red' nor 'It is not the case that God is red'? A more serious example for the theologians would be whether it could be said of the sole member of this pre-creation world that 'God is perfect' (or wise, or good, or all-knowing, or existing...) With God being the only object around that could be perfect, wise, good, or all-knowing ..., then any sentence of the form 'God is' collapses into 'God is God.' Also any statement of the form, 'God is not.....' (or a re-writing of it into a form without 'not' such as 'God is not wise' into 'God is foolish').

If you cannot give attributes to the pre-creation God the logic could be very simple. The only logical laws would be $Cpp < p \text{ implies } p >$ and $Epp < p \text{ is equivalent to } p >$, no negation $N < \text{it is not the case that } >$, no $K < \text{both} >$, no $A \text{ or } J < \text{forms of either/or} >$; the logical rule for substitution would be useless since there would only be one item, God, to substitute for God, and the rule for detachment would similarly be redundant.

However, although there is only one object, God, we need to keep the possibility that false statements can be made about that object, and then denied. Therefore, we still need to have true and false – our logic¹ needs to be bi-valent. The alternative would be that everything that was said of the pre-creation God was true: we would have chaos, for example. But the meaning of ‘operators’ designed to handle two different propositions, such as C <ifthen.....> is severely restricted if they are to be allowed only one proposition repeated. In fact they lose the possibility of four results and wind up with only one. If we use 1 for true, 0 for false, then Cpp can take the values $C11$ or $C00$ and both of these give a 1 <true> conclusion. Therefore the effect of C (and of E) is nil and so the ideas of implication or equivalence are redundant and probably meaningless before creation.

7. This may be an unsatisfactory truncating of what has always been a topic of great debate among philosophers who are interested in ethics. Arthur Prior has a small book called *Logic and the Basis of Ethics* (Prior, 1949) which looks particularly at the history of what is called the ‘naturalistic fallacy’, that is, the attempt to get an ‘ought’ from an ‘is’, and in it argues that the attempt is logically improper. Later he found a logical wrinkle which made him change his mind; see Prior (1960) ‘The Autonomy of Ethics’, reprinted in Prior (1976). Challenges to Prior’s analyses can be found in, for example Pigden (1989), and Shirts (2001).

The most influential work on ethics in the early 20th century was by C D Broad (1930). In his *Five Types of Ethical Theory* he divides ethical theories into two categories, teleological and deontic. To Broad teleological ethical theories do not give reasons why one ought to do X or Y, you just ought. Deontic theories, on the other hand, are those which suggest that one ought to do X or Y *because* of some consequence; and thus one of the deontic theories is utilitarianism, notorious for trying to get an ‘ought’ from an ‘is’. Thus it may seem that Prior’s Escapism, using deontic logic, and based on Anderson’s idea that escaping some sort of punishment is what it is to be good, is truly deontic in Broad’s sense, and no better than the ‘good = the greatest happiness for the greatest number’ of Mill and Bentham. However, note that Prior interprets the conclusions of Escapism in such a way that escaping the sanction is personalised, and becomes close to the idea that ‘being good = not deserving the sanction’. Thus the motivating force to be good is not a *fear* of punishment but a *desire* to be good, or in the Theologic, to please God. When we ask why we should desire to be good, or please God, or even why we should do the actions that we think are good, the answer has to be a belief, an ethical axiom, accepted without a ‘naturalistic’ cause, that good is good, and we ought to do it.

8. The puzzle over one’s duties brought out in this story of Red Riding Hood and her bicycle is one discovered by George Hughes and put into a paper (though without Red Riding Hood and her granny) when trying to overcome problems with one of the earliest attempts to formalise a logic of obligation. The early attempt was by Grelling and gave rise first to what has been called ‘The principle of *fait accompli*’.

$CLCKabcCKaObOc$

This leads on by simple substitution to deny that anyone ever does what they ought not to do

$AN\bar{E}bObIIaCaOa$

which was given the wonderful name of ‘The principle of continuous moral rectitude’ by Hughes.

Grelling can be found summarised in Fitch (1940). The Hughes quotation in Prior (1955) pp.227-8 appears to be Prior’s remembrance of a discussion, possibly at a New Zealand Philosophical Society conference, possibly arising from a paper by Hughes. Max Cresswell remembers, as I do, both Hughes’ and Prior’s delight in the paradox, but have been unable to trace the paper in which it was first mentioned.

9. Although I have not managed to find a paper on the deontic logic that lies between S4 and D but does not include the characteristic formula of T [$CLpp$], Ed Mares has kindly given me a ‘possible worlds’ explanation of how a modern logician would describe its characteristics and how they would be set out. In an e-mail, December 2000, he says:

The accessibility relation on worlds for deontic logic is usually read as follows:

wRw' iff w' is an ideal world (or at least a morally acceptable world) from the standpoint of w . Now, if we do not have varying moral codes from world to world, then wRw' iff $w''Rw'$ for all w'' , because what is ideal, or acceptable, does not vary. This gives us the logic K4 (transitivity $CLpLLp$ is very straightforward) and KD4 if we add that $(w)(Ew')wRw'$.

10. Chellas in his *Modal Logic, an Introduction*, says

The axiom O4 [$COaOOa$] is not altogether implausible. It is the principle that makes deontic alternatives transitive, and thus makes possible the interpretation of the relation as leading to worlds that are in some way better from the standpoint of obligation. O4 means that what is obligatory at a world continues to be so at the world's deontic alternatives. So it rules out the possibility, for example, that some of the deontic alternatives to our world should have for themselves standards of obligation that are unrealistically high, perhaps utopian, from our point of view.

This I take to mean that if you subscribe to O4, then a rule (in our world) such as 'you are obliged not to kill people', cannot have a deontic alternative such as 'you are obliged not to kill any living creature'. So what is a deontic alternative?

Chellas then goes on to find O5 [$CNOaONa$, i.e., $CPaOPa$] unreasonable, and suggests another OU [$OCOaa$] which both he and I are happy to translate as 'It ought to be the case that whatever ought to be the case is the case.'

I have worked myself to the place where I find O5 $CPaOPa$, <If everyone MAY rest on Sunday then everyone MUST keep the rule that everyone MAY rest on Sunday> acceptable, but rather superfluous. However, O5 is usually thought of as a way to reduce 'mixed' iterations to the furthest right. I am happy to reduce OPa to Pa (as just mentioned) but reducing POa to Oa seems quite wrong.

$POa = Oa$ <everyone MAY keep the rule that everyone MUST rest on Sunday >
 = < everyone MUST rest on Sunday>.

11. See Prior (1957), pp.26 - 27. The paper by Professor Barcan-Marcus is Barcan (1946), see especially page 2, Proposition 11.

A Christian Theology: Axiom 3

DP3. Introduction

Free will puzzles, including determinism and predestination

Can God limit his-her powers?

The simple logic of the 'problem of evil'

The consequences of abandoning omnipotence, omniscience and all-goodness

Temporarily impotent, or blind or wicked?

The effect on free will of a god who interferes

A non-theological look at free will

A logic for a 'blind' god: three valued logic

Further theological implications

Is completeness necessary?; A logic for non-omniscience; Gods who are not perfect

Ways out of dilemmas

Looking for evidence; Redefining terms; A logic for a re-defined god.

Conclusion

DP3. People made things (did things) God did not like.

Introduction

In the Bible's Genesis stories men and women are no sooner created than they do things which God does not like. From then on more and more of their actions are 'sins': Cain kills Abel, the tower of Babel is built, and general wickedness prevails till only one person, Noah, is good. In these early stories God is seen as very human and appears to learn that his early attempts to punish people do not work, his punishments are severe and he realises that they were 'inhuman' and promises never to inflict such devastating punishment as the flood again.

It would be an interesting process to trace the Biblical changes in the theological concepts of the nature of God, closer and further from human nature, more anthropomorphic and more abstract, and to come up with theories about the interaction of history, social changes, and cultural/religious propinquity on the idea of God as revealed by the Bible. No doubt many of such studies have been done. And also the use of linguistic and historical analysis may push the other way and, with theories of the development of the idea of God as a basis, re-order the chronology of the composition of the stories.

However, from a logical point of view, there is little to be done to fit this axiom *DP3* into the DP theology. The main point it makes is to say that the possibility of human evil or sin or disobedience or doing what God does not like, which was opened up when people were given free will (that is, real choices) and is summed up by the axiom *DP2*, resulted in some people choosing to do actions which God did not like. It is more a description of what happened than the creation of rules or possibilities, therefore it is logically simple.

This might have been the place to introduce *Escapism*, the Anderson/Prior logic of sanctions, (of Chapter 5) since the idea of a punishment is not an inherent part of *DP2*. However, punishment is not basic to the *DP3* axiom since *DP3* does not suggest that God *has* to do anything about the actions which he does not like.

Free will puzzles

However, there is at least one logical puzzle which deserves examination: could God have created people with free will but also created them with enough wisdom/moral fortitude, etc., so that they did not do what he disliked? This problem has been discussed by philosophers of religion at some length and for its logical perspicacity I particularly like the contribution of Anthony Flew in 'Divine Omnipotence and Human Freedom' in *New Essays in Philosophical Theology*. (Flew 1955)

The situation has been given different slants and much depends on how strong the tendency to do good which God has built into people is deemed to be. One version likens 'always-good' people to people asleep or paralysed or hypnotised and to God as the 'Great Hypnotist'. To tease these slants out a bit further: at the 'A' end of the scale, put God controlling everything we do; and controlling these actions so that we always do good. This is a version of predestination, and despite its doing away with the 'problem of evil' it is inimical to free-will. At the 'Z' end of the scale it is just good luck that no one does any evil and we have a situation rather like Stoppard's play, *Rosencrantz and Guildenstern are Dead* in which a coin is being endlessly tossed but it never comes down tails. Between these two are the deterministic states: about 'J' on the scale, where God has us under hypnotic control making sure that we choose good, and about 'T' on the scale, where God has so designed our brains that we can always see the right from the wrong, and given us such strong moral leanings that we always choose good over evil. Then about 'W' on the scale is a non-deterministic, almost non-theological situation, where people always recognise the moral issue, have always, and have so far (but only so far) always chosen good.

Always doing Good																																							
Determinism—no free will													Free will																										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z														
Predestination God controls everything that happens, including what we do, so that we always do good.										The Great Hypnotist God has us under control so that we always do good, but makes us think we make real choices.										Best of all Possibles God made us so we have real choices but also wise & moral so that we have always chosen the good.										Best by Luck God has never controlled us but by chance we have always chosen the good.									

Flew suggests that the Great Hypnotist seems at first to be clearly not compatible with free will. 'Certainly it would be monstrous to suggest that anyone, however truly responsible in the eyes of men, could be called to account and punished by a God who had rigged his every move.' But he recognises that rejecting the Great Hypnotist does not solve all our problems.

Morality presupposes freedom; if you start at the God-the-creator end you need DP2 (God stepping aside from some decisions) to make it possible for people to be moral/ethical creatures; if you start at the we-are-moral-creatures end (you make the fact that we are free agents an axiom of your theology) then there are times when God is not in control. Without DP2 (with some sort of Great Hypnotist axiom instead?) then there cannot be a creator/controller/omnipotent God. This can be described as an inverted or reverse form of Kant's 'postulate of practical reason' proof of God's existence. Setting this out rather more formally:

Morality presupposes freedom

(If there is no freedom to choose good or evil we cannot be moral creatures – morality does not exist if our actions are pre-destined or pre-determined or hypnotically

controlled – morality is about real choices, not about whether we *feel* free to choose or some other simulacrum of choice.)

A creator God is responsible for what happens to what he-she has created.

(We all recognise the immorality of *'I send them up but where they come down, that's not my department'* says Werner von Braun, in Tom Lehrer's song about inter-continental missiles. As parents are responsible for the actions of their young children, so must God be. In God's case omniscience – a knowledge of the consequences of creation – makes him-her totally responsible.)

We clearly are free agents and responsible for our own actions.

Therefore, either

(a) God has limited his-her powers, or

(b) there was no such powerful creator god in the first place and is no such now.

DP theology attempts to allow, by its axiom DP2, that alternative (a) is the case, that is, that God has limited his-her powers since the creation of people. Is it possible for an all-powerful god to do this? If God allows morality (by allowing the freedom that it needs) is this God reneging on his-her responsibilities? Once free will is allowed how much control has a god got? If God interferes in the consequences of any moral decision by a person, is free will dissipated? May God interfere in lower-order evils without destroying free will?

Can God limit his-her powers?

All of these questions involve logical problems of the sort we have been looking at in this chapter – that is, not problems of systems and ways of symbolising them, but problems of knowing what sort of system to apply, adapt or invent, in order to correctly display the reasoning involved. When we ask if it is possible for an all-powerful god to limit his-her powers what exactly are we asking about?

When we looked in Chapter 7 at the difficulties of being logical about a universe consisting of one 'thing' only, namely God, we noted that as soon as a second 'thing' was created (was distinguishable, was imaginable) a full logic, like a full mathematics, sprang into being. It could be argued that this occurred as soon as possibilities began, and this might be thought of happening before any actual creation of physical objects and their laws of interaction; even the possibility of creating or not creating brings into being a logical relationship ' α or not α ' to add to the universe which up to that point had contained God alone.

The question about God limiting his-her powers is usually, I suspect, seen as a problem which God had to face only when he-she, feeling in need of company and/or worship, made humankind as the last act of creation. (Major creation, that is; one has to allow for minor acts such as making famines in Egypt, toppling the walls of Jericho, sending Jesus etc.) However, from a logical point of view, if God is omniscient, he-she has to have realised the consequences of his-her actions from the word 'go'. Thus, along with the first act of creation goes the decision to limit his-her control over the actions of humans, once they are created.

If God also decided to limit his-her prescience of (omniscience about) the consequences of human actions, we will have a situation much less inclined to throw up logical conundrums: if God cannot foresee how the free-will decision of a person will affect others for good or evil, then he-she cannot be blamed for letting it go ahead and the 'problem of evil' may be avoided. Such a suggestion has seldom been made; it is generally assumed that God gave people the freedom to act against his-her desires, but continues to see what the consequences will be – in a way which we do not – and that makes God unhappy. If God has limited his-her knowledge of what will happen next to people, then presumably ignorance is comparative bliss for God – there is always a chance we

might see the error of our ways, get a hold of ourselves and start choosing to do good instead of evil.

I fear that this defence of God against the problem of evil, novel and appearing at first glance to get God off the hook, will not do. Its main effect is to either push the problem back to the first moment of creation (God chose this world with all its evil out of all the possibles) or to posit a creator god without the absolute power and knowledge and goodness that are usually supposed. A 'best of all possibles' defence might be mounted, but we have just seen how this defence can be turned on its head.

However, an important logical step has still to be examined for its consequences: having doubts about what God can or cannot do have been bypassed in DP by the use of an axiom, *DP2*, which is not a derivation from some earlier axiom but is itself to be accepted as a given. Are there fundamental contradictions between *DP1* and *DP2*, which make this theology illogical?

The simple logic of the problem of evil

Note that in this next section I make no distinction between so-called higher- and lower-order evils: those 'higher' evils that are 'acts of God' such as volcanoes erupting, a tree being blown down onto your car, all of which do damage to humans but are not inflicted by one human on another; and those 'lower-order' evils which are man's inhumanity to man. If God is responsible at all, he-she is responsible for both orders, the first directly, the second indirectly by creating such an evil creature. Such a distinction may be needed by apologists who wish to deny God's responsibility for the human-to-human wickedness but very few have suggested that God is not responsible for the rest – though I do know of a line of arguing which would relieve him of some of the blame for the effects on people of 'natural' disasters. The logic that follows is laid out with almost all its steps visible, thus it may seem a bit slow and pedantic. However, later presentations will not have all the steps laid out so clearly and this one will do for a demonstration of the need for rigour.

* * *

In 'classical' Christian theology, God has three very important attributes, omnipotence, omniscience, and goodness. We can give each one of them a symbol, *p*, *q*, and *r* (strictly speaking these are three propositions about God's nature). These can be bound together as *KKpqr*. This makes the point that they exist together and are inseparable – if one is false the joining of them is false. Now use *s* to symbolise a proposition declaring that good things always happen. Now we can put together a fuller proposition:

A1. CKKpqr < if God is omnipotent, omniscient and good, then good things always happen >.

Now introduce the idea of evil by using *Ns* to say it is not the case that good things always happen – we need only one bad thing to happen to make this true. What follows? We can now write out the consequences of finding one or more bad things.

A2. CCKKpqrCNsNKKpqr < if God is omnipotent, omniscient and good, then good things always happen, implies, that if good things do not always happen then it is not the case that God is omnipotent, omniscient and good >.

This is a law of the propositional calculus, being simple substitutions ($p/KKpqr, q/s$) in the law

$$A3. CCpqCNqNp$$

which is called the law of transposition, and can be tested with truth tables, or a tree proof, or be derived from a set of axioms, such as those of Lukasiewicz.

A2. can be expanded by turning the propositions into actors/actions (subjects and predicates) and then carefully applying the rules of quantification and using the ideas of 'all' and 'some' to make distinctions between various different propositions. In Chapter 4, page 77, it was explained that until every variable is bound by a quantifier, the whole formula is neither true nor false. However, the moves from a completely unbound formula to a completely bound one are legitimate and often interesting, even if the translations into ordinary language are not, strictly, correct. Such translations below are surrounded by double pointed brackets: << and >>.

$$A2. p/\phi x, q/\psi x, r/\xi x, s/\xi s = A4$$

$$A4. CCKK\phi x\psi x\xi x \xi s CN\xi s NKK\phi x\psi x\xi x \quad \text{<<if, } x \text{ being omnipotent, omniscient and all-good implies } s \text{ is good, then, if not all is good (} s \text{ is not good), } x \text{ is not as stated >>}$$

It is sensible then to add the idea that whatever x stands for (in this case God) x is always omnipotent, omniscient and all-good. Carrying out Rule $\Pi 1$ of the Propositional Calculus we can 'bind' x in the first half of the inference (the antecedent).

$$A5. C\Pi x CCKK\phi x\psi x\xi x \xi s CN\xi s NKK\phi x\psi x\xi x \quad \text{<<if, all the gods there are being omnipotent, omniscient and all-good implies that } s \text{ is good then, if } s \text{ is not good, God is not omnipotent, omniscient and all-good >>}$$

This is not quite what we want. Rule $\Sigma 2$ allows us now to bind x in the second half (conclusion) of the inference. This would give us

$$A6. C\Pi x CCKK\phi x\psi x\xi x \xi s CN\xi s \Sigma x NKK\phi x\psi x\xi x \quad \text{<<if, all the gods there are being omnipotent, omniscient and all-good implies that } s \text{ is good, then, if } s \text{ is not good there is some god who is not omnipotent, omniscient and all-good >>}$$

This is still not a true proposition – and we have an intuitive feeling that a logical rule cannot imply the existence of any sort of god. When the predicate calculus was developed it was realised that having 'unbound' variables (in this case ' s ') leaves us with something that is not a true proposition. Applying the $\Pi 2$ rule (instead of the $\Sigma 2$ rule in A6) gives something that seems more correct, but is still not a proposition, so strictly speaking cannot be said to be true or false.

$$A7. C\Pi x KKK\phi x\psi x\xi x \xi s CN\xi s \Pi x NKK\phi x\psi x\xi x \quad \text{<<if, all the gods there are being omnipotent, omniscient and all-good implies that } s \text{ is good, then, if } s \text{ is not good all the gods there are are not omnipotent, omniscient and all-good >>}$$

How then to bind ' s '?

We need to be able to say in the antecedent that all actions (due to God's actions, insights and moral worth) must be good and in the conclusion that there are some actions which are not good. These moves are available to us under rules $\Pi 2$ and $\Sigma 2$, giving us

$$A8. \quad C\Pi xCKK\phi x\psi x\xi x \Pi s\xi s C\neg s\xi s \Pi xNKK\phi x\psi x\xi x$$

This can be simplified thus:

$$A8. \quad \Pi xCCKK\phi x\psi x\xi x \Pi s\xi s C\neg s\xi s NKK\phi x\psi x\xi x \quad \text{<if, all the gods there are being omnipotent, omniscient and all-good implies that all } s \text{ are good, then, if some } s \text{ is not good all the gods there are are not omnipotent, omniscient and all-good >.$$

By these expansions into predicate calculus we have confirmed that the conundrum about God (as usually supposed) and evil, does not suffer from logical errors that might have been lurking in the rather 'all-embracing' nature of a logic dealing with propositions only. We are still faced with Augustine's clear summing up of the problem of evil. Therefore we are clear that our first axiom, $DP1$, will not do on its own as a description of God in a world where evil exists; similarly it will not do in a world where real choices and thus real free-will is possible.

The consequences of abandoning omnipotence, omniscience and all-goodness

Note that it is still the theologian's job to decide what sort of gods his theology envisages, and specifically what the gods' attributes are. Logic can deal only with what it is given. So, at this point we may be looking for a way of abandoning one or more of the three attributes (given here as examples from a much greater list). Here is a rough summary of the effects of such abandonments:

1. *A god who is not all-good*

A god who is all powerful and all knowing but not all-good may do a great many actions, or leave a great many undone but the goodness of these actions or omissions could not be guaranteed. In ancient theologies and some versions of modern worship it is clear that the worshippers feel that they understand their gods' likes and dislikes, know how to behave to please him-her-them, and act accordingly. Thus the Incas cut the still-beating hearts out of sacrificial victims to please their gods, and some Catholic Christians light candles for saints to please them into interceding on the worshippers' behalf. This may be thought of as a soft-hearted god, or more strongly as a capricious and greedy god, or perhaps a commercial god willing to pay for services rendered.

2. *A god who is not all-knowing*

A god who is all-powerful and all-good but not able to foresee the results of his-her (or human) actions may be able to do many good actions. But he-she will be unable to be sure that any interventions he-she undertakes will be truly good. Would a wise (if not all-foreseeing) god then venture any action at all? If an action proved evil or only partially good, the results, for the god's reputation as all-good, at the very least, would be disastrous. If the god's goodness drives him-her into inaction this could be thought of as a frustrated god, and presumably deeply distressed by what is going on in the world.

I do not know of any theologies which propose such a god or gods although it would make some sense of the wicked prospering (the god rewarded some people but made a mistake in their case). It also makes sense of desperate measures to turn round human wickedness by the flood, saving the Israelites from Pharaoh, engineering the return from Babylon, and (for Christians) the sending of his son as (a) a model, and/or (b) a sacrifice. Such a relatively 'blind' god would also avoid some theologies feeling they have to take up the logical but extreme position of predestination.

3. *A god who is not all-powerful*

A god who is all-knowing and all-good but is not all-powerful must be a sorrowful god. This god (or these gods) can see what is happening and what is going to happen, and if they are as compassionate as human beings can be, they will be very unhappy that they cannot do anything about it. This is indeed how God is portrayed in some biblical texts, but it must be admitted, not many. For example, in *Genesis* 6, 'Yahweh regretted having made man on the earth and his heart was grieved.' In *Hosea* 11, 'I will not destroy Ephraim again... for I am a God, not a man... and have no wish to destroy.' In *Jonah* 4, 'And am I not to feel sorry for Nineveh, the great city, in which there are more than 120,000 people who cannot tell their right hand from their left, to say nothing of the animals?' If Jesus is God's son and has God's attributes then his words in *Matthew* 23 must tell how God feels 'Oh Jerusalem, Jerusalem, you that kill the prophets and stone those who are sent to you! How often have I longed to gather your children as a hen gathers her chickens under her wing.'

The theologians who maintain DP usually grasp this last conclusion but say (in DP2) that God limited his-her own powers. Thus they try to have it both ways – God is both all-powerful, but – for the time being – is not all-powerful. Is this a logically possible situation? This is a question I have been walking around.

Temporarily Impotent or Blind or Wicked?

Temporarily Impotent

I have already suggested that a god does not get off the charge of failing to be all-good if he-she was, during the creation, all-knowing. At that time the god would have been able to see the consequences of becoming less than all-powerful for a time. I can see only one other way of avoiding this conclusion and that is to say the god limited him-herself from the word 'go'. The limiting need only be for all actions affecting humans, once created; I do not think that creating a volcano before creating Adam, knowing that the volcano would later erupt killing any people living on its slopes, makes the god less than all-good *if* people are created quite smart enough to invent science, eruption-prediction technology and evacuation procedures before the volcano is due to erupt. I am not sure that I could hold this line against a determined anti God-is-good logician, but it has possibilities.

Another, but dissimilar, path out of the quagmire would be to hold, as in 2. above, that the god did not limit his-her power but instead limited his-her foreknowledge – at least for a time. As we saw, a god would be able to intervene when he-she saw evil things happening, but not with unfailing knowledge of the consequences. Thus (as when the writer of *Genesis* describes God's feelings in the story of the flood, or when the writer of the gospel allegory makes God an absentee landlord of wicked servants) the god interferes when people become wicked but later sees the action he-she does was a mistake – ineffective or excessive. Some DP Christians see the incarnation of Christ and his redeeming death as a final (and successful) intervention in human life.

I would commend this line of reasoning to theologians who are looking for a way, in our scientific age, of explaining why we see so much evil in the world and can find no good day-to-day interventions by God without resource to the logical-dead-end argument that 'God does everything'.

By these paths I arrive at the conclusion that it is legitimate to introduce *DP2* but that for the theologian there are logical consequences which are usually unnoticed by them, namely the possibility of a god who is hamstrung in his-her possible actions by the need to allow free-will, or by a lack of knowledge of what is going to happen next; or the god may in fact not be good, except spasmodically.

Here is an attempt to formalise this conclusion. The laws of the Propositional Calculus on which it will depend are 'laws of transposition':

$$A3. CCpqCNqNp$$

$$A9. CCpNqCqNp \quad (\text{from } A.3 \text{ by } q/Np \text{ and } NNq=q).$$

To begin, we can use *A9.* to look at the conclusions we might draw from God being omnipotent, using a further extension of the predicate calculus.

The Universal Domain (that is, include everything as our subjects); noun variables x and y ; noun constant g for God; $\phi x = x$ creates; $\psi x = x$ is a person. We can now write

$$A10. C\Pi x\phi gx \ N\Sigma xyK\psi y\phi yx \quad \begin{aligned} &< \text{if God creates all } x, \text{ then it is not the case that both some } y \\ &\text{is a person and } y \text{ creates some } x > \\ &< \text{if God creates everything then no person creates anything} >. \end{aligned}$$

Note: we must be clear that the *if...then...* represented by ' C ' is not a description of things happening in time: we are not saying that first the god is omnipotent, then later he-she is not.

A10. would appear to bar us from singing the hymn, 'All things Bright and Beautiful ... the Lord God made them all' if we believe that, for example, human beings, rather than God, made the indubitably bright Concord aircraft, and that Botticelli, rather than God, made the beautiful painting of the birth of Venus. This formula seems intended, rather, for theologians who would like to say that God made everything, including what we call the Aerobus Corporations's Concorde and Botticelli's paintings. This is the sort of theology that suits strict Calvinists and other predestinationists, those who deny us free-will.

However, using *A10.* we can arrive at quite a different formula. With substitutions in the law of transposition *A9.* and then the rule of detachment we can arrive at *A12.*

$$A9. p/ \Pi x\phi gx, \ q/ N\Sigma xyK\psi y\phi yx, \ x \ NNp \ Df= p, \quad = A11.$$

$$A11. C \Pi x\phi gx \ N\Sigma xyK\psi y\phi yx \ C\Pi x\phi gx \ \Sigma xyK\psi y\phi yx$$

$$A11. = A10. - A12.$$

$$A12. C\Pi x\phi gx \ \Sigma xyK\psi y\phi yx \quad < \text{if God does not create everything then it is true that some person creates something} >.$$

From this bit of logic we may conclude that God as sole creator and people as creators are mutually exclusive. As this was perfectly obvious, right from the start, and all agreed without benefit of formula, what have we gained? We have tested this particular bit of logic and see that it will be helpful for any theologian keen to explore the logic of an omnipotent God vs. a non-omnipotent God.

Temporarily Blind

The logic for any theologian keen to explore the logics of an all-knowing god (and for an all-good god) is more complex because we seldom assume that if God knows everything people are thereby barred from knowing some of the things God knows.

If we want to bring in the problem of evil at this point, since it is the most obvious test case, then, in the case of God being omniscient (all-knowing), we wish to say that:

- (1) If God knows everything he knows of all the bad things that happen

The Universal Domain; g = a constant for God; x = a variable; y = a variable; κxy = x knows y ; ψx = x is a person; ϕx = x is a fact; βy = y is bad

- A13. $C \Pi x C \phi x \kappa g x \Pi y C \beta y \kappa g y$ < if, for all x , if x is a fact then God knows it, then for all y , if y is bad, then God knows y (including that it is bad) >
< if God knows all facts, then, if there is some bad God knows of it >.

What are the consequences of saying this? Here is one obtained by doing a substitution into A3.

$$A3. CCpqCNqNp$$

$$A3. p / \Pi x C \phi x \kappa g x, q / \Pi y C \beta y \kappa g y = A14.$$

$$A14. CC \Pi x C \phi x \kappa g x \Pi y C \beta y \kappa g y C N \Pi y C \beta y \kappa g y N \Pi x C \phi x \kappa g x$$

$$A14. = C A13. - A15.$$

- A15. $C N \Pi y C \beta y \kappa g y N \Pi x C \phi x \kappa g x$ < if it is not the case that, for all y if y is bad then God knows about it, then it is not the case that for all x if x is a fact then God knows it >
< if God does not know about some particular bit of badness, then it is not the case that God knows everything >.

This conclusion expresses the situation that will come about if God makes him-herself temporarily blind to wickedness.

The ethics of a god who *could* know about a wicked act and *turns away*, refusing to see evil and the causes of sorrow, are not praiseworthy. We are reminded of the moral we are expected to draw from the story of Pilate washing his hands of responsibility for Jesus' death. The ethics are not discussed, of course, in this bit of logic, but again we can see that omniscience has logical ties to facts about God which cannot be avoided, no matter how much the theologian may dislike them.

Temporarily Wicked

Similarly we do not assume that, if everything God does is well done and good, then people are barred from doing well and doing good. To take the ethical case, we wish to say that:

- (2) everything God does is good.

The Universal Domain; g = a constant for God; x = a variable; y = a variable; δxy = x does y ; ψx = x is a person; γx = x is good; βy = y is bad

$$A16. \quad \Pi x C \delta g x \gamma x \quad < \text{For all } x, \text{ if God does } x \text{ then } x \text{ is good } >.$$

But we may also wish to make it clear that

- (3) everything God does is good, but God does not do everything

$$A17. \quad K \Pi x C \delta g x \gamma x \Sigma x N \delta g x \quad < \text{Both, for all } x, \text{ if God does } x, x \text{ is good, and, there is some } x \text{ God does not do } >.$$

This expresses the idea that God is at times not involved. If the action (by some person) is bad, God may be willing to claim the action as his-her responsibility but, nevertheless, do nothing about it. Again we have to question the morality of a god who refuses to get involved when actions are patently wicked and harmful to his-her creatures.

A distinction is made in this section between a god who (i) makes it impossible for him-herself to intervene (temporarily powerless, as above) or (ii) refuses to watch (temporarily blind, as above) or (iii) in this last case, one who sees what is going on, could do something about it, but lets the evil occur (temporarily wicked). A theologian might claim to be able to understand the mind of God, and know that God will put the evil right at some later time. This looks a bit like hubris or rushing in to patch a new logical hole that has appeared with a new axiom, 'God remedies all evils.' As there is no evidence for this occurring (even Job's rewards for doing good in the face of evil look rather inadequate for the wrong done to him) then the rewards will have to be 'spiritualised', or placed after death.

In the situation where God is temporarily wicked we are assuming that God remains omnipotent and omniscient. Imagine the following:

- (5) If whatever God does is good, and one of the (necessarily good) things he does is to allow people to do bad, then doing bad is allowable.

Spelling out the separate parts of this idea by adding π = permits (or, allows):

$$\begin{array}{lll} A16. & \Pi x C \delta g x \gamma x & < \text{everything God does is good } > \\ A18. & \Pi x C \pi g x \gamma x & < \text{for all } x, \text{ if God permits } x, x \text{ is good } > \\ A19. & \Sigma y K \pi g y \beta y & < \text{there is some } y \text{ such that both God permits it and it is bad } > \\ A20. & \Pi x C \Sigma y K \pi x y \beta y \Sigma z K \delta x z \beta z & < \text{for all } x \text{ if, both } x \text{ permits some } y \text{ and that } y \text{ is bad, then there is some } z \text{ which } x \text{ does which is bad } > \\ & & < \text{permitting something bad to happen is bad } > \\ & A20. x/g \text{ (we may also remove the quantifier } \Pi x \text{ since we have replaced the variable with a constant)} = A21. & \\ A21. & C \Sigma y K \pi g y \beta y \Sigma z K \delta g z \beta z & < \text{if both God permits something and it is bad, then there is something that God does that is bad } > \\ & A20. = C A19. - A22. & \\ A22. & \Sigma z K \delta g z \beta z & < \text{there is some } z \text{ that God permits and it is bad } > \\ & & < \text{God permits something bad } >. \end{array}$$

Thus we arrive at the contradictory conclusions that everything God does is good (A16, the axiom that God is ever good) and that God permits something bad (A22.). The key moral axiom in this logical argument was A20, but this is intuitively correct. We cannot wriggle out of the conclusion as long as 'permits' applies only to those actions we do have the right (and power) to allow or forbid: the law of the land forbids me to cycle on the motorway and permits me to drive on it. God has the right and the power to forbid or permit wicked acts. However, to say that the penniless tramp who sleeps under a bridge is 'permitted' to sleep at the Waldorf Astoria is technically correct but morally abhorrent.

Again we have the consequence that giving God a characteristic which goes against his/her usual nature, even if temporarily, (in this case temporarily wicked) brings with it problems which must be acknowledged. If a believer wishes to press for logical solutions to this theological conundrum we need some logical patch such as a logical system for God which includes an axiom which says God is not wicked (does nothing bad) if he/she allows people to be wicked. This is to say that some wickedness is not wickedness (that is, what we would call wicked is not wicked for God).

There has in the past been a certain amount of such thinking – God is not declared wicked for drowning all but Noah and his family in the flood. However, more modern thinking likes to say that God works to a 'higher' or more 'noble' morality than our own, is less interested, for example, in justice than in mercy. A present-day Christian theologian might rather have the flood story rewritten with God forgiving everyone and *saving* them from a flood. This tendency can be seen in innumerable high minded children's stories where the naughty child, or pet, is, nevertheless, saved from disaster by the parents or some trick of the plot, and the message that parents love you despite your wickedness is clearly made. Thus the contemporary secular children's book is more 'God-like' than the religious children's book of earlier times in which, in Dylan Thomas's memory, 'small boys, though warned with quotations not to, *would* skate on farmer Giles' pond and did and drowned.' *Harry the Dirty Dog*, and *Where the Wild Things Are*, and *Come Away from the Water Shirley*,¹ paint a much more humane picture of the way things are than the theologians do in positing a just God or even a temporarily wicked (by human standards) God.

The effect on free will of a god who interferes

A topic which few theologians seem to have faced is whether moral choices without control, that is, free-will, is logically available in a world in which God does interfere. Pharaoh chose to pursue the fleeing Israelites and this would have resulted in their all being killed, or at least re-enslaved, when they were bottled up against the Red Sea, had not God intervened and dried up the sea at the right moment for the Israelites to cross and let it rush back in at the right moment to swamp Pharaoh's pursuing army. Jews and Christians usually see the story from the Israelite point of view but the theological moralist, and the logician who is helping, must see it from all sides.

If we were to find out, presumably by experiment, that every time we made a moral decision (and took some action) then the action failed, then, at that moment, we would begin to doubt if we had free-will. At this point we might want to distinguish between *intent* and *results* in morals.

(1) *Intent*: does free-will apply to intent alone? For example, Pharaoh decides, freely, to chase the Israelites, but the result of the chase is nothing to do with the decision. Passages in the Gospels suggest that this is the correct interpretation for Christians. For example, Jesus is attributed with the idea that lusting after a woman is equivalent to actual adultery.

(2) *Results*: are choices without results choices at all? Take an everyday event like buying an ice-cream: we may decide to buy one on a hot day in the city but be unable to find an ice-cream shop.

We feel hot, frustrated and hungry but has our choice been taken away from us by fate? Or was it not a proper choice at all? Since it was incapable of fulfilment (no ice cream shops open) – there was not $ApNq$ < to buy or not to buy > but only Np < not to buy > so we could not choose, only curse. Pharaoh is in the same bind – to chase or not to chase – in a situation that God is not going to let him catch the Israelites whatever he chooses. The unattainable ice-cream is an example of a logical impossibility and is in fact easily set out as one of the laws of transformation, our old friend

$A3.CCpqCNqNp$ < if choosing to buy implies being able to buy, then, being unable to buy implies being unable to choose >.

However, that is not the case for Pharaoh; he is not logically unable to choose to chase: there are indeed Israelites to chase, and he has the means to chase them. What he is unable to do is to catch them. However, he is not deciding to *catch* them, but only to *try to catch* them. No matter how he phrases the decision (imagining perhaps that he is choosing to catch them) the fact of the matter is, as we say of anything in the future, 'in the lap of the gods'. Perhaps saying we are free to choose is like saying we are free to gamble, but not free to win or lose. Someone will win, someone will lose; either (1) some god will choose the winner and manipulate the fall of the dice, or (2) some set of impossibly complex laws (theoretically possible to discover but practically impossible to do so) will cause the dice to fall one way, or (3) some cause-less random event will direct the dice. But whichever one of these situations is true, we will still have chosen a number, taken our own gamble, freely decided which is the best thing to do.

This is not to say that any god interferes in every event. In fact he-she would be unwise to do so since people would give up trying to bring about their desires if the outcome always fell out predictably. This is a continuation of the problem of evil and is the Great Hypnotist hypothesis revisited – in this case regular intervention for good would make people give up choosing good actions as they would realise that the Great Interventionist would make it right, anyway. It would also make it possible for people to do some statistical work on outcomes of choices and so decide whether a god was good or evil. There are ways for the Great Interventionist to avoid being thus pinned down; for example to equally divide interventions for good and evil at the same time being careful not to reward choosing-the-good more often with good than rewarding it with evil. This leaves the god's nature as a-moral and the only way I can see of rescuing him-her from that charge is for the god to make interventions (and rewards for choosing-the-good) as practically unknowable as 'chaos theory' makes the causes of a storm.

A non-theological look at free-will

It should be remembered that discussion about whether people have free-will, an illusion of free-will or no free will at all (our actions being determined) is not the sole prerogative of theology.

Science has not yet decided if every event has a cause. Hume pointed out so convincingly that we have no *reason* for assuming that every event has a cause and that we can be sure only of *constant conjunction* (so far, up to this minute) that scientists seldom couch their descriptions of events in a way that either uses the word 'cause' or assumes it. The schoolmen carefully divided causes into different types but they included theological causes and that may also have put scientists off using the word.

The mathematics of chance, randomness and indeterminacy have been pursued with great helpfulness to science, the law, and gambling (the 'gaming industry' as it is called by present day

'spin doctors'). Particle Physics has major theories about events which are treated as indeterminate and by using these theories, and the mathematics developed with them, has been able to predict events in the quantum world with greater accuracy than predictions in any other branch of science. However, despite Neils Bohr's insistence that actions at the sub-atomic level cannot be known and that therefore their causes should not be pursued, science cannot proceed if it is assumed that events have no cause.

If there are events which are random or chance, then there will be no answers to 'why?' When you come to the point where events are random there is no point in investigating further. (The main candidates are events involving electrons, and an interesting theory pursued by Penrose (1995) suggests that bright ideas are the end result of cause-less electron changes in brain cells.) It is possible to measure the occurrence and nature of the random events, but finding any pattern in their occurrence immediately removes the notion that they are random – they have a pattern, a rule by which their occurrence can be predicted, therefore they are not random. Science admits no reason for ceasing to enquire further into the nature of events, looking for causes of constant conjunctions or constant mis-conjunctions.

So science by its nature assumes what philosophers call determinism and what theologians call pre-destination, that is, the god-controlled version of determinism. The scientist cannot but believe, if he or she is going to go on doing science, that answers to why events take place can be found. In recent times mathematicians have begun to develop ways of quantifying the chains of 'causation' in complex ordinary day happenings and in laboratory experiments. In what looks to the logician as a grave mistake in nomenclature the branch of mathematics is called 'Chaos Theory'. The famous illustration is that a butterfly's wing-clap in Vienna may be the beginning of a causal chain which results in a tornado in the USA, the loss of lives and huge damage; without the wing-clap that particular hurricane could not have developed.

Determinism must be the scientific supposition, one of the axioms on which scientific endeavour is based. The alternative is true chaos in which events (albeit very small events, but the basic events of our physical universe) have no causes, are therefore individually unpredictable, do not obey rules. Where there are no rules logic and mathematics may proceed but their relationship to the world has no solidity: even logical 'truisms', such as *Cpp* <things are what they are>, is no longer true. Famous scientists have come down on different sides of this argument, Bohr on the side of indeterminism, Einstein on the side of determinism, saying that 'God does not play dice.'

I cannot see how science can proceed if indeterminism is accepted. For example, it may be found, even proved, that we can never know why a particular electron changed its energy level, but we may be able to study the rules governing the energy levels of a million million electrons. To find a rule is to find that chance is not operating – the cause of an individual's changing may elude us but the rule tells us that under certain conditions the electrons will change in a certain way and in other conditions they will change in a different manner – there is a pattern there, so we say, 'it is not by chance, but because of something about the conditions; we don't know what it is, but there must be a cause.' Others will say, 'What is the use of saying there is a cause if we know we can never find it?' However, the philosopher will probably say, 'Are you going to broaden the word 'cause' to include 'unfindable reasons'? If so, let us know and do not change your minds, so that sensible discussion may continue – define your terms and stick to that, as you have done, since Hume, for cause = constant conjunction.'

The moralist with utilitarian leanings wonders if free-will as we know it is just a way of saying that the springs of our actions are so many and of such different strengths that, although they exist (our actions are determined), they cannot for practical reasons be discovered. Thus we have the illusion (because our brains and insights are so weak) that we are free to choose this or that course of action, and it is this state we call 'having free-will'. We can follow Penrose and suggest that random events of electrons in our brain help us make up our minds as they tip our decisions this way or that at the end of billion-part causal chains (much as which storm we get depends on which butterfly flaps first, this one here or that one there). This path is plausible but it does say that our decision, and it may be a moral decision, has a reason, namely an electron's change.

I find myself driven to this position, or one like it in which the electron's change has also a

reason (a cause) as yet undiscovered and at present undiscoverable. Nevertheless, the electron's change is not a 'moral' change – it is not affected by the goodness or badness of the situation; where then does the ethical nature of the decision lie? Certainly not at the quantum level. The electron's change can perhaps be likened in force (at the very end of the chain) to other 'chance' events which also lie at the very periphery of the moral decision; remember that moral decisions are made following the interaction of moral precepts and facts. At the very periphery of a moral decision (such as whether to ring your sick aunt or not) may lie facts about the weather – if it is fine she will be out in the garden out of earshot of the phone – and you believe it is raining because you caught, out of the corner of your eye, water on the window caused, unrealised by you, by a burst water pipe due to shoddy copper allowed out of the smelter by an inspector whose wife had recently left him because... because ... because....

Thus I find myself able to accept that free-will applies to moral decision-making since the chance events (or events with no known causes) apply to the factual part of the moral situation, not to the strictly ethical part (moral rules such as 'be good to your aunt') which have no need of verification or causal chains.

We may scrutinise our moral precepts and scrutinise our deontic logic, and there chance or 'unknowable' events may help or hinder our reasoning, but it is not moral reasoning, but rather meta-moral cogitation; free-will is not involved because our choices (such as changing our moral precepts or revising our deontic logic) do not involve choosing to do good or evil, rather choosing efficient over inefficient.

A logic for a 'blind' god: three-valued logic.

Seldom in our everyday affairs do we need to hedge our remarks about the future with provisos about the future being unknowable and few people nowadays add to their appointment diaries, 'd.v.', meaning 'God willing'. Nevertheless, when pressed, perhaps when we have made some remark about future events which others find unlikely, we will say, 'if things go the same way as in the past,' or some such remark. To add such a remark to every plan or prediction, hope or fear, would be unnecessary repetition, and even scientists on the look out for exceptions to prove their rules good or bad, seldom add comments about the future being unknowable.

In some parts of our everyday talk we do mark a careful distinction about the likely truth of our predictions and that is when we give advice; a conversation such as the following is very common: 'Take an umbrella.' 'It's not going to rain.' 'You never know, and the weather report was not good.' The advice is not proffered because of knowledge of the future but good reasons for giving it are given. But even with good reasons the prediction 'It's not going to rain,' is not treated as a true or false statement, only as 'contingent'.

One of the great debates amongst professional philosophers of logic in the late 20th Century has been about so called 'counterfactuals'. For example, 'If Princip had not killed the Grand Duke Ferdinand (in Sarejavo in 1914) someone else would have.' There are grave doubts about whether the 'if....then....' sequence operates with true and false statements in such a sentence, and about whether 'if....then....' can, therefore, give true and false results in an argument involving counterfactuals. Although the sentence is about the past there is something quite unknowable about 'someone else would have' and a simple true or false conclusion seems inappropriate.

Logics need not ignore 'contingent' or 'undecided' or 'unknowable' facts, but they need to acknowledge that they are neither true nor false at the time we are dealing with them. The simplest logic for this task is one with just one 'truth-value' between true and false. This value is usually written as ' $\frac{1}{2}$ ' since it is neither 1 (for true) nor 0 (for false). The logic is simply called '3-valued'. Multi-valued logics may have any number of values between true and false, and there are schema for how logics with an infinite number of values would behave. For multi-valued logics '1' is usually 'designated' with an asterisk in a truth table to show that it means 'true'; following that pattern a three-valued logic may have *1 for true, 2 for unknowable and 3 for false. If you work your way through all the symbolic logic on page 166 you will have the justification for the way the idea of uncertainty (usually about the future) can be symbolised using our new truth-value of $\frac{1}{2}$.

Three-valued logic has some strange aspects but on the whole it is 'intuitive', that is, it makes

A Three-valued System

How is it possible to work out new truth tables? Look at what happens to N <It is not the case that>. N will have to allow for occasions when it does not just switch any true proposition into a false one (and vice versa). What is N to do to some proposition which is uncertain? What is the meaning of 'It is not the case that it will rain tomorrow'? We understand it, but it seems just as uncertainly true (or false) as 'It will rain tomorrow'. The new three-valued system had better make N 'change' something uncertain into something uncertain, that is, not change its truth value at all. So we have the following for N :

N	
1	0
$\frac{1}{2}$	$\frac{1}{2}$
0	1

Secondly, we will need a spread-sheet or matrix with 9 cells for any operator, such as K , A or C , that takes two propositions each with three values. We can work our way to what the values should be in this sort of way: K means <both/and> and it can only be true when both p and q (both propositions or statements it joins) are true at the same time. Any mixture of false and true is going to make K false. But what if one of the two ideas it is joining is uncertain? Either both turn out to be true (K is then true). Or they may turn out to be both false, or a mixture (K is then false). So the fate of K is still uncertain except where K joins an uncertain to a false (K is then false). To allow for them both turning out true we had better give K joining two uncertainties as uncertain too. So the truth table for K comes out as:

K	1	$\frac{1}{2}$	0
1	1	$\frac{1}{2}$	0
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	0
0	0	0	0

The table for C (implication, if/then) can be worked-towards in this way: the key idea in implication, as logic uses it, is that if something is true, it is true no matter what, and anything true or false will imply that it is true. The one thing implication will never do is lead from a true statement to a false one. When we have uncertainties (following that pattern) if something is true, not only something false but also anything uncertain will not alter that. So, an uncertainty may imply a truth or another uncertainty, but never a falsehood. This gives us the truth table for C :

C	1	$\frac{1}{2}$	0
1	1	$\frac{1}{2}$	0
$\frac{1}{2}$	1	1	$\frac{1}{2}$
0	1	1	1

The table for A is as follows.

A	1	$\frac{1}{2}$	0
1	1	1	1
$\frac{1}{2}$	1	$\frac{1}{2}$	$\frac{1}{2}$
0	1	$\frac{1}{2}$	0

Please note (it is very important) that when you get to a three-valued logic many of the translations from one operator to another do not hold. For example, Apq in two-valued logic could be defined or translated into $CNpq$. In three-valued logic it cannot be. However, in three-valued logic $Apq = CCpq$.³

Using three values in theology

If a god, constrained by the desire to give people free-will, makes him-herself blind to the future then, for the duration of that blindness, the god must, for his-her own cogitations about the consequences of actions, use a logic with at least 3-values. One of the constraints on the god's thoughts about the future will be that he-she cannot say, for example, 'Either Eve will eat the apple or she will not,' with the same confidence that he-she could have said it whilst not blind to the future. Note, this is not to suggest that there is a third alternative to eating or not eating the apple; those are still the only alternatives – even the sudden destruction of the world by a meteorite leaves Eve not eating the apple, though for a rather different reason from that which was first envisaged. You can think of the ' $\frac{1}{2}$ ' meaning that the alternatives do not apply *yet*.

The logical implications of having a god who is all-knowing, or not-all-knowing were, naturally enough, discussed by the schoolmen, commenting (in this case) on the ninth chapter of the *De Interpretatione* where Aristotle discusses propositions in the future tense, using as an illustration 'There is going to be a sea battle tomorrow'. (He must have been imagining himself standing on the shore at Salamis 150 years earlier.) Aristotle says that the proposition 'There is going to be a sea battle tomorrow' is neither true nor false and calls such propositions 'neuter', meaning what we have meant by the truth value ' $\frac{1}{2}$ '. However, Aristotle was sure that 'Either there will be a sea battle tomorrow or there will not' is definitely true, which we, as we constructed our truth tables were not able to say. This was realised by Ockham, and discussed in his commentary on *De Interpretatione* in his *Tractatus de Praedestinatione*. When we have two propositions,

- p < God knows that A will happen > and
 q < A will happen >, (where A is a contingent, undetermined future event)

Ockham asks if we can logically deduce that

$$Cpq \text{ < if God knows that } A \text{ will happen then } A \text{ will happen > .}$$

Ockham thinks that we can, because, if the antecedent, p , is false and the consequent, q , is 'neuter' then we have a false implying a neuter. In symbols:

$$C0\frac{1}{2} = 1$$

It is correct because both substitutions for $\frac{1}{2}$, ($\frac{1}{2}/1$ or $\frac{1}{2}/0$) lead to a true argument: $C01 = 1$ and $C00 = 1$ < a false proposition implies any proposition at all >.

Ockham looks at the other possibilities and finds them all leading to a true statement except

$$FC10 = 0 \text{ < if it is true that God knows that } A \text{ will happen then it is false that } A \text{ will happen > .}$$

That $C10$ is false is what one would expect and fits a doctrine of God being omniscient. However, Ockham looks at the converse implication,

$$Cqp \text{ < if } A \text{ will happen then God knows that } A \text{ will happen >}$$

and finds a snag. If q is neuter and p is false, what of the whole then? In symbols:

$$C\frac{1}{2}0 \neq 1$$

Ockham's answer is that a believer in neuter propositions would have to say of this subject matter 'Not both p and *not-q*' does not always imply 'If p then q '. In symbols:

$$NKpNq \neq Cpq$$

Thus we see that Ockham realised that Aristotle's recognition of neuter propositions made some common definitions and theses invalid but he did not spell them all out, probably because he was interested mainly in the theological implications and he did not have the benefit of a symbolic system and truth tables and had to do all this reasoning verbally. For example, Ockham did not give a 3-valued solution to

'If A is going to occur God knows that it is.'

which we would have as

$$C\frac{1}{2}0=\frac{1}{2}$$

and its negation the same

$$NC\frac{1}{2}0=\frac{1}{2}.$$

Further theological implications of a 3-valued logic.

Is completeness necessary?

It is not just some definitions and truth tables which change when a third value is introduced to propositional logic. There are also questions about the way the logic can be seen to be valid and consistent. Firstly, the set of axioms needed for the 3-valued system we have been describing are not those of the standard propositional calculus, and instead a set invented by Wajsberg in 1932 will do:

$$W1. CCpqCCqrCpr$$

$$W2. CpCqp$$

$$W3. CCCpNppp$$

$$W4. CCNpNqCqp$$

$$\text{Definition: } Apq =_{Df} CCpqq$$

Secondly, this system is not 'strongly' complete. Logicians at the beginning of the 21st century distinguish between several sorts of completeness and, confusingly, different logicians give them different names. For our purposes we are concerned here with two sorts of completeness: in a system which is 'weakly' complete you can prove all formulae that are inside the system; for a system that is 'strongly' complete (also called 'functionally complete') you can prove that all formulae that are outside the system are indeed outside, that is, they can be *disproved*; this is usually done by proving that adding any thesis that negates a thesis of the system (and therefore must be outside it) leads to an absurd conclusion – usually the conclusion that the simple ' p ' is a thesis. Thus adding $NCpp$ to the propositional calculus (in which Cpp is a provable thesis) makes it possible to prove p <anything and everything is true>.

You can see that having a strongly complete system gives it more credence as a system that will

reflect (and be useful for) everyday use since it is intuitively better to be able to prove not only that 'the wicked uncle did it' but also to prove that 'Sir Regie's beautiful fiancée did not.' The theologian may be hopeful of finding a logic that not only proves, for example, that (i) people caused a war, but also that (ii) God did not. The standard Wajsberg 3-valued logic falls down in this case since it may help prove that people caused the war but since there are no longer just the two alternatives – people caused it or people did not – God is not ruled out as a cause of the war.

The only way to make 3-valued logic strongly complete is to introduce to it a new operator '*T*' which has the truth table

<i>T</i>	
1	½
½	½
0	½

This operator does not stand for any ordinary words, nor any idea that we normally use (except the somewhat weird arithmetical function of subtracting a number from itself and adding ½) It was first used by Slupecki in 1936, and two extra axioms are added to Wajsberg's four:

- W5. $CTpNTp$
 W6. $CNTpTp$

Another interesting move is to remake the idea of negation so that $N\frac{1}{2}$ does not have the truth-value ½ but has the value 1:

<i>N</i>	
1	0
½	1
0	1

It seems likely that neither Slupecki's system, nor the idea of $N\frac{1}{2}=1$, both being so counter-intuitive, will be of much help to theologians. Predicate logic has to get along without strong completeness, it has enormous power and flexibility and semantic validity via 'other worlds' interpretations, therefore there seems no good reason, and especially no theological reason, for rejecting the usefulness of a 3-valued system to theologians who are interested in examining a god's omniscience.

A logic for non-omniscience?

The usual use for the 3-valued logic in theology would no doubt be for arguments about future events. It could also be seen as the logic used by a god who is not omniscient. Here is an example of a use by A.N.Prior² of how 3-valued logic solves the problem tackled by the schoolmen 'If there are neuter propositions can God be omniscient?'

Let ϕp be used to mean 'God knows that *p*'. Then 'God is omniscient' can be symbolised by

$$Om1. \quad \Pi p C p \phi p$$

If there are neuter propositions (with undecided, unknowable truth value), then we must consider three cases: $p/1$, $p/½$, $p/0$, meaning that our proposition is true, unknowable, or false. From our theology we can be sure that:

- RO1. $\phi 1 = 1$ < God, being God, *knows* everything that is true >
 RO2. $\phi \frac{1}{2} = 0$ < God (like everyone else) does not *know* anything that is neuter >
 RO3. $\phi 0 = 0$ < God (like everyone else) does not *know* anything that is false >.

This gives us the three cases in symbols:

- Om1. $\Pi p C p \phi p, p/1 =$ Om1.1
 Om1.1 $\Pi p C 1 \phi 1$ < if something is true God knows it >

 Om1. $\Pi p C p \phi p, p/\frac{1}{2} =$ Om1.2
 Om1.2 $\Pi p C \frac{1}{2} \phi \frac{1}{2}$
 apply from theology the rule RO2. = Om2.
 Om2. $\Pi p C \frac{1}{2} \phi 0$ < if something is not knowable God does not know it >

 Om1. $\Pi p C p \phi p, p/0 =$ Om3
 Om3. $\Pi p C 0 \phi 0$ < if something is false God knows it is false >.

Adding together these three cases since they cover all possible cases gives us:

- Om4. $KK C 1 \phi 1 C \frac{1}{2} \phi \frac{1}{2} C 0 \phi 0$ < If something is true God knows it *and* if it is not knowable God does not know it *and* if it is false God knows it is false >
 < If it is true that it will snow tomorrow God knows that it will snow tomorrow *and* if no one can know if it will snow, God cannot not know it will snow *and* if it is false that it will snow, God knows that it will not snow tomorrow >
 apply the $\phi 1 = 1, \phi \frac{1}{2} = 0, \phi 0 = 0$ (the theological rules RO1, RO2, RO3.)
 = $KK C 1 1 C \frac{1}{2} 0 C 0 0$
 = $KK 1 \frac{1}{2} 1$
 = $K \frac{1}{2} 1$
 = $\frac{1}{2}$

Thus, if there are neuter propositions, then, 'God is omniscient' is one of them.

And what does that mean? It is, in fact a highly interesting result since the expectation of most of us, used to working in a true-or-false-and-those-two-only worlds, is that if a god cannot foresee the future then he-she is definitely not all-seeing. However, the proof goes only as far as saying: if the god cannot foresee the future he-she may be omniscient or may be not; that is, the god is *possibly* omniscient.⁴

Time seems to be the origin of this puzzle, with, at the present moment, everything in the past being knowable and so true or false only; present events similarly; but future events being unknowable. Thus a god blind-to-the-future is, at this moment t2003, not omniscient, no matter what he-she may say will happen. In the future, at t3003, if the god has *incorrectly*, back at t2003, predicted the future (say a happening at t2500), we will continue to say the god is blind. However, if under similar circumstances the god has been consistently *correct* about happenings in the millennium t2003 to t3003 we may be inclined to say he-she is not blind (as we had thought) but is now (so far) omniscient after all. Therefore, only the end of time will reveal whether the god knew all along what was going to happen and the fault (of our having to judge him-her no more than 'possibly omniscient') lies with our blindness to the future, not to his-her status or nature. A theologian can argue that a god does not lose his-her nature as omniscient or non-omniscient because of the way time flows, but that the neuter classification (symbolised by the $\frac{1}{2}$ truth-value)

is something that we, as non-omniscient creatures are compelled to use. The problem of free-will has not been solved by our third truth-value but merely postponed to the end of time!

Such a conclusion shows, again, that logics fit the theology you espouse, not the other way round. A three valued logic allows the theologian to see what the 'side-effects' of a particular theological stance are; in this case a theology in which the god is not omniscient. The side effects are of two kinds: those which show we cannot from logic decide on the god's omniscience or not, and that if the god is not omniscient he-she must use a 3-valued logic (or many-valued logic) when dealing with the future, accepting that the law of the excluded middle does not apply as before, and that old definitions of one operator in terms of others may have to be altered pro tem.

Logics for gods who are not perfect

Three-valued logic could also be used if a theologian felt driven to deny that a god was all-powerful or all-good, or all-anything-you-care-to-name. Adapting Prior's proof above for the position that God is not all-powerful:

Let ψp be used to mean 'God can do anything'. Then 'God is omnipotent' can be symbolised by $\Pi p C p \psi p$. If there are neuter propositions (with undecided, unknowable truth value), then we must consider three cases: $p/1$, $p/1/2$, $p/0$, all of which will contribute to the final solution. Interpreting $\Pi p C p \psi p$ as covering all possible cases gives us

$KK C1\psi1 C1/2\psi1/2 C0\psi0$ < if something is done God does it *and* if it is not do-able God cannot do it *and* if it is not done God did not do it >
 < if it is true that a stone was lifted God lifted it *and* if a stone is unliftable (being perhaps a mythical stone) God cannot lift it *and* if it is false that God lifted a stone then God did not lift it >.

Apply the theological rule RO2. from page 142, $\psi1/2=0$.

$= KK C11 C1/20 C00$

$= KK 11/21$

$= K 1/21$

$= 1/2$

Thus, if there are neuter propositions, then, 'God is omnipotent' is one of them.

Similarly, if there are neuter propositions, then, 'God is all-good' is one of them.

Do we now have to use 3-valued logics for all of, for example, the Christian God's attributes? No. Just for those where we are ignorant of certain truths, due to time, or any other universal constraint. A 'Chaos Theory' inability to see beyond a certain level of complexity, or a Neils Bohr attitude to chance, may also limit us and make us ignorant of certain truths.

There are other logics which deal with uncertainties: the so-called 'fuzzy' logics where 'near enough' is all that is required; and nonmonotonic logics where true and false have a rider, 'for now, until we know better.' Nonmonotonic logics may have an application in theology if we wish to explore the situation that preachers use when they say, 'We cannot understand this mystery, but all will be revealed when we get to heaven.'

Ways out of these dilemmas

Looking for evidence

The theologian who will allow an empirical study of whether a god is omniscient (or not) may count and grade events in the light of other characteristics he or she is willing to allow the god to have. This chapter has kept to the ways logic helps look at the clash of all-knowing with all-good. A theologian with a strong belief in the divine inspiration of the *Bible* could look to past biblical events and try to work out whether God showed signs of omniscience in the past. The result is a mixed bag I fear, with God apparently learning from mistakes about what men would do – the result of the flood has already been mentioned – and on the other hand God successfully organising events to save ‘his people’ from plagues, pursuers and invaders, and engineering Jesus’s miracles.

Re-defining terms

The theologian who wishes to avoid the consequences of the reverse-Kantian argument which drove us to the conclusion that God has to be less than all-powerful or all-knowing or all-good to make free will possible (or to account for evil) may try to re-define the terms so that the argument does not hold. There have been such attempts based on ideas such as that God may be ‘almighty’ rather than ‘omnipotent’ and ‘everlasting’ rather than ‘eternal’. One can invent further subtleties such as ‘all-wise’ rather than ‘all-knowing’ and ‘all-compassion’ rather than ‘all-good’. These last two would certainly let God off the charge of failing to prevent evil since (1) we use ‘wise’ for ‘good use of one’s deductive powers and clear foresightedness’ rather than ‘always-correct’, and (2) we use ‘compassion’ for empathy with others’ emotions – rather than doing physical actions, such as feeding the poor, which being good implies.

If one accepts these re-definitions of the nature of God it is clear that we are not talking about the same god as previously and if this line of argument is accepted it is an admission that the logical power of the reverse Kantian argument has destroyed the *omnipotent, omniscient, all-good god*. Is the new *almighty, all-wise, all-compassionate god* immune from the power of the reverse Kantian argument? I think that he-she is. Whether he-she is worthy of worship is up to the believer. What logics apply to the re-defined god? Using the aid of another type face, our new *almighty, all-wise, all-compassionate god* can be represented by ‘*God*’.

A logic for the re-defined God

Going back to our use of one of the laws of transposition we can try out the logic of this new *God*. There is no need to use predicates to see a general theme. If we put the new definitions into *A1*, we get:

- A1. CKKpqrs* < If *God* is almighty, all-wise and all-compassion, then good things always happen >.

Now introduce the idea of evil by using *Ns* to say it is not the case that good things always happen – we need only one bad thing to happen to make this true. What follows? Firstly a simple

substitution of s/Ns to bring out the idea that in a world with this new *God* good does not always occur:

$$A1. s/Ns = A1.1$$

$$A1.1 \text{ CKKpqrNs} \quad < \text{if } God \text{ is almighty, all-wisdom and all-compassion, then good things do not always happen} >.$$

We can now write out the consequences of finding that *good things always happen*.

$$A2.2 \text{ CCKKpqrNsCNNsNKKpqr},$$

$$A2.2 \times s =_{df} NNs, = A2.3$$

$$A2.3 \text{ CCKKpqrNsCsNKKpqr} \quad < \text{if, } God \text{ is almighty, all-wisdom and all-compassion implies that good things do not always happen, then, if good things always happen then it is not the case that } God \text{ is almighty, all-wisdom and all-compassion} >.$$

This does not sound exactly right since it seems that we have to abandon all three attributes in a lump at the end, and may not abandon just one of them. However, there is a set of laws in this ordinary propositional logic, called de Morgan's Laws, which allow us to move from $A2.3$ to $A2.4$. Going through the proof would be tedious.

$$A2.4 \text{ CCKKpqrNsCsAANpNqNr} \quad < \text{if, } God \text{ is almighty, all-wisdom and all-compassion implies that good things do not always happen, then, if good things always happen then } God \text{ is either not almighty, or not all-wisdom or not all-compassion, or not all three} >.$$

If the new *God* is proved better than expected, if everything goes well, or worse than even this modified list of properties suggests, what then? Everything going well, being good, could occur in the Rosencrantz and Guildenstern world where we have free-will but by luck we have always chosen well. Living in the R&G world we could reasonably assume that God was more 'powerful' than supposed, was in fact in absolute control, was omnipotent, omniscient and all-good. However, by our logic we are able to assume *only* that if good is always happening then *God is not as described*, and that could include that he-she is incompetent, unintelligent and evil, or any mix you like to name.

If everything went worse than expected – totally badly – what could we say? The simple substitution of $s/ < \text{bad things always happen} >$ will bring out the idea that in a world with this new *God* evil does not always occur:

$$A2.4 \text{ CCKKpqrNsCsAANpNqNr} \quad < \text{if, } God \text{ is almighty, all-wisdom and all-compassion implies that bad things do not always happen, then, if bad things always happen then } God \text{ is either not almighty, or not all-wisdom, or not all-compassion, or not all three} >.$$

Remember that by our logic we are able to assume *only* that if bad is always happening then *God is not as described*.

Therefore, we can see that so far this logic does no more than show that logical conclusions from unlikely premises about the newly defined *God* can be made. However, the tangles between the negatives bring up the necessity of using predicate logic to do the untangling. For example we have just used s to mean 'bad things always happen' and the negation of that, Ns , is not 'good things

always happen' but rather 'bad things do not always happen' that is, 'good things sometimes happen'. This seeming a-symmetry of negation was well known to the ancients and a major part of Aristotelian logic. It is also a key part of the logic of scientific procedure where the aim is to discover a universal truth, for example, < all metals are solids >. Just one negative example will bring the theory down, < Mercury is a liquid, therefore, not all metals are solids >. One negative example does not *reverse* the theory, in this example, < no metal is solid >. Predicate logic (which is essential to reproducing in modern ways the rules of Aristotelian logic) handles these problems with its restricted domains, 'rules of quantification', $\Pi 1$ and $\Pi 2$, $\Sigma 1$ and $\Sigma 2$, and the use of singular term constants (e.g., people's names).

Conclusion

In this long chapter we have been looking at the logical problems which arise from having a single god and finding that there is evil in the world. Some of these problems spring from the insistence by most versions of Christianity that the single god is characteristically all-powerful, all-knowing, and all-good. The attempted solution to these problems in DP theology is for the god to make him-herself temporarily unable to remove evil from the world. Short examples showed how these three attributes of the god are logically incompatible with each other whilst evil exists, even if one of the three is temporarily in abeyance. The temporary measures do not relieve the god of moral responsibility if he-she is also (as is usual) the creator of the world.

Trying to find a logic for a monotheistic religion which allows the god to be less than perfect was essayed using a three-valued logic and this resulted in such statements as, 'God is all-powerful' (or, 'God is not all-powerful') being neither true nor false. This is not a totally unhelpful situation: we are used to, 'It will rain tomorrow' (or, 'It will not rain tomorrow') as neither true nor false, and the logics which deal this way with possibilities are well developed.

A different way has been suggested out of the dilemmas that go with perfection for God. It is to abandon the attributes of perfection and substitute others, namely almighty, all-wisdom and all-compassion. However this leads to a new, similar, set of conclusions which are probably unacceptable to most Christians.

1. *A Child's Christmas in Wales*, by Dylan Thomas, 1954, New York, New Directions; also 1968 and reprints, London, Dent, p.18
Harry the Dirty Dog, Gene Zion & Margaret Bloy Graham, 1956, London, Bodley Head
Where the Wild Things Are, by Maurice Sendak, 1963, New York, HarperCollins
Come Away from the Water, Shirley, by John Burningham, 1977, London, Jonathan Cape
2. See Prior (1955) pp. 245 to 246
3. The idea that the truth value $\frac{1}{2}$ can be interpreted as meaning 'possibly' is one that Prior and many others pursued vigorously in the middle of the 20th century since the use of many-valued truth tables could provide ways of validating modal ideas. This was before possible-world semantics became more usual. It is touched on in Prior (1955) pp. 246 to 255.
4. It is often useful to transform the difficult-to-grasp statement using one operator into its equivalent:

3-valued A_{pq} becomes CC_{ppq}

- < if p -implies- q then q >
- < if Eve is eating the apple implies Dresden is being bombed
then Dresden is being bombed >.

This illustration brings out the ridiculous notion of the two propositions existing together, which is the basic notion in 'Either...or...'

Looking at the Law of the Excluded Middle, $A \vee \neg A$ (the idea that things are either true or false, which is obviously not the case when we deal with a third truth value) we find that,

3-valued $ApNp$ becomes $CCpNpNp$

< if p implies $\text{Not-}p$, then $\text{Not-}p$ >
< if Eve eats the apple implies her-not-eating-it, then she does not eat it >.

Chapter 9

A Christian Theology: Axioms 4, 5 and 6

About DP4

Introductory remarks

A logic of commands?

Commands and a Possible Worlds model; Obeying God's commands

A Theology based on authority

About DP5

Introductory remarks

A logic for a morality which accepts the transference of punishment

Other problems

About DP6

Conclusions

Conclusion to this chapter

Conclusion to Section 1 of PART 2

DP4. [People deserve to be punished for disobedience.]

DP5. [The idea of transferable punishment.]

DP6. God punished himself instead of people.

That people deserve to be punished for disobedience, and that that punishment may be (legitimately) transferred to someone else, these are ideas that are seldom stated and do not appear in any creeds I know of. The square brackets around this pair are to highlight the fact that they are not, in my sense, theological axioms, firstly, because they do not use the word 'God' or 'gods'. However, for the Death Protestant theology to work - for there to be any sense in DP6 - these ideas must be stated. I do not see any way they can be derived from the first three axioms and so I have added them to my set. They are, however quite different in kind and must be looked at separately.

DP4. [People deserve to be punished for disobedience.]

Introductory remarks

There is a sense in which DP4. is a tautological proposition. It can be said that deserving punishment is part of the idea of disobedience and that 'disobedience' can be defined as 'actions deserving punishment' or, in the Prior/Andersonian logic of Chapter 5, 'incurring the sanction'. Substituting 'actions deserving punishment' for 'disobedience' gives us:

DP4.1 People deserve to be punished for actions deserving to be punished

and no one is going to question that.

However, disobedience is a particular sort of punish-worthy action. A 'commander' is required to make an order which is then not carried out. To pull the cat's tail may deserve punishment if

done by an adult but the first time a child does it, before being told not to, no disobedience is involved. However, Lizzy Borden, despite having never been given the specific command, 'Do not to kill your father, with an axe or otherwise,' had, no doubt, heard the sixth commandment of the Ten Commandments, 'Thou shalt not kill.'

Questions then arise: whence comes the power to command? Has this 'commander' the right to command all others, or just one, or just this particular other? Is this an occasion to command or is command dependent on particular circumstances? May some commanders give general, all-embracing commands, and others give only very specific commands. Are a god's commands stronger, in some sense, than human commands? In what sense can laws of nature such as, 'if you grab nettles you will get stung by them' be thought of as commands?

It will be necessary to look more closely than before at a logic of commands. Such logics have been proposed by both Catholic and Protestant theologians and logicians, though for different reasons. In theology the important commands are usually thought of as following upon some initial belief. This initial belief is that the commands of the god or gods should be obeyed, taken as moral rules, never questioned, and that obeying the commands exonerates every believer from blame if obeying leads to results that look bad or evil. The usual jargon is to talk of the initial belief as an example of following or accepting the god's *authority*.

A logic of commands?

A logic of commands was quickly essayed in Chapter 3. and the handy rules about when commands can be incorporated in deductions were listed. A closer examination is important at this juncture.

In 1944 Alf Ross¹ opened up this topic in modern times. Amongst his comments in his paper, 'Imperatives and Logic' he laid out what is now called 'Ross's paradox'. He asks what to do about the case where someone, on being given the command, 'Post this letter', knows that

RC1. $CpAqp$ < if p then either q or p >

is a logical law, and thinks of the substitutions you get with p /You will post the letter, and q /You will burn the letter.

RC1. $CpAqp$ < if you will post the letter then you will either burn it or post it >.

This sounds strange – we would never say it – but logically it is a sound thesis of propositional logic, and the substitutions are legitimate.

RC1. $CpAqp$ < if [the command is given] *Post the letter!* then [the command is also given, i.e., can be inferred] either *Burn the letter!* or *Post it!* >.

Ross suggests we might just meet someone who believed such a logical progression and burnt the letter instead of posting it in order to obey the command. R.M. Hare², who took up the problems of commands in 1949 says the paradox is instructive to commanders who should always remember that they are responsible for the results of their commands. I think both are forgetting that the symbol ' A ' stands for a usage of 'either...or...' which is not common in ordinary speech; ' A ' is more properly translated 'either ... or ... or both of them.' The symbol ' $\mathcal{J}$ ' is used for the more common interpretation, 'either ... or ... (but not both)' and the formula $Cp\mathcal{J}qp$ is not a thesis of the propositional calculus and so substitutions into it are not valid. Using $\mathcal{J}$ the paradox vanishes.

Hare gives quite a list of, and quotations from, earlier logicians and scientists who felt that the only sentences which may be the subject matter of logic are those which are (a) scientific usage, (b) statements, (c) communication of references, (d) use symbolic words, (e) refer to a referend, (f) are fact-stating, (g) are true or false, (h) designative, (i) declarative, (j) cognitive, (k) theoretical,

(l) referential, and (m) informative. These were in contrast to sentences which were (n) emotive, (o) evocative, (p) not-fact-stating, (q) expressing or exciting feelings, (r) attitudinal, (s) aimed to influence, (t) or motivational, which are unable to be dealt with in a logical manner. Thus commands would not be able to be dealt with by logic. In fact, such lists wall off a half of our ordinary talk from logic. We have already seen how modern branches of logic do deal with such 'unscientific' topics as what we ought or ought not do.

Hare called the first set—all those sentences which purport to give information—*indicative sentences*. This he did because in grammar their verbs are in the 'indicative mood'—they indicate what *is* ('Helen Clark *is* Prime Minister'). Some modern grammarians prefer the technical term, 'declaratives'. There are only two grammatical moods in English (the other is the 'subjunctive') and as a pragmatic move it is probably wise to leave the subjunctive mood aside as it usually indicates something that is not ('If I *were* Helen Clark then ...'), and such sentences, nowadays called 'counterfactuals', have given rise to a great deal of discussion about their logical status, most of which is not relevant to theologies. However, there are several other grammatical categories which we use every day which we may need, including the interrogatives (questions) and imperatives (commands) both of which, in English, are shown by distinctive tricks of the voice or changes in word order, or omissions, or special added words and symbols (? and !). In English questions may involve a lift in pitch of the last word in an otherwise indicative sentence ('You are going home *now?*') or a change in word order ('Are you going home now?'). A logic of questions is called Erotetic Logic.

Imperatives (commands) have many characteristic and come in several forms.

- (a) They have no tense distinctions (some may say they are always in a future tense); they often have no subject, or it appears after the verb ('Get a hair cut, boy!').
- (b) Often they use the infinitive of a verb, but without the word 'to' (the declarative 'David *came* home' or 'David *comes* home' or 'David *will come* home' becomes, as a command, 'David, *come* home').
- (c) Modal words such as 'should', 'must', 'may', 'ought to', 'possibly', 'necessarily' cannot be used in commands ('You must do as you're told' is a perhaps command when used with a raised voice and exasperated tone but written it could be mistaken for a moral dictum).
- (d) All are active or 'dynamic' in tone (you cannot say 'Be old!') and if it appears otherwise ('Love your enemies') these can be seen as active when re-stated ('Be loving towards your enemies').
- (e) Progressive forms (-ing forms) are rare (despite the last example).
- (f) Passive forms (in English, but not in Maori) are rare ('Don't be deceived by...'; 'Get lost!').

Hare attempted to show that commands and declarative sentences could be written in a logical form which showed them to be closely allied in form, and that logical deductions could be made in both cases – logic does not apply only to declarative sentences. To do this he, as it were, invented a tenseless or 'time-irrelevant' form of both declarative sentences and commands, reminding us that commands apply only to the future, but leaving that aside for the time being. His first move is to take closely similar sentences such as

- 1. *John walks on the path* and
- 2. *John, walk on the path*

and to pick out that part which is exactly the same in each sentence (the *descriptor* is his term) and the bit which makes the difference (the *dictor* is his term).

Descriptor: *John walking on the path*

Dictor: 1. *Is done, yes* (added for declarative uses of the Descriptor)

Dictor: 2. *Do it, please* (added for command uses of the Descriptor)

Hare has a set of symbols to help manipulate this system, and I think better symbols could be invented, however, for our purposes, neither are worth enumerating here.

Hare found plenty of problems, in particular a set of paradoxes of this form:

- (Statement) < When skydiving you put your parachute on and jump out of the aeroplane. >
 (Command) < Put your parachute on and jump out of the aeroplane. >

The statement, if it is true, can be broken up into two true propositions. In logic you may put them in either order because $Kpq = Kqp$.

- < when skydiving you jump out of the aeroplane >
 < when skydiving you put on a parachute >.

But the command cannot be broken up this way, that is into two equally proper commands, in either order. Consider

- < jump out of the aeroplane >
 < put on a parachute >.

Commands must follow each other in a proper sequence or there will be disastrous consequences; for statements the connecting <Both ... and ... > is 'timeless' but for commands the connecting <Both ... and then ... > is 'timebound' as most of our common uses of 'and' are indeed.

In a paper Austin Duncan-Jones³ works on the Hare model and at the rules for mixing assertions of fact and commands. His main reason for mixing them is that we seldom, unless we are in the armed forces, come across imperious commands which invite only obedience or rebellion; much more common and everyday are instructions, or requests, or pieces of advice, with reasons given for taking the advice. Thus the most common place where a command is given is when it is embedded in a chunk of monologue of the a form similar to, 'Look, you know that if it is raining you'll get wet without a raincoat, and it's raining already, so take your macintosh.' Duncan-Jones calls this a 'Justification' and points out that even a simple remark such as, 'Pass me the matches.' (a command) has lurking with it an assertion, 'There is a packet on the mantelpiece.'

Duncan-Jones sets up a table of similar logical theses based on the propositional calculus thesis:

- PC3. $CKCpqq$ < if both p implies q and p then q >
 < if it is raining take a mackintosh, and it is raining, so take a mackintosh >.

Duncan-Jones then examines the 16 possibilities when commands and assertions are substituted for the variables. I will not write these out, but they involve cases such as the following:

- PC3.6. < **If** Jill is wise implies she takes a mac, **and** be wise Jill!, **then** she takes a mac >
 PC3.7. < **If** Jill be wise! implies she takes a mac, **and** be wise Jill!, **then** she takes a mac >

From these cases Duncan-Jones derives the rules introduced in Chapter 3, §7, Axiomatic Theology, paragraph 5.2, (from which I made theological parallels in 5.3.)

- CR1. From a series of assertions a further assertion may be deduced.
 CR2. From a series of commands a further command may be deduced.
 CR3. From a mixture of assertions and commands we may deduce a further command but not a further assertion.
 CR4. From a series of commands it is never possible to deduce an assertion.
 CR5. From a series of assertions it is never possible to deduce a command.

The most interesting of these rules is CR3, and I hinted at reasons why it should be expanded to

- CR3.1** From a mixture of assertions and commands we may deduce a further command but not a further assertion. (If it appears that an assertion may be deduced from a mixture, that concluding assertion may be deduced from first assertions alone; the commands are not necessary to the deduction and can be put aside.)

One reason for rule *CR3.1* holding is that of parsimony (akin to Ockham's razor or 'Keep it simple, stupid'). If we can do without the commands in a chain of reasoning, or, we can do without the assertions, then leave them out. A command-free argument is a case of rule *CR1*. An assertion-free argument is a case of rule *CR2*.

Commands and a 'Possible Worlds' model

A 'possible worlds' way of looking at commands helps us see what is going on, logically, to give us our confidence in rule *CR3*. A command is a suggestion that something be done in the future. It may be the very immediate future, such as 'Fire!' given to the execution squad, but it will change the world we live in at present: the prisoner is alive now, even as the command is being given, but in the time it takes to pull the trigger and the bullets to fly, he or she will be dead and the world changed for ever. This may not seem likely in the abstract but it is eternally important to the prisoner, and if the prisoner is Steve Biko, or a peasant remembered by Goya, or the last Tzar, then it is obvious that a quite different world results. Even more shattering was the command 'fire' to the bombardier on the *Enola Gay* over Hiroshima on the 8th of August 1945.

The result is that a command is about bringing a possible world into existence, one that can not be known exactly at the time of the command. Therefore, no assertion made *beforehand* about the possible world *after* the command is obeyed is true. Assertions about the past and present can be true but not assertions about the future (except for trivial⁴ ones about the rules of mathematics and logic). That is, all assertions about the possible world must be conditional on such ideas as 'If the future resembles the past...' In a similar fashion one cannot command the past. Once a command had been obeyed then we have moved into what was only a possible world before the shot was fired, the bomb dropped, etc. At this point an infinite number of assertions can be made about what was once only possible but now is real.

A command in this world can create a new assertion in the world which comes into being when the command is obeyed. 'Shut the door!' in this world is a command; a minute later, when the door has been shut, it is no longer a command (it cannot be carried out, it just has the sound or shape of a command) but the assertion 'The door is shut', untrue when the command was uttered, is now true.⁵

No wonder commands cannot, in a piece of reasoning in this present world, lead to assertions about this present world. It is generally agreed that the conclusion of any argument commits you to less than the premises – this is a way of saying in the old fashioned jargon that logic is 'analytic', that is, that it teases out ideas that are already there. Commands are set in a particular world, and sometimes contradictory commands pre-suppose the same particular world – 'Shut the window!' and 'Don't shut the window!' both are sensible commands if in this world the window is open. Assertions add to the pre-suppositions, that is to the context, to the description of the world in which some commands are sensible and some are not. Some assertions are just about the factual, physical state of the world: the open or shut window, the *Enola Gay* being over Hiroshima or still miles away. Other assertions, just as important, are about ethical matters: 'The world will be a better place if I were not sitting in a draught from the open window'; 'Peasants who revolt against the King deserve to die'; 'The war has gone on too long and this bomb will end it.' If you know what is good for the world you can turn an assertion into a command, and if it is obeyed, the world will be changed for the better. You may be wrong, but not all assertions, or supposed facts, are true; not all moral rules are good. The world will surely change, whether you get your command obeyed or not, but commanding always carries with it some responsibility for the result.

At this point we are getting very close to needing a logic of morality, a deontic logic perhaps. It

may give us a simpler method of systematising a world where accepting commands (obeying an authority) is the norm, rather than carefully watching for mistakes against rule *CR.3*.

Obeying God's commands

The reason I picked on *PC3.6* and *PC3.7* as the two of the 16 permutations to look at is that they are closely related to rule *CR3*, being a mixture of commands and assertions; they also demonstrate (being intuitively false inferences) why we cannot end our reasoning chain with an assertion. If *PC3.6* were valid we would all be forced, by logic, into being good, or at least always dutiful. It suggests that from commands can flow the behaviour commanded: in *PC3.6* let us assume that Jill is about to set out into the rain; it follows from (firstly) the rule that if Jill is wise she will take a coat and (secondly) the command by her mother that she be wise (mothers are always telling their children to be sensible) that she will take her coat. Would that daughters were so biddable!

One of the features of command-giving, particularly by parents and friends, is that reasons are often given for the command to be obeyed. (This idea is also built into the military rule that no soldier must obey a stupid command.) But, because commands instruct that an action be taken in the future, and perhaps because of the contrariness of people, no matter how true the facts in the reasons, nor how excellent the reasoning tying them together, they do not guarantee that the command will be obeyed. Duncan-Jones illustrates this by trying out on the reader a command such as, 'Read on, for on a later page you will learn the winning number in tomorrow's Lotto draw.'

At this point we have come round in a circle to the problems of free will again. Is God ever hopeful that his-her commands will be obeyed? If so, does God's logic contain *C1.6* as a true deduction for God, but it remains invalid for us because God decreed that world should be thus and so (in *DP2*.)? Does rule *CR.3* not exist for God, and in fact all of the permutations collapse into one permutation, (on this occasion said by God)?

PC3.4. < **If** be wise Jill! implies take a mac Jill!, **and** be wise Jill!, **then** take a mac Jill! >
 < **If** God commanding Jill to be wise implies that today God is commanding Jill to take a mac, **and** God does indeed command Jill to be wise **then** God is commanding Jill to take a mac today. >

In this case the rules are not needed at all.

This might be done in a theology: all statements about God, and indeed all assertions, could be regarded as commands. This can be done by simply adding 'Believe' to the beginning of every proposition.

A Theology based on Authority

What can we see from this first dip into the logic of commands? If it is, as has been suggested by MacIntyre and many others, that religious statements are not to be interpreted as statements of facts (*indicatives* in Hare's terminology, *declaratives* or *assertions* in mine) but that religious statements are commands, then a logic of commands can be built up to assist the examination of this idea. It will be a logic which can interact with assertions (with special rules as above). But, there is no sense in saying a command is either true or false. One can say of a command that it is wise or foolish, effective or ineffective, understood or misunderstood, legitimate or illegitimate, but to say it is true or false is just another way of saying the commander had, or had not, authority to give it. The logical progression from one command to another may be proper ('logical') but as we

are not proceeding from a statement that is true or false we cannot arrive at a conclusion that is true or false. To confuse commands and assertions is to make a category mistake.

To develop such a logic further for theology the necessary special rules must be further investigated and also how the mixing of commands and declaratives in logical argument affects whether the conclusions have truth value or none; this was attempted in Chapter 3.

The logic we develop looks at first sight like a logic we might design for a god who is intent on trying to influence the actions of lesser gods or humans, remembering always that to have such a logic is not to say the god has the authority to command, just that: *if* he-she has the authority or right to command, this is how sensible, logical commands and arguments about the commands should be carried out.

At least two more puzzles beset us at this point. Firstly, can all of religion be summed up in commands? Secondly, the disobeying of the commands of a legitimate commander is usually followed by punishment – is it any part of the logic of commands to introduce such a concept? That is, could we usefully define the ‘deserving the sanction’ of Chapter 5 as ‘disobeying a command’?

Can religion be dependent upon commands from a god or gods? This seems, at times, to be the conclusion of Catholic theologians. For example, the Dominican J.M.Bochenski in *The Logic of Religion* (Bochenski, 1965) looks carefully at ‘authority’ in his Chapter 5, ‘Justification of Religious Discourse’, and his Appendix, ‘Analysis of Authority’. In Chapter 5, in his discussion of the several ways that religious discourse (he calls it ‘RD’) has in the past been justified, (as legitimate, meaningful and logically valid) he has three sections directly on the idea of authority and how it can be said to ‘validate’ the theological talk which can be built up upon such a beginning. In the Appendix, Bochenski gives an account of the logical actors in a logic of commands, discussing first the three-way relationship between the commander, the commanded and the field in which the commander has authority to give commands.

Bochenski works his way to the position that:

...whenever a certain person *A* asserts a sentence *P*, then *P* is true. It should be quite obvious that most sentences of which the PD [Profane Discourse, i.e., any non-theological talk] of a modern man is composed are justified by authority. For the modern man must rely — and this more and more heavily with the progress of specialisation — on the authority of the experts in various theoretical and practical disciplines. Because of this, there is, an urgent need to have a logical analysis of authority: curiously enough (perhaps under the influence of such superstitious slogans as “a rational man does not accept any sentence which he cannot justify himself, without recourse to any authority”) this does not seem to have been done up to now.

We may now ask ourselves: What is the structure of a justification by authority? At least two premises must be assumed in order that it may work at all. The first states that a certain person is an authority in a given field; the second that a certain sentence has been asserted by this person and that it belongs to the field in question ...

It is ... the direct justification of the first premiss which is of greatest interest to us. This is produced by a rather particular type of insight — because it is an insight into some of the properties of a person. This sort of insight is usually called “trust”. If we analyse what “trust” may mean in this context, we find that it is an insight into the truth of two sentences:

1. *A* knows the situation in the field in which *A* is an authority.
2. *A* speaks truthfully about elements of that field to the subject. ...

It is important to grasp the fact that that the acceptance of (1) and (2) does not need to be based on any reasoning. The “trust” described may completely replace it. When a child trusts his mother or a lover his beloved, there is probably some sort of insight into the person of the partner which yields the certainty on the basis of (1) and (2) — and no reasoning is needed.⁶

This position is little different from that of mine: there must be theological axioms (statements unjustified by any *reasoning*) for every theology to get started. In my case I am clear, I hope, that though there may be some post-justification of theological axioms because of the usefulness they turn out to have — for example, the best ones do not lead to logical tangles or mistakes within the theology — the reason for picking the axioms must have no whiff of circularity about it. Many DP believers, and possible some Catholic believers, might be happy to say that once you have declared

that God exists and is good then you can reason your way to the position that God made us of such a nature that we trust him-her. But that is decidedly whiffy of circularity. And there are far too many examples of people being foolish in their trust (Biblically, those who trusted in the golden calf, for example; in more modern times, those who bought shares in the 'South Sea Bubble') for us to have any confidence that we can discover the personality of God from a survey of people's opinions of the matter. If one person is willing to trust their trust-in-God, then several different consistent theologies can be developed from there on, for that person; and we are reminded that, similarly, the *Theologic* is a logic for the individual believer. Bochenski looks briefly at the situation when a new religion is coming into being and notices

...the prophet or preacher presents to his hearers the religion that he preaches in a way which corresponds to their needs – by which we mean that he offers it as an explanation of their experiences
 ... the hearers are attracted not only by the content of the preaching but by the person of the preacher
 ... which directly establishes for them the truth of the sentence: "Whatever this person says about religion is true." ⁷

Although this may give an account of the process of acolytes accepting a religious authority it gives us no account of where the prophet him/herself gets the authority to preach as he/she does, that is, the right to say, 'What I tell you is true.' It may be balderdash – and often has been in the past. If you need an example think of the Aztecs keeping the sun rising by human sacrifices.

DP5. [The idea of transferable punishment.]

Introductory remarks

This is a biblical idea and occurs throughout the *Old Testament*, going through various stages of refinement, and gives us the well understood notion of a scapegoat. In the *New Testament* the scapegoat idea does not occur in the *Gospels*, not in the *Acts* (same writer as Luke) nor in the letters of Paul which can be safely attributed to Paul. It does not occur in books outside the canon which are known to be very early, such as the *Gospel of Thomas* and the *Didache*. In the early 21st Century there are, in fact, at least four different ideas about how to escape from God's (right, correct, righteous) anger at our disobedient (sinful) actions, all mixed up in the various versions of DP theology.

1. The idea of transferable punishment should not be confused with the idea of making a *sacrifice*. A sacrifice is made by the culprit as payment (punishment) for a crime. In the days of crop and animal sacrifice the sacrificial crop or animal was grown or raised by the culprit; or paid for by the culprit. The crop or animal is, confusingly, also called 'the sacrifice' but the act of parting with some of one's wealth is the real sacrifice; if such an action is seen as worthy – as a sign of true penitence, as a just payment for the crime – then the god is pleased and the transgression forgiven.

We could note that in the *Old Testament* we have many examples of sacrifices made by the heads of clans, by Kings and by prophets, on behalf of the people for whom they were responsible;

this did not involve the people in much sacrifice of goods, wealth, or livelihood, but only the loss of some wealth, and perhaps considerable loss of face by the king, clan head or prophet; some of these actions can be thought of as an example of attempts to have punishment transferred from the majority to a single person.

2. Further confusion is engendered by the idea that the smoke from burnt offerings, as it goes up into the sky (the gods' land) carries the *petitions* of the worshippers. This seems to be an extension of the idea that the gods (being spirits) require the 'spirit' (that is, the breath, or wind, or smoke) of the food to feed on and so survive – the more smoke the more well fed and so content they are, the more willing they will be to do good to the people, and listen to those who make the sacrifices. If you are kindly disposed to these ideas they, nevertheless, give a rather commercial look to the god's moral framework; but if you are more cynical it could be you see the god as like a corrupt official who will take a bribe. However, both interpretations do suggest the god keeps contracts, whether payments or bribes, and honestly keeps track of what the payment requires in return, although not particularly concerned in who pays with the sacrifice. The idea of the efficacy of sacrifice (of time, energy, thought, as well as material goods) does continue into the New Testament, but in a less literal sense – after all, the effects on people of the temple establishment with its corruption, its socially divisive nature, and its crude theology were a goodly part of Jesus's reasons for setting out to change his friends' understanding of the kingdom of God, and so reform Judaism.

3. The use of a *scapegoat*. This is an animal on which is heaped, by magical transference, the sins of the people. It is then driven, actually and symbolically, away – possibly to suffer and die in the desert. This is a quite different concept. This idea, and the ritual to go with it, appear very early in the *Old Testament* (in *Leviticus* 16.21-2) but get no mention thereafter. The key idea is that the whole community supplies a quite uninvolved, non-human, which suffers for the crimes of people. Perhaps there were examples of human scapegoats in surrounding religions of the time. Two discoveries by scholars point to some such conclusion: *Leviticus* was given its final form some time after the Babylonish Captivity (approximately 550 BCE); Chapter 16 appears to contain rituals for the Day of Atonement of very much greater age, overlaid by new material or editings and a strong conception of sin.⁸

One major example of the transfer of punishment is from the end of the Captivity and is the 'suffering servant' picture in Isaiah;

*We had all gone astray like sheep,
each taking his own way,
and Yahweh burdened him
with the sins of us all.* [Isaiah 53:6]⁹

It is not suggested, however, that the Persian king Cyrus (who is the suffering servant in the original) knew that he was bearing the sins and sorrows of the Hebrews; which was the same, we assume, with the goat. It is interesting that the modern Jewish ritual of Yom Kippur, the Day of Atonement, does not involve the transfer of punishment to a single person or animal, but each participant symbolically beats himself for his sins and prays for merciful forgiveness. Some of the prayers ask for forgiveness not only for the elders (old males) but for the whole of the congregation and the whole of the ethnic group – in this case Israel.¹⁰ Christian liturgical prayers usually include a request for forgiveness for the whole of humankind, but the only sacrifice mentioned is Jesus's.

4. A fourth way of escaping from God's righteous anger at someone's displeasing behaviour: we may ask, or petition, forgiveness, that is, ask for mercy *for* ourselves or someone else. The model used is that of asking for forgiveness and mercy *from* a person we have harmed. In the religious case we are asking a god for the same sort of treatment. In Christian worship the asking is called 'intercession' and it forms a major type of prayer. For some reason a transference of mercy seems

less difficult than a transference of punishment – in human terms it is a noble act rather than a just (or vindictive) one. We ask God to behave as we would when obeying our nobler instincts.

In the *New Testament* the idea of Jesus being a sacrifice for everyone's wickednesses is found quite early, for example in the epistles to the *Galatians* (c.52CE) and *Romans* (c.55CE), then in the synoptic gospel *Matthew* (c.80CE) and in *John* (c.100CE), and argued with persistence in the epistle to the *Hebrews* (c.170CE). However, in these cases it is seldom clear that Jesus is regarded as being punished; he is a costly sacrifice to appease God's wrath, to turn God to mercy, indeed he is the [sacrificial] 'lamb of God who takes away the sin of the world', but not a scapegoat onto whom all peoples' sins have been laid. There is only one example of this idea, in *2 Corinthians* (c.150CE) 5:21, 'For our sake God made the sinless one [Jesus] into sin...'

From this muddle of ideas about what exactly is theologically going on in the crucifixion I have chosen the scapegoat interpretation and thus have added DP5. to the axioms. I could have chosen a commercial / sacrificial interpretation (God sacrifices his own pure son, like a lamb, to pay the price of sin) and then a different DP5. would have been necessary, for example:

DP5.1 [Sacrifices work, and, like fines, it does not matter who pays.]

The idea of transference of punishment was firmly entrenched in Western theology by the time of Aquinas, but despite the nineteen hundred years during which it has featured as part of theological reasoning about how to interpret the crucifixion, it has not been part of any system of legal justice, for many hundred years, with one exception, the paying of fines – the law does not inquire who pays the fine, as long as it is paid. Bail and any system of 'bond' for good behaviour (also involving money) are possibly examples of allowable transference of punishment. However, transference is recognised in the 'morality' of organised crime where there is acceptance of both (i) the 'fall-guy' (someone not guilty of the crime but allowed to suffer the punishment when the facts of the case are withheld from the justice system) and (ii) someone (usually an underling) who agrees to 'take the rap' for a crime boss. Schoolboy morality also used to have this rule – that one did not 'rat' on one's schoolmates, even if it involved being unfairly punished for a crime one knew someone else had committed.

A gradual change in morality to a realisation that punishments should not be transferred (cannot be transferred, some moralists would say) could be one of the contributing factors to the decline in the number of people accepting the DP description of the way things are. Where other interpretations of the crucifixion are used, such as the sacrificial one, the idea of a 'perfect' or 'spotless' sacrifice is easy to understand as possibly being more efficacious than an 'imperfect' animal fit for nothing but the cooking pot anyway, but it does require another leap of faith (another axiom perhaps) declaring Jesus was perfect. If you accept Jesus as the 'Son of God' in a more-than-metaphorical sense then his being sinless may be no hardship for the credulity faculty, but it does emphasise the non-human nature of Jesus. A godlike nature must be emphasised if death is to be a 'punishment' for either people or for God. I prefer the scapegoat interpretation as somewhat more understandable since the transference of punishment is allowable in some legal punishments (fines). We have only then to find some meaning in a sin-laden god's death as destroying the sin.

This makes some sort of sense for humans – we do not try the dead for crimes they committed while once alive. However, if sin is defined as some human action which cuts you off from God (a common theological definition) then it would appear that if Jesus is to be punished for all human cases of actions cutting the God-human link, past, present and future, then the action must be efficacious, and thus the God-human link has been restored for ever, and no present action by any human cuts the link. You may be as wicked as you like and still not sin (i.e., in the *sin = cut-off-from-God* definition). I hasten to say that no people I know who hold the DP view of the nature of the world and God hold this logical conclusion. Believers in this brand of DP have to add another theological axiom to patch the hole that logic has revealed, namely an axiom that says that Jesus's death is/was efficacious only when the sinner repents – is sorry – and requests forgiveness.

This idea may be essential if you want to recognise the rest of the DP theological

superstructure, that is, if you are unwilling to allow unrepentant sinners into heaven, or allow them salvation. These ideas are very old and Pelagius (c. 400) was the first notable figure to be condemned for denying them. Of course a less subtle definition of sin will avoid some of the problems, for example *sin = deserving punishment*. We might also note that being cut off from God is a truly 'theological' state since no evidence can be brought to prove that after any action we are either cut off or not cut off. Again we are reminded that theology is highly dependent on logic for drawing conclusions since they cannot be provided or proved by empirical evidence.

Another point to note is that if the actions of people can cut them off from God then this is an example of God limiting his-her capabilities, either to powerfully keep the connections intact despite the sin, or in limiting his-her (pre)knowledge to predict the sin and powerfully see that it is not done.

We should also possibly ask if it is of any matter that the Romans who crucified Jesus were not punishing him for the crimes the Church says he was punished for. Is the criminal serving time for a crime he/she did not commit (by a slip of justice) also serving time, concurrently, for crimes he/she did commit but for which he/she has not been charged or tried? Probably, if the slip of justice is brought to light, and then new, and correct, charges are proved. In such a case the judge would declare the first incarceration was enough – provided the criminal had not successfully sued for wrongful imprisonment in the meantime!

How can one punishment do for the ever-mounting mountain of sinful acts? Surely there is not some sort of daily crucifixion of Jesus enacted for each day's new sins? If, as Aquinas argued, God is ever in the present, and experiences both the past and the future as present, then Jesus too must be being crucified during what we would call 'for ever' but which he is experiencing as 'now'. Thus we see that the very long formula we needed to express one sort of 'died for our sins' (in Chapter 6) may need an extension about God's death being the most drastic punishment ever envisaged; or an extra axiom may be needed. 'Liberal' protestant theologians have said that the ultimate punishment is to be cut off from God – here, now, we need to make some sense of God being cut off from God. There is a hint of this in the words from the cross, 'Why hast Thou forsaken me?' and the credal note, 'He descended into hell,' though that did another job in the time it was written, and there is the counter verse, 'If I descend into the depths of hell, Thou art there.'

But the ugly idea of Jesus being crucified daily is difficult to avoid. One is reminded of Alice talking to the black kitten:

'That's three faults, Kitty and you've not been punished for any of them yet. You know I'm saving up all your punishments for Wednesday week – Suppose they had saved up all *my* punishments?' she went on, talking more to herself than the kitten. 'What would they do at the end of the year? I should be sent to prison I suppose, when the day came. Or – let me see – suppose each punishment was to be going to bed without a dinner: then when the miserable day came, I should have to go without fifty dinners at once! Well, I shouldn't mind *that* much! I'd far rather go without them than eat them!'⁷

The last several pages of logical/legal niceties (we seem to have a retrospective precedence in Jesus's case) are not going to be regarded as important by believers in their own salvation through Jesus's death, but it is surprising how necessary logic is to the process of arriving at this emotional state; first one has to believe in some religious propositions (axioms), some historical facts, some moral rules, and connect them up with logical reasoning. When a DP believer says that 'God's love is greater than logic' he or she is usually saying that God's mercy is much 'stronger' than human mercy, not that logic does not apply in reasoning to that conclusion. Certainly no (empirical) evidence can be supplied to prove the conclusion.

A logic for a god who subverts justice with mercy.

DP theologians have been divided on how to fit together God's justice and God's mercy. Justice is definitely a logically easier concept than mercy since it 'lays down the law' about what actions

(including thoughts and intentions) are worthy of punishment (those that God dislikes) and sees punishment by God as reasonable and just. Mercy is much harder to handle because there are no rules about which worthy-of-punishment actions are worthy of mercy and which worthy of only justice, unless all are worthy of mercy. There are no rules-that-God-follows in distributing mercy that people have been able to discover, and in the face of the wicked prospering have had to resort to the face-saving formula, 'God in his infinite wisdom and mercy has done ...' to dodge giving a clear answer. It is easier to suggest that God is merciful in much the same way as a human king may be: slow to get cross, perhaps moved to pardon and recompense when a deserving case comes to his notice, but prone to hot anger when a bit of wilful wickedness or treason appears.

However, DP thinkers have found a logical way around this puzzle and suggest that God, in dying (at the crucifixion) has committed the greatest act of mercy, one which needs no other to be essayed, and so to say God is infinitely merciful is to say that everyone has been 'ransomed, healed, restored, forgiven' once and for all. This still clashes with the idea that God is just, and the usual DP answer is to add that the fruits of this merciful forgiving by God (the fruits being joy, happiness, calm, peace, but not necessarily wealth, health, or even continued life on earth) usually called 'salvation', are only handed out to those who realise ('accept') and are grateful that God has been merciful. Thus God is both *merciful* (in sacrificing himself) and *just* in handing out the fruits of salvation (usually, confusingly, also called salvation) only to those who grasp the concept.

As humans we handle the concepts of justice and mercy with considerable difficulty: mercy is praised and desired for ourselves, but justice demanded in practice and for others. The preacher and humanitarian call for mercy (and even point out how well it works in lowering crime rates and lowering taxes), but 92 percent of New Zealanders (in the 2001 referendum) voted for tougher penalties for crime. Immigrants from societies where shame and repentance by the criminals are favoured with forgiveness by the victims find it difficult to adjust to New Zealand where forgiveness (by the victims) does not result in prosecutions (by the police) being dropped. The Samoan bus driver who, through carelessness, killed a Samoan child was forgiven by the child's family, this result being mediated through a church, but he was also convicted of manslaughter and jailed. In New Zealand mercy and justice are kept separate. Does God behave this way?

We should note that the idea of a merciful god is somewhat rare and that it does not fit into theologies which will be looked at in later chapters. For example, the god of Gaia, the god-as-symbol, the god-as-verb, cannot manage such a concept, nor, of course, religions without a god, Buddhism and Confucianism. However, if Christian theologians begin to look at the puzzles engendered by a god who crashes through his-her own rules of justice by acts of mercy then the logics of McNamarra (1996) and Mares and McNamarra (1997) would be a good place to start as the logic of doing more than is required of you – supererogation – has a similar feel to it as a logic of mercy might. A human logic of such a sort, taken to an 'infinite' level, might be the logic of an infinitely merciful God.

A logic for a theology which accepts the transference of punishment.

A look at what makes sense and what does not, by examining ordinary logical laws which are given transfer-of-punishment readings, may help. Before we give any symbols theological meanings we must get the process straight in everyday life, that is, in moral or legal situations, and discover what we are letting ourselves in for, and if we can agree to it.

Using ϕxw for 'x steals w', and ψyz for 'y is punished by z' we might imagine that transferable punishment looks as simple as the following:

$$FTp1.C\phi xw\psi yz < \text{if } x \text{ steals } w \text{ then } y \text{ is punished by } z > \\ < \text{if someone steals something then a second person is punished by a third } >.$$

However this would leave a great deal uncertain – for example, because none of the variables are bound we could do substitution in it so that x and z are the same person and arrive at

< if someone steals something he or she punishes the judge >.

$Tp1.$ is, of course, not a logical law; unbound it is a simple substitution in Cpq ; hence the superscript F I have added to its identifying number.

Adding deontic operators to express an ethical meaning does not bind the variables and still leaves the meanings uncertain, the formula unable to be true or false.

$^FTp2.CKF\phi xw \phi xw O\psi yz$ < if it is forbidden for someone to steal something, and that someone does steal that thing, then it is obligatory that a second person is punished by a third >.

We could try a theological example first. In Chapter 7 and earlier in this chapter I have looked at theological axioms – those containing a mention of God or gods – and found that they imply states of affairs which theologians find improper. The usual recommendation I make is that the theology be changed to make itself and the religion more rational. However, another type of solution would be to introduce a new axiom to patch the logical hole we have uncovered. Such a hole appears when a theologian wishes to say that God punishes all evil-doers but patently a particular evil-doer has been rich and happy all his or her long life and dies peacefully of old age. Either the punishment has to be ‘spiritualised’ and we must say, ‘despite the evidence this outwardly cheerful man was racked with mental torments,’ or we have to create a place after death where the wicked are punished – either a hell, or a purgatory. We could, for the present problem of transferable punishment, introduce a new theological axiom, (that is, a new belief) and see where that leads us. My axiom $DP5.$ is a non-theological statement about morals; in finding a patch for the logical problem we can try, instead, a theological/moral axiom. In the particular case of DP morality we will be looking for a moral rule which instead of saying ‘some person is punished by a third’ we have noun constants j and g for named people, Jesus and God.

$Theo3. CK\Gamma xw F\phi xw \Sigma xw \phi xw O\psi jg$ < if it is forbidden for anyone to steal anything, and someone steals, then it is obligatory for God to punish Jesus >.

This formulation avoids the chance of the thief doing the punishing, and allows God to be merciful to Jean (though not *merciful* to Jesus, nor *just* to the Bishop.) This is a pretty tough law, binding God and Jesus to certain actions. Theologians may also want to have an extra theological axiom now, saying that God decided to put himself (and Jesus) under this law. This is to preserve God’s free will, but it is yet another patch to a logical hole.

However, as with many theological axioms, $Theo3.$ brings with it unexpected consequences. In this case, from $Theo3.$ we may, by good logic, prove $Tp4.$, a non-theological moral rule for the transference of punishment.

$Tp4. \Sigma xw yz CKF\phi xw \phi xw O\psi yz$ < if it is forbidden for someone to steal something, and that someone does steal that thing, then it is obligatory that someone is punished by someone >.

Unfortunately, because we do not know exactly who all those ‘someone’s refer to, we could have just one true instance (it could be $Theo3.$) and an infinite number of false instances. Here are two which will probably be false for any sensible morality of punishment transference:

Tp4. $\Sigma xwyzCKF\phi xw\phi xwO\psi yz$ < if the boy, Jean, is forbidden to steal the Bishop's candlesticks, and he does steal them, then the Tsar of Russia must be put in prison by Judge Jefferies >
< if the boy, Jean, is forbidden to steal the Bishop's candlesticks, and he does steal them, then Jean must be caned by Jean >.

Thus *Tp4.* allows the criminal to be punished by people related in neither time nor place nor criminal code, to the incident; or to punish him- or herself. It is not particularly useful for a day-to-day morality, though possibly part of a morality for masochists. A comforting thought is that by the law of transposition, *CpqCNqNp*, the denial of *Tp4.* would lead to the denial of *Theo3.*

Tp5. $N\Sigma xwyzCKF\phi xw\phi xwO\psi yz$ < it is not the case that if it is forbidden for someone to steal something, and that someone does steal that thing, then it is obligatory that someone is punished by someone >

leads to:

Theo4. $NCK\Gamma xwF\phi xw\Sigma xw\phi xwO\psi jg$ < It is not the case that if it is forbidden for anyone to steal anything, and someone steals, then it is obligatory for God to punish Jesus >.

Thus, if you are unhappy with a moral rule about the transference of punishment (for example, you would like to see the law of the land changed to make it compulsory for parking fines, etc., to be paid by the person who broke the law and not by some kind parent or benefactor) then you will also be unhappy about the idea of DP theology that Jesus takes upon himself the punishment we deserve. Note that *Theo4.* still allows God to, 'mercifully' punish Jesus for our wickednesses, but it is no longer obligatory – and that is how mercy works: it is not mercy if it is obligatory; if it were obligatory it would be justice.

Though we have not arrived at a totally satisfactory substitute for *DP5*, it is now clear that getting a clear picture of how the idea of transferring punishment might work, and its consequences, is not easy, and symbolic logic both displays the complexities of, and points to possible changes needed to, DP theology.

Many people would not agree that Judge Jefferies imprisoning the Tsar could possibly have anything to do with the case of the boy and the candlesticks. Some might allow the Bishop who had failed to lock the cathedral up properly to be briefly imprisoned (though seeing that that was punishment for a different crime as well) or, more likely agree that the Bishop pay any fine the court imposed on Jean – many a nuclear-weapons protester escapes imprisonment (for which they are prepared) through the generosity of supporters. But we have the sneaking feeling that it is the Bishop's physical location in Dijon, close to where Jean is, and the Tsar's distant location in Moscow that make a transfer of punishment seem unfairer for the Tsar; though the Tsar, hearing of the case from Victor Hugo's book, might offer to pay the fine without our feeling particularly upset about transference of punishment. Does one build exclusion clauses about distance in space (or time) into the statement that some punishments may be transferred, or make an exception for money punishments, or just, as logicians sometimes do (and Arthur Prior often did) accept the strangeness of such examples as Judge Jefferies imprisoning the Tsar (perhaps on the precedent of Cyrus suffering for the Israelites) in order to keep the transfer law simple and to build upon it?

One thing is clear, no matter how hedged about with exceptions it is, some law about transference of punishment is needed to make DP theology work. If the DP theologians decide that transference of punishment must be limited to just the case of God and Jesus, then DP theology no longer needs a non-theological moral axiom, *DP5*, but it does need a theological axiom such as *Theo3.*

You may prefer to simplify *Theo4.* by thinking of Jesus and God as the same:

Theo5. $CKF\prod xw\phi xw\Sigma xw\phi xwP\psi gg$ < God may transfer punishment due to a person to him-herself >.

This formula gives us a pretty clear exposition of the idea that for any case of wickedness you like to name, Jesus must die – or God punish him-herself some other way. The actual way the punishment is made is not specified, it could be by going to bed without any dinner, or the equivalent for God, perhaps turning a deaf ear to a hymn of praise.

To make the rule less particular and more universal we could use monadic predicates, ϕx for x does something God does not like, ψg for God-punishes-God.

Theo6. $CK\prod xF\phi x\Sigma x\phi xO\psi g$ < if everyone it is forbidden to do what God does not like, and someone does do what God goes not like, then God is obliged to punish him/her-self >.

This will work for monotheistic religions but not polytheistic theologies.

Care must be taken with such formulæ as *Theo.6*. Under non-theological conditions this law looks like a subtle form of blackmail: If I forbid you to arrest me $\langle F\phi x \rangle$ and you try $\langle \phi x \rangle$ then my henchman will shoot the hostage $\langle O\psi z \rangle$. With an even more drastic set of substitutions (x/g) we have the situation in the film *Blazing Saddles* where the (black) sheriff puts a gun to his own head and says, 'If you shoot the sheriff the nigger dies!'

Other problems

We have still several similar problems to tidy up to get this part of a DP theology watertight. For example, there is no comment here about multiple punishments – the legal system might imprison Jean as well as Jesus dying. No doubt we need a clear division between the domains of legal misdemeanours and the domain of those acts God regards as disobeying his commands. And there is the problem of how rigorously to apply the rule that 'ignorance of the law is no excuse', especially in the case of those who have never heard of the god (or gods) a particular theology is describing. In Christian theology this brings us back to the Augustinian/Pelagian split in pictures of the nature of God.

DP6. God punished himself instead of people.

This is a proper conclusion for DP as long as the believer believes that God would show his-her mercy in such a way. It has to remain as an axiom – it is not provable from the previous five axioms that God would do any such thing, but the five do make it an allowable thing to happen; the conditions are in place for it to be credible, although possibly very unlikely. It is the unlikeliness of such an action that makes the believer want to praise God for doing it.

Sing my tongue ... how He, the earth's redeemer, by his love for man, o'ercame.⁸

Conclusions

Conclusion to this Chapter

In this chapter we have looked at two non-theological axioms. These two axioms are necessary to allow that the final theological axiom makes sense. There is the moral axiom *DP4*, which makes it possible for punishment in general, and in particular allows for sin (disobeying God) to be a punishable offence. Not only was it necessary to establish that people could disobey God (allowing free-will) through *DP3*, but also that justice allows punishment for such disobedience. In theology, it is, of course, God who does the punishing: 'Vengeance is mine,' says the Lord, 'I will repay.' (*Deuteronomy* 32:35). The logic of commands had to be further examined, and the nature of authority.

The second non-theological axiom, *DP5*, is needed to allow Jesus (God) to be justly punished for the sins of everyone else. There are modern doubts about the justice and morality of transferring punishments, but even if it is a just way of behaving in the case of minor misdemeanours it certainly looks unjust if the axiom allows it in general. An axiom which allows God alone to sanction particular cases of the transference of punishment to him-herself (that is, to Jesus) but making no mention of a general rule allowing transference in all cases, may be all that is necessary.

The last axiom now makes sense, but is an enormous leap of faith. To a sin-oppressed believer, it can be a hugely liberating realisation, it engenders great thankfulness to God, and releases great creative power in the talented.

Conclusion to Section 1 of PART 2 (Chapters 6 to 9)

In making an examination of the logic of Christianity I had to, following my thesis that theologies are best dealt with axiomatically, select a version of Christianity to analyse. I chose one of the versions I know well, one that lays great emphasis on the death of Jesus as a key to interpreting what *is*. It must be emphasised again that I did not pick on a set of beliefs (and their theological expression) which would be easy to knock down. Although a believer in the DP version of Christianity would not use the same language as I do in the DP axioms, they were chosen because they make a consistent set, sufficient to build DP theology upon and no DP believer would deny them once re-phrased into the language they are accustomed to. An actual example of DP language and use of argument from axioms is displayed in Appendix 1. It is the whole text of a short tract handed to me in Willis Street, Wellington (similar tracts are handed out to passers-by every week day) plus analysis of its logical structure.

Other versions of Christianity would require some of the axioms I have used, and a few would be changed. For example, Catholic Christianity would keep all of the DP set and add one or more axioms about the place of the Church in God's plan; Protestants who lay most emphasis on the life of Jesus rather than his death would keep at least *DP1.*, 2. and 3., and all the logical problems these axioms involve. They would drop *DP4* as non-essential to their theology, thus avoiding all the problems of transferable punishment. Also, they avoid the conundrums of sacrifice and scapegoats since they would want *DP5.* and 6. changed to something like:

LP5. God forgives all those who repent.

LP6. God sent his son Jesus to show us how people should live their lives.

In Section 1, here concluding, there have been discovered illogicalities in DP Christianity which require attention if DP Theology is to be rational. Many of the illogicalities apply to all branches of Christianity, except the most modern (who have problems of their own). Suggestions of several kinds have been made about how specific illogicalities can be tackled. These include, (a) extra new axioms, or (b) drastic modifications to the beliefs, particularly those about the nature of God. Such attempts to make Christianity more rational are being made all the time by academics in theological colleges as they discuss some of the problems I have highlighted – many of which go back to the 1st Century of Christianity. On the whole, the more conservative thinkers attempt to patch the holes. Those who attempt modern versions of Christianity with quite different sets of axioms are discussed in Section 2, (Chapters 10, 11 and 12).

Notes and References

1. See Hare, R.M., 1949, in 'Imperative Sentences' in *Mind*, 1949, Vol. , No. 1, pp. 21 - 39.
2. See Ross, A., 1944 in 'Imperatives and Logic' in *Philosophy of Science*, Vol.11, p.41 - 46.
3. See Duncan-Jones, A.E., 1952, 'Assertions and Commands' in the *Proceedings of the Aristotelian Society*, Part I. 1952, pp.189-206
4. Trivial in the sense that worlds which break the laws of mathematics and logic are *impossible* worlds (and therefore not worth considering), not possible worlds.
5. It has been suggested to me by Ed Mares (November 2002) that the meaning of a command is the set of worlds in which it is obeyed. This is not a mode of thinking with which I am easy. I must leave leave consideration of this suggestion to others.
6. Bochenski, J.M., 1965, *The Logic of Religion*, pp.122 - 124.
7. Bochenski, J.M., 1965, *The Logic of Religion*, pp.143 - 144.
8. See the 'Introduction to the Pentateuch' in the version of the Bible produced by Catholic scholars which includes the results of modern scholarship even where it must also clearly mark the official Catholic readings or traditions. *Bible, the 'Jerusalem'*, (1966), page 12.
9. The scholars of the *Jerusalem Bible* say this of the *Book of Isaiah*, 'It is therefore highly probable that ch.40-55 are the work of an unnamed writer at the end of the exilic period...' See page 1125.
10. This description from a conversation with Dr Jack Salas, July 2001.
11. Carroll, Lewis (Charles Dodgson) 1871, *Alice Through the Looking Glass*, Chapter 1.
12. From the hymn *Pange lingua gloriosi proelium certaminis*, by Venatius Honorius Clementianus Fortunatus, c. 530 - 609,

PART 2

Section 2: Post-Modern Christian Thought

Chapter 10

An Introduction to Post-Modern Christian Thought

Introduction to Post-Modern Christian Theologies

Examples

The Selection

The struggle to find new meanings for old words

Before Post-Modern theology

De-Mything

Puzzles that Post-Modern Christian writings bring

Introduction to Post-Modern Christian Theologies

Examples

Here are examples of the sort of language Post-Modern theologians use:

Though the word 'God' can no longer be used to name an objective spiritual being, it can usefully continue to function as an ultimate point of reference or a unifying symbol... a focus of the meaning we must now create.¹

'God', understood as a symbol, is religiously, and ethically, more important to us than the objectivised, realist 'God'.²

The fundamental symbol of our ultimate concern is God.³

God is the mythical embodiment of all that one is concerned with in the spiritual life.⁴

The symbol of God claims to represent to us a focus for orientation which will bring true fulfilment and meaning to human life. It sums up, unifies and represents in a personification what are taken to be the highest and most indispensable human ideas and values.⁵

Why indeed must 'God' be a noun? Why not a verb – the most active and dynamic of all? Hasn't the naming of 'God' as a noun been an act of murdering that dynamic Verb? And isn't the Verb infinitely more personal than a mere static noun? The anthropomorphic symbols for God may be intended to convey personality, but they fail to convey that God is Be-ing.⁶

But to place ourselves at the centre [as she has described] in this way is not to exclude God, since God is to be understood not as set over against us, but as one with our self-realization. We may think that which we have named God to be a dimension of all that is: something which we may recognise, on which we can draw, and which allows us to be all that we have it in us to become.⁷

The Selection

In the creative, but conflicting, babble of post-modern versions of Christianity it is necessary for me to select a few representative versions and examine their logical thinking. My selection is my own. It is based partly on discussions with people who espouse a post-modern theology (although their worship is on the whole conventional), partly it is the result of my own interest which is, naturally, of a logical bent. My father was much influenced in recent years by Teilhard de Chardin and my including his ideas for examination (in Chapter 13) was in response to his interest. I have feminist friends who showed me where to look for the latest and most interesting theological books by feminists. The ideas of Mary Daly proved as interesting logically as her invective against a male dominated Catholic church proved poetically exciting.

It was most important, historically, to look at Paul Tillich's writing since he was the first major theologian in modern times to put into theological words the idea of 'God' being a symbol rather than a 'being'. The many books of Lloyd Geering have introduced New Zealanders to post-modern Christian thinking, apparently arriving at the same position as myself, that Christianity could do without God and still survive as a religion which changes people's lives and the world for the better.

Some of the expositions, particularly from those who have grasped the direction of thinkers such as Lovelock and Teilhard de Chardin, appear to make the earth, including human kind, the new God. The use of the word 'Gaia' for the new pantheistic view of an indivisible world is usually the most obvious marker. Christian versions talk about God being incarnate not just in Jesus but in the whole human species, or in the universe as a whole. I had a feeling that the Gaia hypothesis of James Lovelock would turn out to be interesting, and so it proved. However, a consideration of it fits in better to a chapter on Pantheism (Chapter 13) than into a section on ideas which have their roots (at least) in Christianity. I decided to put consideration of Teilhard de Chardin's ideas in that chapter also for reasons that will become clear. An idea akin to Chardin's is that there is a 'cosmic drift towards complexity and meaning' which has brought humankind to its present state – with a potential for rationality and purposeful action and capable of evil or good. This cosmic drift can be described (poetically?) as the will of God or the mind of God.

I consider that I have been careful to pick up the key ideas in the separate post-modern theologies in my search for their acknowledged and (mainly) unacknowledged axioms. Their arguments from their axioms are not necessarily clear and in some cases very very confusing. But they are undoubtedly theirs.

These new sorts of God-talk need vigorous examination. What are these new gods? Which logics apply to them? The next chapter examines, for logical problems, the ideas of those theologians who want God to be a symbol rather than a being; the next examines the logic of a welter of ideas from feminist theologians.

The struggle to find new meanings for old words

Before Post-modern Theology

BEGINNINGS

The *Reformation* was about reform of the dominant (Roman) Catholic Church in western Europe; it was not about the reformation of Christian theology. Nevertheless, vigorous theological debate

came with the reform of administration and authority – reform needed justification from the Bible and the new churches needed theological descriptions of what they were doing. The main changes in theology were about the place of authority – where did authority come from if not from the ‘ex-cathedra’ pronouncements of the apostolic successor of Saint Peter, appointed by Jesus? The ideas of some reformed churches on pre-destination were not new but had been overlaid by church tradition and theory about, for example, purgatory, indulgences, prayers for the dead, the status of the Saints and Mary the mother of Jesus. However, challenges to ‘received’ theology were now, in the general overthrow of the old order, less threatening and more acceptable.

In the early 19th Century the theologian Friedrich Schleiermacher (1768 to 1834) began teaching that religion needed to be purged of metaphysics. He arrived at the conclusion that much of biblical and theological language had its springs in our own desires and needs. For example, he said that when we say that God created the world we are really saying something about our inner experience of absolute dependence.⁸ This idea that religion (and therefore theology) is all about feelings and inner experiences, and what is called ‘the spiritual side of life’, will be discussed in Chapter 11, and is a very popular notion among many church people. Schleiermacher is often called the father of Modern theology, but I consider that he might be better called the father of a scientific attitude to religion.

MODERN THEOLOGIANS

By the early 20th Century science had had a huge impact on thinking and every aspect of people’s lives. Atheism and humanism were respectable, even if not popular. The scientific attitude to biblical scholarship⁹ had produced major changes to the understanding of the composition of the Bible, its ideas, its writers, and many changes to the text and to translations. People wrote quite new interpretations of what Jesus did and the meanings of what he said, the most famous of these being Albert Schweitzer.¹⁰ Rudolf Bultmann, influenced perhaps by the work of anthropologists, suggested that much of what had been taken as history should be now seen as myth.¹¹

Theologians who took up the challenge of science wrote with new passion about their subject and by the middle of the century were referred to as the founders of Modern Theology. As we look back from the end of the century, and especially if, like me, Modern theology was the theological form of thinking which surrounded me in my younger life, it is hard to see how these ‘modern’ theologians could think that they had made progress in adapting to the findings and methods of science. Here is a description of Modern theology from a professor at Union Theological Seminary, in 1958:

‘Modernism’ in Christian thought designates those theologies which are concerned with reinterpreting traditional Christian beliefs so as to make them intelligible in the light of scientific understanding of the world and of historical knowledge. Modernism thus seeks to establish the relevance of Christian doctrine to the experience of modern man. It seeks to conserve the essential elements of the historic faith by showing that the content of Christian truth is not bound to the supernatural world picture of ancient man which forms the background of the biblical writings. The Christian beliefs about creation, sin, the fall of man, the incarnation and resurrection of Christ, and redemption through grace must be expressed as expressing the reality of man’s dependence upon God, estrangement from God, and the saving act of God...¹²

In that paragraph we can see the sort of technical theological jargon with which the Modern theologians tried to make a bridge between the beliefs of earlier Christianity, for example, the six-day creation of a flat earth below a solid dome with small lights attached, to beliefs more suited to the earth as a sphere in space and the creation story as a poetic way of making points about God-the-wise-planner. Here is one of the Modern theologians, Emil Brunner (1889 to 1966), attempting to make the concept of a single god somehow immune to science’s inability to find any gods, or to find any gods useful in their work.

God is not something in the world, the eternal being, the divine inhabitant ... God is not in the world, rather, the world is in God.¹³

Writing in 1935 he works hard to deny the western so-called 'dualist' conception which was inherited from the middle ages and pre-scientific thinking. The dualist picture of the universe had everything divided up into either (a) matter or (b) spirit (wind, breath) and God was definitely spirit. So Brunner is at pains to bring spirit and matter together, rather as his contemporary physicists were bringing matter and energy together. To paraphrase his thinking: God must not be thought of as bound by the laws of the unseen forces of gravity and electromagnetic waves just as He must not be bound by the laws of gases (wind, breath). God must be not only 'outside' such matters but quite 'other', untouchable by science and reasoning.

Different Modern theologians took differing paths in their endeavour. Some were much influenced by the continental 'philosophy' of existentialism, others, led by Karl Barth, were uncompromising in their belief that until a person entirely abandoned reliance on human resources and threw themselves entirely on the grace of God, then understanding of what Christianity was all about could not be forthcoming. The truth of Christianity cannot be proved; faith is a gift from God. Arthur Prior's witty symposium called 'Can Religion be Discussed?' (Prior 1942 and Flew 1955) brings the discussions of the Modern period into focus, particularly since it includes as participants not only a Barthian, but also from the scientific side a logician and a psychoanalyst. Another Modern theologian of importance was Dietrich Bonhoeffer who, in his last days in prison before Hitler had him shot, produced the useful idea that humanity has 'come of age': God is no longer necessary for our understanding of the world or ourselves, therefore, to believe or not to believe is our own free, 'adult', choice.

*De-mything*¹⁴

Rudolf Bultmann (1884-1976) a Lutheran theologian, stimulated interest in seeing many of the Gospel stories as myths. In his later career he turned away from the process and pursued it no further. See Bultmann (1941) for his work on myth. The *Oxford English Reference Dictionary* (1996) says of him, '[Bultmann] emphasised the Gospel story's existential rather than its historical significance, asserting that faith in Christ rather than belief in him was the key.' However, he had started a way of proceeding which had profound repercussions.

Although the the stories of the Old Testament are easily seen as myths what is one to do with the Gospel stories and the Letters of the New Testament? Was Jesus flesh and blood or a myth, a historical person or a character in a historical novel? And if the myths are removed, what have we got left? How important is it to make new myths? What would their purpose be? In a scientific age can we do without myths? Or should we keep old myths but be very careful to see them for what they are? Are the so-called 'facts' of science also myths? Is this a slide into solipsism? Once you start asking these questions and the process of de-mything gets under way it is indeed hard to see where to stop. The history of Christian de-mything is fascinating and shows some theologians hastening back into conservatism and others developing a logically very different theology.

I am going to look, in some detail, in Chapters 11 and 12, at the ideas of theologians who wrote after the de-mything process began in earnest. The post-modern (for want of a better name) theologians are those who think that de-mything must go as far as it can and we must stop using the word 'God' as in any way referring to a 'being'. They feel that Barth and Brunner and the existential theologians have not managed to bridge the gap with science by continuing to use the language of incarnation, sin, resurrection, grace, infinite attributes, dependence on God, etc., which are still attached to the myth of God the powerful but compassionate father/king and his unruly children/subjects. On the whole, the males among them do not look for a meaning for 'God' in our psychology but in our capacity to create symbols; the feminists among them have many approaches but all are more interested in relationships than in intellectual striving. The examples above give a taste of the sort of ideas post-modern theologians have been trying out. All sorts of God-talk need

vigorous examination. What are these new symbolic gods and feminine gods? Which logics apply to them?

Puzzles that Post-Modern Christian writings bring

Gordon Kaufman is one of these new theologians; in his *The Theological Imagination, Constructing the Concept of God* (Kaufman, 1981) he has these ideas to argue:

If we can no longer presume that theology is working directly from an authoritative divine revelation, how are we to proceed? What are we to construct here, and in what way? It is clear that we cannot fabricate a concept of God simply out of whole cloth. Of what elements is it to be composed and how should they be put together? Is it really possible to set out a meaningful concept of God once the radically constructive character of theology is acknowledged? A framework of interpretation for life and experience cannot be artificially built up from scratch, and then simply "adopted" by persons who find it attractive and plausible.¹⁵

The interpretation of theology which I am presenting ... is based on an assumption that is so obvious that it has often gone unrecognised by theologians: namely, that theology is human work. Theology is done by humans for human purposes; theological work must be assessed by human standards, and its judges are themselves always ordinary human beings.... 'The sabbath was made for man,' Jesus said, 'not man for the sabbath.' (Mark 2:27.) That is, all religious institutions, practices and ideas – including the idea of God – were made to serve human needs and to further our humanization (what has been traditionally called our 'salvation')...¹⁶

THESIS 1. The proper business of theology (theos-logos) is the analysis, criticism, and reconstruction of the the image/concept of God.¹⁷

THESIS II. The image/concept of God, a human construct like all other symbols, is, and always has been, built up through an extrapolation or development of certain finite metaphors or models, in such a way that it can serve as the ultimate point of reference for grasping and understanding all of experience, life and the world.

SUB-THESIS A. The 'ultimate point of reference', as that to which every item of experience and every object within the world, as well as the world itself, is to be related, transcends all experience and the world, and may not be confused or identified with any object within the world (Principle of Absoluteness).

THESIS III. The Christian image/concept of God draws heavily on human metaphors and models – for example, father, lord, judge, son, word, love, mercy, forgiveness – thus suggesting that the 'ultimate point of reference' may properly be understood in human, or at least humane, terms, and that God relates Godself to humankind in ways which promote and enhance human development and fulfilment ... to the extent that the man Jesus Christ is regarded as the final or definitive revelation of God, God's humaneness becomes further specified as essentially suffering love.

THESIS IV. The task of Christian theology is to assess and criticise received ideas of God in terms of their adequacy in expressing God's absoluteness and God's humaneness, and to reconstruct the image/concept of God so that it will express these motifs ... in the contemporary situation, i.e., so that God's presence in contemporary life become intelligible.

God is the great relativizer of all false absolutes, the One who unmasks all the idols...¹⁸

From these extracts it can be seen that Kaufman thinks that God is an idea, or an image, or a concept, or a symbol created by people to personify an 'ultimate point of reference' for understanding all of (i) experience, (ii) life, and (iii) the world. [THESIS II] Can this be? Here are some questions that spring to mind about personifying an ultimate point of reference.

(a) You want to understand an experience, say, falling in love? God is the symbol for the most pure and intense loving you can have; compare and contrast your love with the ultimate. But how is that an explanation?

(b) You want to know what to do in some situation life has thrown at you? What would God want you to do? What would Jesus do in the same circumstances? These are the ultimate standards of behaviour. But people cannot agree what God wants, nor what Jesus would have done. So how is God any help in explaining?

(c) You want to know why quarks come in three colours, two flavours, and with strangeness-numbers (in our world with its quantum mechanics)? God is the ultimate point of reference for quarks. And what sort of an explanation is that?

The situation gets worse and worse as we start asking for understanding of experiences of, say, famine. Is God a symbol of the ultimate point of reference of famine, that is, a symbol of the starvation of everyone, that is, of universal death? Ask for understanding of the life of a virus. Is God the symbol of the ultimate point of reference of viral physiology and reproduction, that is, is God like an ideal virus? Or is life supposed to be human life only and a better question might be to ask for an understanding of gratuitous torture? How is God the symbol of the ultimate point of reference for gratuitous torture, that is the symbol for the worst sort of gratuitous torture that it is possible to inflict? The Kaufman programme looks restricted and Platonic, or very badly expressed.

All these questions engendered by Kaufmann, and the many more questions that we will encounter in studying other post-modern theological writing, make one desperate to know if the logical basis, as well as the imaginative basis of this theology is sound. In the meantime it appears that there is a great deal of work to be done to make these new ideas about God as 'ultimate' and 'absolute' as the new theologians would like them to be.

Reference and Notes

1. Lloyd Geering, *Tomorrow's God*, pp.221 & 223.
2. Lloyd Geering, *Tomorrow's God*, p.157.
3. Paul Tillich, *The Dynamics of Faith*, p.1,45.
4. Don Cupitt, *Taking Leave of God*. p.166.
5. Gordon Kaufman, *The Theological Imagination*, p.32.
6. Mary Daly, *Beyond God the Father*, p.34.
7. Daphne Hampson, *After Christianity*, p.284.
8. This quotation from Schleiermacher is taken from Alisdair MacIntyre (1957) 'The Logical Status of Religious Belief'. Since I will not be looking at the logical problems in Schleiermacher's writing I take this opportunity to do a quick 'translation test' to show what might happen if I did:
God created the world in 6 days.
 Replace 'God' with Schleiermacher's definition. The statement becomes, approximately:
I feel that I am absolutely dependent and this is because all people feel this way and have done since 6 days after the big-bang.
9. Scientific study of the origin, authorship and character of the *Bible* goes under the name of 'Higher Criticism'. It began as mainly historical criticism but now includes such disciplines as linguistics, papyrology, archaeology, anthropology, and uses computer-assisted analysis of texts. A major reference work on higher criticism is Soulen (1981) *The Handbook of Biblical Criticism*. Schweitzer (1906, 1910) discusses many of the early workers in the field for their contribution to knowledge of the historical Jesus, including Herman Reimarus, 1694 to 1768, whose most important book Reimarus (1778) was published after his death, ; and David Friedrich Strauss, the most 'infamously famous', whose work *The Life of Jesus Critically Examined* was translated first into English by George Eliot in 1846 and created a wave of emotional criticism.
10. Albert Schweitzer's most famous theological work is Schweitzer (1906) *Von Reimarus Zu Wrede*. First English edition, *The Quest of the Historical Jesus, a critical study of its progress from Reimarus to Wrede*, 1910. In this book Schweitzer sorts out the early attempts to find the real character of Jesus's message, and presents us arguments for the reading that Jesus was well aware that he was the Messiah and that he did what he could to bring in the Kingdom of God, thought of as a dramatic event, including willingly dying. This book ends with the justly famous passage,
 He comes to us as one unknown, without a name, as of old, by the lake-side, he came to those men who knew him not. He speaks to us the same word: 'Follow thou me!' and sets us to the tasks which he has to fulfil for our time. He commands. And to those who obey him, whether they be wise or simple, he will reveal himself in the toils, the conflicts, the sufferings which they shall pass through in his fellowship, and, as an ineffable mystery, they shall learn in their own experience who he is.
 In Schweitzer (1930) *The Mystery of the Kingdom of God*, he expands on Jesus's understanding of the Kingdom, as he sees it.
11. See Bultmann (1941).
12. See Williams, Daniel D. 1958, 'Modernism' in *A Handbook of Christian Theology*. Eds. Halverson M & Cohen. A, London, Fontana Books, pp.235 - 237.

13. I have not been able to track down this quotation, which came to me second-hand, but if it is not his, my apologies to his reputation. Brunner can, in fact, be one of the clearest of the modern theologians: for example, see his lucid *The Scandal of Christianity*, 1951, London, SCM Press, in which he acknowledges the help of Gregor Smith with his English.

14. In 1954 Ronald Gregor Smith, then editor of SCM Press, visited New Zealand and spoke at many Student Christian Movement meetings. At one of these, over a weekend at 'Old Stone House' on the edge of Christchurch he told me that he invented the word 'demythologising' whilst translating Rudolf Bultmann's work. He had been using the word 'demything', but his typist, hyphenating at the end of lines, broke the word into 'demy-thing'. The neologism avoided this confusion.
 I prefer to put a hyphen in 'de-mything' and get back closer to the meaning intended, and also avoid the charge of linguistic pomposity; unfortunately it is at the expense of encouraging ugly typography.

15. Kaufman, Gordon D., 1981, *The Theological Imagination, Constructing the Concept of God*, Philadelphia, Westminster Press, pp. 30 - 31.

16. Ibid. pp. 263 - 4.

17. Ibid. pp. 265 - 272. These theses continue up to No. VI; the last two and a Sub-thesis B to No. II have not been quoted here; nor the extensive 'Elucidations' which follow each Thesis.

18. Ibid. p. 276.

Post-Modern Christian Theologies 1. Symbolist

God-the-Symbol

Open to Science?

Logical Problems

Can we talk about God at all?

Types of abstraction

Popper's Three Worlds; Reducing the Worlds

Are there any World2 objects? Symbols as abstractions

Christian theologians and Symbols

Picking up the pieces

The current situation

Polytheistic religions and symbol gods

A new Symbol-religion and the Theologic

Axioms for the new theology

Conclusion

God-the-Symbol

Those post-modern theologians who want to use the word 'God' as a symbol for our highest values and aspirations are embarked on a project which is very confusing to the ordinary user of language. 'God' has been the name (and not just a symbol) of a creator, upholder, father, for so long that it will need a sustained campaign of many decades to get its meaning changed. Feminists in some English-speaking western counties have managed to change the meaning of 'man' (from meaning both 'human' and 'male human' to mean 'male human' exclusively). To do this in 40 years has taken a lot of moral and psychological pressure and intimidation. It is possible to change the meaning of 'God' but I hope post-modern theologians do not expect it to be quick.

There are good reasons not to try to change the name 'God' into a symbol. Firstly there is the unintentional, morally neutral confusion it is likely to create. Second there is the possibility of fraud with one person using the word in one way whilst knowing the hearer is hearing it with a different meaning. Third, though a symbol may be more logically normal in its use and the way it is understood than the name 'God', nevertheless, symbols and symbolism are not easy concepts to deal with, and very prone to category mistakes.

Two examples of work to be done

Paul Tillich is a post-modern theologian whose ideas we will examine more carefully later. As an example of the way mistakes can arise, think of the effects of the new definition from Tillich (1957) already quoted at the beginning of Chapter 10.

Syl. The fundamental symbol of our ultimate concern is God.¹

There are a lot of ideas that could be unpacked from this statement (and that is how poetry, metaphor, myth and parables should be). For example, the idea that

Sy1.1. There are many symbols for our ultimate concern but the main one is God.

Then there are the confusions which we can highlight by pointing out that the word God has not been put in quotes; so *S1.* could mean

Sy1.2. There is a real God who also has a symbolic role much the same way as Judge Jefferies was both a person and a symbol of the (terrible) justice system of eighteenth century England.

However, I can also unpack:

Sy1.3. 'God' stands for our ultimate concern.

This is rather unsatisfactory and the problem can be seen if we turn 'God' (a symbol) into some other symbol carrying less emotional and theological baggage. For example we could write

Sy1.4. ▼ stands for our greatest concern.

This does not seem particularly helpful as a guide for using language or giving our lives more meaning.

Sy1.5. 'God' means 'our ultimate concern'.

This is a definition and as such can be used to make substitutions, leaving the meaning unchanged. Here is the use of this definition in an otherwise fairly ordinary theological statements:

Sy2.1 *God is love*

becomes

Sy2.2 *Our ultimate concern is love.*

This may be true and requires only some psychological tests to prove it or disprove it. Or it may be an exhortation to be loving dressed up in metaphor.

Sy3.1 *God created the world*

becomes

Sy3.2 *Our ultimate concern created the world.*

As a piece of reasoning for such a radical conclusion it may be logical but I am fairly certain that very few people who want to say *God created the world*, would be content to have their statement translated into *our ultimate concern created the world*. It is possible to give meaning to this last sentence; it is a rather convoluted argument, but it can be done. I essay a possible way, and its problems, in a note.²

Traps

In their attempts to re-interpret the idea of God the post-modernist theologians not only get far away from the ordinary meaning of God, but they fall into various traps. The first trap was demonstrated above by using the application of modern definitions to old dicta - a sort of *reductio ad absurdum* procedure. This at very least shows that a lot of work needs to be done cleaning out old

theological statements and inventing new ones if new theologies are to be any more logical than the old.

A second trap (religious rather than logical) is that worship ceases to be religiously appropriate – one can hardly venerate or adore something one has created oneself without being accused of, at the least, navel gazing, and at the worst, idolatry. This does not worry me, because, just as one can point to religions without a 'God', so I am happy to find religions without rituals, veneration, worship, and awe.

A third trap (psychological rather than logical) is that worshipping oneself is either narcissism or close to madness.

Open to science?

As we will find with the Gaia pantheistic religion the new definitions of, and statements about, 'God' also appear to be open to scientific enquiry, unlike the theological propositions of the older Christian religions which were by their nature untestable and so immune to scientific verification. For example, is love our ultimate concern or is (following the ideas of enlightened self-interest and the selfish gene) self-preservation our ultimate concern? Fill in these questionnaires, undergo this deep therapy, reveal your innermost thoughts under hypnosis, and an answer may be revealed. Or, better still (more scientifically) use the methods of epidemiology and statistically track down from among the things people do what they most want to do.

Is this the conclusion the post-modern theologians want – a religion based on investigations of the physical sciences, or on statistics about people? Tillich, perhaps aware of the possibility of scientific interference, is at pains to put God-the-ultimate-concern, beyond the reach of statistics and epidemiology.

Logical problems

Then there are the logical problems that go with ideas such as 'the ultimate concern'. Is this supposed to be something we can check on and perhaps change our minds about some day, perhaps as circumstances change. For example could we understand nuclear weapons to be the ultimate concern since they could obliterate life, this year; but when they are banned, then safe drinking water or the ozone hole or air pollution may be the ultimate concern; or perhaps the ultimate concern is a psychological state of sanity?

How is the logician to put into symbols the concept of 'our ultimate concern'? Is it best to use a simple proposition, p , or is it a bound variable, Σpp ? Or is the ultimate concern a way of talking about the laws of the universe and so a sentence such as 'We all have an ultimate concern' or, 'You cannot exist without having an ultimate concern' is just a way of saying 'We are as we are,' Cpp ? Tautologies are always true but seldom enlightening or helpful, except as a test of the truth of a deduction. We can try the following process:

The Universal Domain; x, y, z = variables; $\psi x = x$ is a person; $\phi xy = x$ having y ; $\theta x = x$ is a concern.

Sy4.1 $\Pi x C \psi x K \Sigma y \theta y \phi xy$ < everyone has at least one concern >.

The notion of an ultimate concern can be introduced several ways, the easiest being to have a constant u = the ultimate concern; and now we have

Sy4.2 $\Pi x C \phi x \psi x u$ < everybody has the particular ultimate concern >.

If it is true that everyone is ultimately concerned to stay alive then we can think of this as meaning
< everybody is concerned to stay alive >.

Then the logic can begin and we can be sure that

Sy4.3 $\Pi x CC\psi x \phi xu C\psi x \phi xu$ < if everyone has the ultimate concern then, no matter
what, they all have the ultimate concern >

and

Sy4.4 $C\Pi x C\psi x \phi xu \Sigma x C\psi x \phi xu$ < if everyone has the ultimate concern then, no matter
what, someone has the ultimate concern >.

This logic is about a particular ultimate concern, a universal as well as ultimate concern. The Tillich statement says God is our ultimate concern, and if we believe him (in one of the possible ways it can be interpreted) then we might like to say that 'u' stands not only for the universal ultimate concern but also for God. However, other passages from Tillich suggest that he is more likely to be saying that each person has their own ultimate concern (for me it might be nuclear war, for you it might be making enough money to pay the weekly bills) and so the ultimate concern is not universal: we need a way of symbolising these personal ultimate concerns before we call them gods and proceed with seeing what logic can produce. I say 'gods' rather than 'God' since, surely, a multitude of concerns should not be lumped together, under the title God, unless with extreme caution.

We would have to make the ultimate concern a variable (rather than a constant) if we want to express the idea that everyone has some (that is, their own particular) ultimate concern and make sure that each concern is firmly tied (unique) to each person.

Can We Talk About God At All?

At this point I can do no better than quote from Alisdair MacIntyre. In the 1960s he made most of the important points in answer to this question.

Is religious language so idiosyncratic that we can hope for no philosophical account of it? It would be odd if the answer to this question were 'Yes'. For a great many of the expressions which find a place in religious utterance, in fact the vast majority of such expressions, derive their sense from their use in other and non-religious contexts. To praise, to love, to recount great deeds, to express awe: all these employ expressions which find their place in the fabric of everyday language. Nor does religion confer on such expressions a new and esoteric meaning. That this is so is shown by the insistence of theologians that certain particular expressions should be used in religious utterance, and not others. God is our Father, but not our Mother; loves us, but does not hate us; we are bound to obey him, not defy him; and so on. Father-Mother, love-hate, obey-defy: these conceptual contrasts are transferred with all their familiar meaning into our speech about God. This rather obvious fact at once renders untenable three views of religious utterances which have found favour with certain schools of theologians.

... Certain statements of Karl Barth, for example, seem to suggest that the assertions of the Bible are meaningless to anyone who has not achieved the special miracle of grace. But to suggest this is to use the word 'meaningless' meaninglessly. For what would it be to confer meaning on an otherwise meaningless statement? Suppose the form of words: 'Mountain neither fire red here'. The syntactical rules of English render this meaningless. To make it meaningful one would have to provide a set of rules whereby such an expression could be decoded, could be translated, into a syntactically recognisable expression. Unless the expression could be decoded it would be meaningless to anyone, whatever their

special inward spiritual graces; if the expression could be decoded it would be meaningful for anyone, provided only that there was access to the code, to the rules of the translation. But for most theological and biblical expressions there is not even a problem of decoding. Because most religious language utilises familiar words with familiar meanings their sense is apparent to believer and unbeliever... [A] special miracle of grace might be bound up with finding the biblical assertions *acceptable* or *important* ... but could not be involved in finding them *meaningful*. [My emphasis.]

A variant on this orthodox Protestant view is the liberal Protestant view that religious expressions do indeed have to be decoded since they refer to inner experiences which only some people enjoy, or at least only some people recognise. And on this view only those who have these crucial experiences could hope to decode them. But to say this is to commit a mistake which is obvious the moment one tries to vindicate this view-point by an example. Schleiermacher, for instance, suggests that when we say that God created the world we are really saying something about our inner experience of absolute dependence. But if we use the words 'God created the world' in their ordinary sense then the rules of meaning and syntax in English preclude us from referring by them to any inner experience. We could, of course, recommend that this expression should be construed in a new way; and no doubt this is what Schleiermacher is in fact doing. But if one wishes to mean something other than what the words mean, taken as they stand, it would seem misleading to use this form of words. Theologians want to insist on this form of words — for example in the creeds. Hence it is misleading to suggest that Schleiermacher and orthodox theologians disagree about the meaning of the assertion 'God created the world'; what they really disagree about is whether to say this at all.

The root of the matter is, however, deeper than this. For the suggestion of the liberal theologian that theological expressions have private meaning by referring to private experiences is ruled out by the fact that no expressions can derive their meaning this way. To have shown this is one of the central achievements of Wittgenstein. For to name our private experiences in such a way that they can be recognised, identified and, if you like, dated is to introduce words which are used according to rules. And a rule is essentially something public, something which can be taught and learned. So words like 'pain' and 'sensation' which refer to private experience, if any words do, are words in public language. It is not that we have private experiences and invent words for them. But we learn the words and find the application in our experience. The language is in a sense — and even, though this could be misleading, in a sense formative of — the experience. This is as true of religious language as of any other. In so far as it refers to private experience, we learn that it does so because the meaning of the expressions can be taught publicly. This is why two believers can discuss their common experiences. If indeed religious expressions referred to private experiences and their meaning was exhausted by such reference, then no two believers would use the same language — for the experience and the language of each would be private to each — and two believers would never know that their experiences were the same. In fact, believers are able to talk with one another on religious matters — they do so at length; and this is because religious language is no private code, but is at once public and familiar. ...

Dr Johnson on Boehme, 'If Jacob saw the unutterable, Jacob should not have tried to utter it.' Mystical writers tend to say what cannot be said at inordinate length and it is clear that for them such expressions as 'the unutterable' take on an idiomatic sense ... Most religious language ... is of a thoroughly familiar kind. And ... theologians and believers generally want to assert some things and deny others. But where everything is nonsense, there can be neither assertion nor denial. Where everything is nonsense one kind of nonsense is as good as another...

In the Bible men go on journeys, suffer greatly, marry, have children, die, and so on. So far no difficulty. But they go on their journeys because God calls them, suffer in spite of God's care, receive their brides and their children at the hand of God, and at death pass in a special sense into God's realm.... This reference to God introduces all the difficulty. What is said of God is familiar enough. God calls, God hears, God provides. But these verbs appear to lack the application which is their justification in non-religious contexts.... The name 'God' is not used to refer to someone who can be seen and heard, as the name 'Abraham' is, and when descriptive verbs are used to state that God's call is heard, it is not ordinary hearing that is meant. Hence all the puzzles. If talk about God is not to be construed at its face value, how is it to be construed?³

The problems outlined by Alisdair MacIntyre are the sort which prompted practising theologians such as Tillich and Kaufman, to look for new ways to talk about God. There was another route they could have taken, namely to have stopped talking about God at all, but this did not appeal. The pantheists have not stopped talking about God or gods. In fact, in the case of those syncretistic 'new-age' pantheists who wish to incorporate in a new religion all the tribal religions

they know, there is much talk about gods; but they could, logically, do so. If you are going to go on talking about a god or gods just what are you talking about?

Authority as the key?

Alisdair MacIntyre has suggested, in a later part of the essay quoted above, that authority is the key to what makes religious talk, including theology, rational: we understand what it is to accept authority, and once belief has taken the necessary first step (accepting as authoritative a scripture, or a revelation, or a person, or an organisation, or a theology...) then the rest of one's beliefs flow from that first step. This is something like the programme I suggest for all theologies: first axioms accepted without question, then rational deductions from them. However, it is also like the soldier who puts himself or herself under authority and does not question orders, and acts upon them, without hesitation or moral qualms. Nevertheless, there is still the possibility that the soldier is sometimes given incorrect information and unlawful orders. The military system tries to deal with such mistakes by its members, within the system, with courts martial and military police and a system of punishments. However, since at least the Nuremberg Trials, civilian and international law is considered to be above military law and the defence 'I was ordered to' may not get a soldier off; for example, a soldier may not torture nor mutilate an unarmed enemy soldier, nor kill civilians, no matter who orders the soldier to do so.

Does the believer admit no countervailing considerations or evidence to the contrary when doing what logically follows from the authority he or she accepts? If the believer does admit countervailing considerations, then cracks have appeared in the strength of the authority. In the best of all possible worlds a religion which fails to deliver what its authority promises will fall sooner or later, as will a fighting unit whose commander issues illegal commands.

The idea that authority is the distinguishing feature of rational religious language is rather like asking that a new marker or flag be placed at the start of every religious statement – at the start of every religious book, might do – indicating that the ideas which follow are to be taken as true for those who accept the authority of *X* or *Y*, but as not necessarily true by those who do not. This is approximately Karl Barth's position. Those who are not under the particular authority assumed in the book or preaching or reasoning will have to mentally add 'If the authority is to be relied on...' to the beginning of almost every sentence.

This is a recipe for great confusion as factual statements and religiously authorised statements and ethical statements get bandied about in the same text or conversation. The rules worked out by Hare and Duncan-Jones for commands and adapted by me for arguments containing theological remarks will have to be rigidly enforced – once a command (or a theological statement) has become part of the reasoning, the conclusion must be a command (or a theological statement) only. On the last page of the 'flagged' book, or at the end of the discussion, there should be a warning: 'return now to default setting, that is, to non-believing mode, using normal rules of true and false.'

Types of abstraction

What does the Universe consist of? To the physicist everything can be reduced to ultimate particles, energy, and their relationships with each other. In the year 2002 the search for ever smaller and more ultimate nameable bits goes on; experimenters using particle accelerators continue to hunt for the entities that quantum theory and its developing mathematics suggest may be found. The

theories link these particles tightly to energy with the old division into matter and energy now quite exploded along with the atomic bomb. The mathematics describe the relationships, some of which in our present state of knowledge can be called 'forces'. So the logician may decide that the universe, to the physicist, contains matter/energy of various sorts, and several sorts of relationships, including space, time, forces, and possibly mathematics.

What sort of 'existence' do relationships have? They depend on the more 'concrete' objects of matter and energy. For example, the physicists would say: if there is no object, there is no space; if there is only one object, there is no force. However, once two objects exist the relationships also exist. (Leaving aside, as undecided questions, the pre-object status of mathematics, e.g., $1+1=2$, and logic, e.g., Kpq , which can be used in the descriptions of relationships.)

Objects and relationships are quite different categories of 'things' and should not be allowed to get mixed up, but they are both quite real. Are they, however, all the things there are? What about feelings, dreams, words, concepts, names, ideals, hopes, facts, worship, beauty, redness...? This is a good place to have a quick look at one of the theories of what the universe is made up of, since it supposes that private experiences are a separate part of the universe. In fact feelings, and other private experiences are often proposed by the religious as proofs of propositions about the 'spiritual world' and gods. I introduce this issue here because one of New Zealand's main advocates of the God-the-symbol theology, Lloyd Geering, uses this way of categorising the contents of the universe.

POPPER'S WORLDS

Karl Popper (see Popper and Eccles, 1977) has taken the idea of Duality (a physical world and a spiritual world) a step further and has *World 1*, *World 2* and *World 3*. This is a way of dividing what is in the universe up into three sorts of thing.

World 1 is that of physical objects, energy, and the things that are made of these, including living organisms and so including ourselves.

World 2 is states of consciousness, thinking, dreaming, willing, feeling, experiencing ...

World 3 is what follows from language and includes concepts, names, ideas, interpretation of experience, art, rituals, technology, values, religion, myths, philosophy, science and mathematics, logic, constructions of reality, knowledge.

Geering, noting that everything in *World 3* has been created by people thinking, feels that there is something special about what the human brain does and that this ought to be explained. The result in his case is that he lights upon the myths of Freud and Jung (including the concepts of the id, ego, subconscious, racial subconscious) and uses them to describe the springs of action and knowing. This is, however, just to substitute one myth for another. Here is an example, to demonstrate:

The archetypes [of Carl Jung] perform two roles. The first is to provide the structure for the developing psyche. As consciousness begins to manifest itself as a layer above the unconscious it needs to be directed and provided with a unifying point. The centre of consciousness is the ego and we are each born with a psychic propensity or archetype to develop an ego. The ego plays an important role in psychic health, as it has a mediating function between the signals coming from the outer world and the continuing motivation rising from the unconscious. The ego acts as a sort of controller... The ego, being an internal spiritual entity, is fragile and vulnerable and can be easily wounded.⁴

The models of the human mind, its components and its workings, as invented by Freud and Jung and psychological theorists since then, are becoming superfluous as neuro-physiology, neuro-chemistry, neuro-micro-biology, neuro-information theory, and so on, are developed. When you get to look inside a camera you do not necessarily find a dwarf with a paint brush.

Logic qua logic makes no distinction between *Worlds 1*, *2*, and *3*; statements about any

member of the three is just as acceptable as any other statement in an argument and statements about all three may be mixed in an argument:

If	the Waimakariri river lies between Kaiapoi and Christchurch (fact: <i>World1</i>)
then, if	I wish to get to Kaiapoi from Christchurch (statement about my feelings: <i>World 2</i>)
then	consulting a road map to see if there is a bridge (the information in a road map is a <i>World 3</i> 'object') would be a good idea.

However, as we know, some statements contain content (refer to things, have meanings) which restrict their part in arguments. For example, it is not possible to doubt the truth of reports of feelings, though we may have doubts when we see the actions (behaviour) that should show the likelihood of such feelings being present; we cannot treat statements about the future as true or false; moral injunctions are more like commands than statements; beliefs cannot be treated as facts are; and, theological statements cannot be used as vital parts of any argument to deduce factual statements nor moral judgements.⁵

Reducing the Worlds?

The belief that all *World1* objects are clusters of *World2* objects is by no means unusual, especially among the post-modern religious. However, it has a long history and versions of it can be detected in the Platonic description of our reality as shadows of an ideal-reality, in Berkeley's *esse est percipi*, and in the primacy of sense-data in the reality espoused by the logical empiricists in the 1920s and 30s. In modern times some quantum physicists are strongly of the opinion that their 'particles' are not to be given the status of physical objects but treated entirely as probabilities and the result of particular mathematical calculations resulting from the indirect observation of phenomena. This makes *World1* objects a mixture of *World2* (observations) and *World3* (calculations).

In 20th century social sciences *World2* was the focus of attention by Freud, Adler and Jung. We cannot feel other people's pains or pleasures, dream their dreams, experience their emotions, and so science, very properly (and unlike Freud and Jung) describes individual human behaviour in Psychology, mass human behaviour in Sociology and Anthropology, past behaviour in History, and statistically analyses all such data into trends, influences, causes, results, and predictions. These studies result in *World3* facts. The theoretical work of the biological sciences has contributed by creating the new science of Ecology which studies the inter-relatedness of all *World1* objects, actions and systems.

In the West these sciences have influenced religious thinking and the post-modern theologies are, in part, attempts to incorporate or 'deify' parts of the new knowledge. For example, any new religion which sees the idea of 'God' as a way of talking about the earth and its eco-system (a Gaia religion) is as much a result of the new science of Ecology as it is a 'return' to Hindu or 'animist' attitudes to the earth. Critics of the new religions, such as New Zealander Harold Turner (Turner 1998) in *The Roots of Science*, find the 'constructivism' of these religions deeply disturbing, in Turner's case because he sees it as undermining the case for rational and scientific endeavour. By *constructivism* – a word used in educational theory – Turner is using an idea which might well go under the title 'relativism' (as contrasted with 'absolutism') in ethics and refers to the suggestion that God is a construct of the human intellect and feelings, not a *World1* (or possibly *World4* !) object. In Popper's categories, the post-modern theologians have, in their symbol God, invented a *World3* object.

There are at least three ways of constructing a god using Popper's categories.

(1) Find a set of objects and their interactions (in *World1*) with a common denominator and declaring that common factor to be named 'God'. Gaia religionists may in fact choose 'all' as the set of *World1* objects to name; more thorough-going pantheists must name all *World1*, 2, and 3 objects.

(2) Find a set of thoughts, feelings, intuitions, emotions (in *World2*) which may be called

'God'. This is a sort of pure spiritualist or pure 'soul-centred' religion and is, I suspect, most commonly found in a less pure form mixed in with other theologies, particularly those of a dualist (the world has both objects and spirits) and animist tendency.

(3) Find a common thread amongst what follows from language, including concepts, names, ideas, interpretation of experience, art, rituals, technology, values, religion, myths, philosophy, science and mathematics, logic, constructions of reality, knowledge, and call that 'God.' This must be the most common form of constructed god, and no doubt most atheists, if taxed, would say this is how all the major religions construct their gods. Certainly (by definition of the *Worlds*) once constructed, this 'God' object, no matter from which *World* it came, is definitely a *World3* object.

To treat *World3* objects as if they are *World1* objects is the simplest and most common of 'category mistakes'. The well known example is of someone asking to be shown team spirit who is shown football matches in progress, meets the defeated team after the match and notes that they are not in deep depression but have enjoyed something despite defeat, and so on, but who still asks to be shown team spirit. The inquirer is labouring under a mistake about categories – an idea abstracted from team games and the behaviour of team players is being thought of as a physical object from which photons of light can reflect.

In theological discussion it is a category mistake to treat 'the holy spirit' (an obviously *World3* object abstracted from the acts of God) as if it was a *World1* object (the third 'person' of the trinity). This seems like a very elementary mistake, but it had dire effects on theological reasoning for a thousand years, and is still current in Christian churches. If, at this point, a theologian maintains that both holy spirit (abstraction) and Holy Spirit (person) are 'ways of talking' then they must be both *World3* objects. At which point in the argument, all propositions about both are either 'shorthand' ways of talking about *World1* objects or must be used in that strange meta-level language where the main purpose is the classification of sets according to whether they include each other or not, whether they intersect and if so how.

Having allowed a new *World* to pop into the discussion, as a way out of some difficulties, a quick diversion needs to be made to see what status a *World4* God has. Being constructs of minds, (constructs are *World3* objects) is not a guarantee that something does not exist in some other guise. For example, genes were for many years a construct in the mind (an abstraction, a thought, a theory) from the facts gathered by Mendel about the inheritance of characteristics by peas; they are now *World 1* objects, being protein molecules attached to identifiable chunks of DNA. Perhaps the God, as constructed by our thinking (and perhaps emotions), is also a 'real' object, and although not a physical object (*World1*), is real as a *World4* object. Is this sort of reality any different from the reality *World3* objects have? Popper certainly is using this whole system of categories to try to dissolve what he sees as an *artificial* unreality which most of us seem to give to feelings and ideas. So he would not allow that anything has been added to God by giving him-her a special *World* to reside in; God is no 'more' real in *World4* than in *World2* or 3. And adding a *World4* to the categories is to begin growing Plato's beard.

A special *World4* for God looks like giving us many of the same problems as the idea of a God before creation (such as the inability to interact with anything else) and although the category is a tempting receptacle for all useless notions, I fear that further investigation would declare it surplus to requirements.

Although Popper's categories have a stimulating effect and give a refreshing legitimacy to *World2* and *World3* objects, which most cosmologies do not, it is time to make it clear that the rules for reasoning in and about these *Worlds* are not the same – their logics are not the same – and the penalty for not keeping them clearly distinguished is confusion and superstition. We are usually aware that categories of concepts must not be mixed: the example from primary school science I best remember was the clear difference between heat and temperature: you may add the temperatures 20° to 40° and get an answer 60° but if you add two equal volumes of water at the two different heats you will get water at (approximately) 50°. Heat is a *World2* object and temperature is a *World3* object.

Are there any World2 objects?

Popper's most radical step was to give states of consciousness, thinking, dreaming, willing, feeling, experiencing, and other 'private' experiences a definite place in his 'cosmology', as *World2* objects. Since Wittgenstein's difficult but logically incisive work on 'private' language showing us that private language is *logically* untenable (as well as being an oxymoron) philosophers have been rather wary of tackling the status of consciousness, feelings, 'sense-data', etc. However, as Wittgenstein and anyone who has stubbed their toe (including Dr Johnston attempting to refute Berkeley) agrees, we do have pains, feelings, hopes, dreams, experiences ... they are just very difficult to talk about. Popper has, perhaps very properly, given them a special place as a world of their own.

Many religionists claim that *World2* is the realm from which they obtain their certainty about God; that it is the realm in which God 'interacts' with people; that we experience or know our god, or his-her mind and will, through dreams or dream-like states called 'revelation'; that it is the *spiritual* (even mystical) realm much talked about; that it is a 'higher' realm than that of the physical world. For these people we must investigate to see if the logic of that realm is different from that of other *Worlds* and if the logics of the other *Worlds* need to be treated with care when *World2* objects are mixed with the other *Worlds*.

In the long quotation from Alisdair MacIntyre we saw a brief summary of what Wittgenstein carefully pointed out: all talk about *World2* objects such as pains, consciousness, our experience of colour and even distinct objects, is (like all language) public and learned from other people. Wittgenstein, in §293 of his *Philosophical Investigations*, likens our feelings, experiences, etc., to an object inside a box, a box which we are allowed to open but no one else may. We may call the object in the box anything we like, and since we all have one it gets a simple name – in Wittgenstein's example it is called a 'beetle'. Now we can talk about our own beetle to other people but the things we can say about beetles in general are limited; for example, we can name our beetles, count everyone's beetles (by counting the boxes), note that everyone has one, pile them on top of one another (by piling the boxes) discuss where they were last Saturday ...; but I cannot compare mine to other people's beetles – I cannot say meaningfully, 'mine is bigger, or shinier or noisier'; nor ask 'is yours made of this or that?' Worse still, we do not even know if other people have anything in their boxes at all – they might be just saying so to keep up appearances.

As an experiment I have presented each member of a class with a small box and in each box something quite different (paper-clip, button, screw, nail ...) and we tested the sorts of things we could say about it without looking inside other people's boxes. For example, we found that they all weighed the same, none of them made a noise, we could arrange them (by arranging the boxes) in many patterns, we could buy and sell them, give them pet names, leave them in our wills, yell at them, send them by post, describe their history ... We invented a new word for them (I had not used Wittgenstein's word 'beetle') and called them our 'vitts' until I allowed the class to look inside each others' boxes, and the name 'vitt' disappeared from our vocabularies.

We learn language from others (or invent it with others, as with 'vitt') and use it with others, so language is the filter through which our experiences are recognised, even by ourselves; we fit our experiences to the words so that there are not too many discontinuities. We have a few mismatches, for example, my wife and I often disagree about whether a colour is more green than blue or more blue than green; but on the whole we manage reasonably well. Pity all medical doctors: their whole professional life is trying to diagnose ailments they cannot feel; they must try, from questions, to work out what is going on inside the box (the human patient) so that they can prescribe some treatment which they are told (by the patients or by outward and visible signs) does the trick. Doctors, mainly surgeons in fact, who deal with physical, visible, injuries or conditions such as broken limbs, failing joints, or tumours, are much better off.

The upshot of this analysis is that we have to make a 'leap of faith' to believe that when we are told that someone has, for example, what they describe as a headache, or sees a green field, or says they are hungry, or that they had a dream, or that they heard a drum roll, that they are experiencing pretty much what we feel when we have a headache, see a green field, get hungry, dream or hear a

drum roll. This is not a difficult leap of faith since it works; it is faintly possible that when I experience a green field you experience something which, if I had it, I would call a drum roll; but, like the 'vitts', they are all inside the boxes and, should they be different, that does not matter (to our discussions, knowledge, decisions and actions) while they remain there. Neurological science may discover that every person has nerve cells in the same part of the brain firing when seeing a green field, but that still does not tell us for sure that you and I experience the same sensation. Wittgenstein said, in a rather gnomic utterance, 'If we construe the grammar of the expression of sensation as "object-and-name" the object drops out of consideration.' That is, it does not matter for our language, and it does not matter for our logic, what sensation *we* are having; our language and our logic deals with the box, (usually our behaviour) not what is inside it.

Hume pointed out that we can never be sure that one action causes another, only be sure of constant conjunction; this realisation does not stop scientific progress. The fact that we can never experience what other people feel does not stop empathy, morality, love, nor the thousand natural shocks that flesh is heir to. But it does make it very difficult for those who wish to give a primary place in their religious belief to feelings, intuitions, spiritual promptings, mystical revelations, and so on. Herman Otto suggested that feelings of awe are the basic building blocks of all religions. But in order to be described, discussed, theorised about, and abstracted into *World3* objects, feelings of awe have to have words that go with them.

If I want to tell you about my feeling of awe (something inside my box) I first assume we both have the same rules about thing-in-a-box conversations; secondly that you have feelings you describe as awe also (you have something inside your box); thirdly I assume that these are like my own in kind, that is, as alike as is necessary for our conversation to continue. Are these assumptions justified? Are they safe (they do not lead to nonsense)? Will the conversation lead to further knowledge, discoveries, or insights, or is it just 'phatic communion' in the jargon of linguists ('warm fuzzies' in the jargon of pop psychology; 'talking to oneself' in the opinion of the cynic)?

I have suggested that the Wittgensteinian analysis does not stop me from behaving as if other people have the same feelings as my own. But is it necessary for the religious believer to be certain that every person has the same feeling of awe? I think not. All that the believer needs is a certainty that the feeling of awe you have, and the feeling of awe I have, and the feeling of awe he or she has, all come from the same source and lead to the same behaviour. The 'behaviour' bit may be difficult for most 'spiritual' believers who are not used to the idea that the language they are using and the rules of language that apply to the category of *World2* objects (such as feelings) are as restricted as that applying to 'vitts'. But they can get used to that. However, the problem of the source of 'spiritual' feelings may be quite difficult.

The scientific psychologist may find the source of feelings of awe in a *fear* of the unknown, or a *relief* that some phenomenon is not threatening, although dramatic. Such explanations are not very helpful, just pushing the question back further, requiring us to ask why we fear the unknown. Hunting for a better answer we may say, 'We have an instinctive drive for self-preservation, and the body's automatic adrenalin rush is paralleled by the mind's fear feeling, to get us ready for flight or fight.' This may be a better explanation but it will not please the religious who want to find an explanation outside the human body. It is only psychologically inclined pantheists who survive this argument since they find God in the whole of creation; therefore they can see their god in our instincts.

The religious who want some outside 'spiritual' intervention to cause such feelings as awe are of two sorts: those who want the feeling to prove the existence of outside 'spiritual forces' or God; and those who want the feelings to *be* God – usually with some sort of notion that our having these feelings somehow 'unites' us with God, presumably because God's nature is 'pure feeling'. This latter god need be neither creator, sustainer, all-powerful, nor have any of the traditional theological attributes, and will exist only in *World2*, unlike ourselves who are part of *World1*.

Symbols as abstractions

The main point of the discursive trip into Popper's *Worlds* was to fix a place for a symbolic God into an account of what there *is*. Unless we want to invent a new category, *World4*, just for gods, then, for the post-modern theologian, who wishes to reconstruct God as a symbol, the *Worlds* schema definitely makes God a member of *World3*, which is made up all that follows from language and includes names, concepts, ideas, interpretations of ideas, myths, religion, theories (including scientific theories), politics; and also knowledge, art, rituals, values, morality, philosophy, mathematics, and logic. Symbols are definitely constructed, usually by people giving special

cannot.... [the symbol] participates in that to which it points: the flag participates in the power and dignity of the nation for which it stands ... it opens up levels of reality which otherwise are closed to us. All arts create symbols for a level of reality which cannot be reached in any other way.... [the symbol] unlocks dimensions and elements of our soul which correspond to the dimensions and elements of reality. A great play gives us not only a new vision of the human scene, but it opens up hidden depths of our own being.

Symbols cannot be produced intentionally ... like living beings they grow and they die. They grow when the situation is ripe for them, and they die when the situation changes.⁷

3. RELIGIOUS SYMBOLS

If money, success, or the nation is someone's ultimate concern, can this not be said in a direct way without symbolic language? ... The answer is that everything which is a matter of unconditional concern is made into a god. ... Success as ultimate concern is not the natural desire of actualising potentialities, but is readiness to sacrifice all other values of life for the sake of a position of power and social predominance ... in this way concepts designating ordinary realities become idolatrous symbols of ultimate concern. ...

The fundamental symbol of our ultimate concern is God. It is always present in any act of faith, even if the act of faith includes the denial of God. Where there is ultimate concern, God can be denied only in the name of God. One God can deny the other one. Ultimate concern cannot deny its own character as ultimate. Therefore it affirms what is meant by the word 'God'. Atheism, consequently, can only mean the attempt to remove any ultimate concern – to remain unconcerned about the meaning of one's existence. Indifference toward the ultimate question is the only imaginable form of atheism. Whether it is possible is a problem which must remain unsolved at this point. In any case, he who denies God as a matter of ultimate concern affirms God, because he confirms ultimacy in his concern. God is the fundamental symbol for what concerns us ultimately. Again it would be completely wrong to ask: So God is nothing but a symbol? Because the next question has to be: A symbol for what? And then the answer would be: For God! God is a symbol for God. This means that in the notion of God we must distinguish two elements: the element of ultimacy, which is a matter of immediate experience and not symbolic in itself, and the element of concreteness, which is taken from our ordinary experience and symbolically applied to God. ...⁸

God is the basic symbol of faith, but not the only one. All the qualities we attribute to him, power, love, justice, are taken from finite experience, and applied symbolically to that which is beyond finitude and infinity.⁹

These quotations give a clear idea of the type of approach to the idea of God which Tillich puts forward and they are repeated or are re-worded in several other books and papers¹⁰ and elaborated in his *Systematic Theology*, where, however, he is more interested in such concepts as 'being' than in focusing on 'faith'.

Tillich, and those who follow him, ask us to agree, on considering the scientific evidence, that God was invented (constructed) by people to personify their ultimate concerns. Gordon Kaufman puts it rather well, as we have seen:

It [the symbol, God] sums up, unifies, and represents in a personification what are taken to be the highest and most indispensable human ideals and values, making them a visible standard for human realization, and simultaneously enabling them to be attractive of loyalty and devotion which can order and continuously transform individuals and societies towards fulfilment (i.e., bring 'salvation').¹¹

However, Tillich has to put a good deal of argument into convincing us that the symbol, God, is the only possible symbol for our *ultimate* concern. Power, success, wealth, etc., may be major concerns, and they may be called gods, even be our gods, to whom we give total allegiance, but they are not *ultimate*, say Tillich and his disciples.

The arguments will not do.

Either:

(a) Tillich and friends wish to hijack the word *ultimate* for God's exclusive use. At this point the word loses its general meaning ('the ultimate in chocolate confectionery', 'the ultimate peak', the ultimate limit in low temperature before stasis'); it becomes useless outside their theology; its meaning becomes absorbed into the meaning of 'God'. This is a logical problem: there is no particular reason why an ultimate concern should be treated in any special way, except perhaps to put a stop to further discussion as '*an* ultimate concern' is reduced to '*the* ultimate concern'.

Or

(b) Tillich and friends do not realise that there is a hidden moral proposition or even axiom needed to make it clear that all ultimate ideas or symbols are more important in some way than not-quite-ultimate ideas and symbols. If we are asking a moral question such as, 'What is the most heinous crime, the ultimate evil act?' we might argue about whether torturing children was more heinous than torturing adults, but to ask, 'Is it more heinous to torture two children than one child?' A 'yes' answer is about to lead us to an impossible escalation to find the ultimately heinous torturing children act. A 'no' answer sounds wrong. What sort of meaning can we give to such questions? The concept of an ultimate evil act is of little use to us. So it would be with the concept of an ultimately high mountain. Even the scientist using ultimate may bump into the question, 'What happens in the material at the ultimate low temperature?' and he or she must reply, 'Nothing happens.'

Theologians and believers may sneer at such 'logic-chopping', in this case a form of *reductio ad absurdum*, and tell us that Tillich is searching for a way of distinguishing the symbol God which brings out why anyone should use the God symbol or personification over and above any others. Tillich would be wise to stick to a logical/linguistic argument, that 'God' is a shorthand term useful when talking about the most important (i.e., the most humane) impulses we have.¹³ Tillich seems to have dropped into the trap of searching for something that makes the symbol, God, a symbol of something undeniably certain; the impulse to make God a logical certainty is very strong, but it does not give us the god we want.

We must now use the powerful translation test, as we have often done with other theologies and will do again. If God personifies, stands for, symbolises, our ultimate concerns then we can do some translating:

God sent Jesus to be a model for our behaviour.

becomes:

Our ultimate concerns sent Jesus to be a model for our behaviour.

Tillich might have said that this misrepresents him, and he would prefer a translation such as:

Christians' ultimate concern includes behaving humanely and using Jesus as the best guide.

In either case there is something radically wrong with the 'translation', mainly stemming from the sudden move from a belief to a factual statement. In the first case it is false that our concerns, ultimate or not, sent an actual person anywhere on any modelling mission. In the second case we need some proof via head-counting and questionnaires of Christians to check the truth or falsity of the assertion.

Thus we see that Tillich is possibly embarking on a radical removal of Christianity out of the category of 'faiths' or beliefs (where some statements cannot be put to proof) and into the category of facts, or phenomena, where science decides truth or falsity. I am not averse to some versions of such a programme, and would be willing to still call the result a religion, but I think Tillich is not attempting such a move. This I gather from his insistence (a) that there is an 'ultimate' or 'absolute' concern which is over and above all others; (b) that he knows what this concern is; (c) that the

primacy of this concern cannot be denied; (d) and this is what the word 'ultimate' in the phrase 'ultimate concern' means. This cannot be anything but logically improper: to define a word and then use your definition as a proof of validity is as circular an argument as can be found. Three examples:

'Pegasus' means 'a (particular) flying horse'

Can Pegasus fly?

Yes, because that is what 'Pegasus' means.

'The Bible' means 'The word of God'

Is the Bible the word of God?

Yes, it is, because that is what 'The Bible' means.

'God' means 'Our ultimate concern'

Is God our ultimate concern?

Yes it is, because that is what 'God' means.

I must also take Tillich to task for sloppy thinking in several of his descriptions and explanations of the characteristics of symbols, as in the passages quoted. Unfortunately, such infelicities do not give us much faith in the general level of God-as-symbol thinking, but we will encounter many more muddles in later chapters.

All the qualities we attribute to him [God], power, love, justice, are taken from finite experience, and applied symbolically to that which is beyond finitude and infinity.¹⁴

Tillich must be proposing that we all know examples of power. There are many different sorts of power: a car engine, a jet engine, a hydro electric turbine, a nuclear power station; a hurricane, a tsunami; a policeman, a cabinet minister, an election ... and we can abstract the idea of power and make a symbol to represent power (a lightning-strike logo; Thor; a crown; a ballot-box...). And, just as we can imagine a mountain higher than Everest, we can imagine a power always greater than all others combined. Now give that 'ultimate power' a symbol. Perhaps it could be an old man in the clouds on a throne with a sheaf of thunder-bolts in his raised hand... Better still, use the word 'God' as the symbol. And Tillich says this last symbol applies to something (not a finite experience) that is 'beyond finitude and infinity'.

We must quickly dispose of 'beyond finitude and infinity'. This is a nonsensical statement. 'Finitude' means 'being finite, not being infinite, of being subject to limitations'; therefore, 'beyond finitude' must mean 'beyond having an end'. This means that God is infinite: there can never be a stop to sizing, or counting or measuring God. But 'infinity' also means 'without end', that is, 'sizing or counting or measuring for ever'. So here we are asked to believe there is something that, once you had started measuring it, you would never be able to get to the end; and, this something is *beyond* never being able to get to the end. No meaning can be given to 'beyond never being able to get to the end.' So Tillich may say, '...applied symbolically to that which is infinite,' and no more.

This is, in a sense, true; but what has placed the symbol God beyond stopping? I'm afraid it is a definition, that is, a trick or phenomenon of language, not some great logical truth. We can imagine a power always greater than the combination of all power stations, all tsunamis, all governments, even than the will of all people, and we could call it an 'ultimate' power. But it is quite unreal, being of a different *kind*, from any station, tsunami, or government: it is a way of saying 'do not stop imagining.' We can easily imagine a power double the strength of all the powers we know of: a billion megawatt power station, a tsunami that destroys all life up to 8000 metres, a government that rules all life on earth and a thousand other inhabited planets as well. But that is not what Tillich wants with his tricky use of 'ultimate'. Should we imagine a double-strength power he then wants us to imagine a power double that strength, and after that one double that strength, and so on for ever – his symbol, 'God' must stand for a logically (and mathematically) unassailable

power, not just something a watt or two stronger than what we have already, and will no doubt soon surpass. To start an infinite regression is not a wise move.

As noted above, the only way to get unassailability is to make, by definition, the power (symbolised by God) absolutely ultimate. To do that is to define your God into existence. Another unwise move.

Atheism, consequently, can only mean the attempt to remove any ultimate concern – to remain unconcerned about the meaning of one's existence. Indifference toward the ultimate question is the only imaginable form of atheism. ... In any case, he who denies God as a matter of ultimate concern affirms God, because he confirms ultimacy in his concern. God is the fundamental symbol for what concerns us ultimately.¹⁵

In this passage Tillich shows that he regards one concern as above all others. At this point he would appear to have given up on trying to make our ultimate concern immune from attack via logic, and is giving us a definition of our 'real' ultimate concern, the one that defines us as theists or atheists: those who have this concern, whether they know it or not, whether they use the symbol 'God' or not, are theists; those who do not have this concern are atheists. An atheist, he says, does not care about the meaning of his or her existence. 'What is the meaning of my existence?' This is the make-or-break question or concern.

Tillich has allowed that many people have quite different concerns to which they give their time, allegiance, thought, passion, etc., and which can be symbolised as idolatrous gods. If he stopped there it might be thought that he was now keen to give up looking for logical certainty and willing to defend this new definition of the the ultimate concern as a fact of anthropology or psychology. But he does not; he returns immediately to his logic and tries to have it both ways, by 'proving' that the atheist is not really an atheist at all because he cannot avoid 'affirming' God as he or she denies God. So atheists are not really atheists, and atheism is impossible, and you cannot escape believing in God because you cannot escape having an ultimate concern and I know what that concern is, even if you don't. We can grant him the idea that you cannot escape having an ultimate concern (in the usual meaning of 'ultimate' as the 'most important of all your concerns') but that is nothing to shout about because if you have only two concerns one is more important than the other; if you have only one concern it is the ultimate – in a trivial sense.

Another infelicity from the next page of the passage just quoted:

Again it would be completely wrong to ask: So God is nothing but a symbol? Because the next question has to be: A symbol for what? And then the answer would be: For God! God is a symbol for God.¹⁶

Tillich has been working hard for 45 pages of *Dynamics of Faith* to get us to see that, 'the fundamental symbol of our ultimate concern is God' which he says on page 45. Then on page 46 he asks and answers the question *[God] is a symbol for what?* His answer: *God is a symbol for God.* Not even, *God is a symbol for our ultimate concern;* nor *Our ultimate concern is a symbol for God.* No quotation marks around any of the terms or names. This is not good enough. If he wishes to be understood he must make more sense, or if he wishes to be mystical, or even gnomic, he must make less sense. A symbol has to be a symbol of something-else and not of itself – a flag is a symbol of a nation, but it is not the nation, and often it is not even a part of it (I have a Welsh name and a Welsh flag but I am not part of the Welsh nation, nor is my flag). Therefore, Tillich's *God is a symbol for God* is simply false.

As with the thesis *At the Temple of the Divine* (which will be quoted in the Pantheism chapter), a few pages of logical and factual mistakes such as these just quoted, and the motivation to read on vanishes.

Picking up the pieces

Is it possible to rescue God-the-symbol theology from the logical blunders of its erstwhile promoters? This may involve diverting Tillich from his drive for a logically unassailable ultimate concern; finding a clearer job for the symbol-God than Kaufman's point of reference for everything; finding a clearer job for the symbol-God than Cupitt's point of reference for all *spiritual* life; or pinning Geering down when he suggests that God is a symbol for values, aspirations, and goals.¹⁷

We may remove *T.1 God = the ultimate concern*
and leave a pseudo-Tillich position:

pT.1 God = a concern about the reason for one's existence

We may remove *K.1 God = point of reference for everything*
and leave a pseudo-Kaufman position:

pK.1 God = a point of reference for all morally good things

The Cupitt position is:

C.1 God = all that one is concerned with in the spiritual life

The Geering position is:

G.1 God = a symbol for values, aspirations, and goals

Now we may decide (having reduced them all to a reasonably comparable state) which, if any, of the pseudo-Tillich, pseudo-Kaufman, Cupitt or Geering proposals for the meaning of the God-symbol is best.

Having rejected the Tillich ultimate concern on logical grounds, I invented the pseudo-Tillich to avoid the logical errors. However, I have grave doubts about the usefulness of the pseudo-Tillich concern as a truly over-riding and most important concern; it is just not ethically good enough as the thing for which a symbol, namely 'God', should be invented. Most scientists would, as scientists, shrug their shoulders at the suggestion that worrying about the meaning of existence is a useful thing to do, especially in their own speciality, and creating a symbol for it is a waste of time. The more high minded among them will say something akin to, 'It is more important to see if this thing I am working on can help find a cure for cancer than be all the time fretting about the meaning of life.' Those who follow Gilbert Ryle's¹⁸ reasoning might like to say, 'Look at what I do and then you will be able to see what my ultimate concerns are.' The aphorist will be saying as much with, 'By their deeds you shall know them.' The Christian preacher may quote *James 2:20*, 'Faith without works is dead.' Or tell Jesus's parable of the two sons, *Matthew 21:28* – we are asked to judge between one son who told his father he would, and did not, and the second who said he would not, and did.

The Kaufman God-symbol had also run into logical problems. My pseudo-Kaufman God-symbol has the advantage of introducing moral values and excluding the attempt to make God a reference point for physical objects, scientific theory, and mental states. Cupitt, as represented here, further reduces the pseudo-Kaufman programme to one dealing with spiritual matters only. Cupitt may well mean an enormous number of disparate things by 'spiritual' but since it is left rather vague here I suspect he wants the God-symbol to be a point of reference for (among other things) feelings, dreams, visions, altered states of consciousness, and similar members of *World2*. That makes me very willing to prefer the pseudo-Kaufman or the Geering position – because of the sort

of logical problems with 'private language' and Wittgenstein's beetle-in-a-box which I have gone into earlier.

I have a nominalist hankering after the Geering position. This is because I like lists instead of generalisations, and can imagine what values, aspirations and goals he is going to list; they will be, no doubt, the values, aspirations and goals of the noblest humans who have lived – love for fellow creatures will no doubt be top of the list, being pleased to work for a better life for all people, for the preservation and improvement of the planet and its environment, being full of the 'good virtues, and empty of the base, selfish, hurtful vices....

Let us look at whether the Geering position can be kept logically simple. There are many theological statements in any theology which look like factual statements, others which look like commands, others that look like ethical statements, except that they involve gods as well as physical objects, including people. For example:

- Sy5. God told Moses to bring the Israelites out of Egypt into a land he (God) would give them.
- and
- Sy6. Have no other Gods but me.
- and
- Sy7. Jesus said, 'If a man demands your coat, give him your shirt as well.'

These can be translated into a Geering mode:

- Sy5.1. Moses's *goal*, prompted by his *values*, was to bring the Israelites out of Egypt and there the combined *aspirations* of the Israelites, given time, would be to settle down in a land they could take (and that is how it turned out).
- Sy6.1. The *aspirations* and *desire* of the priestly class of the Israelites was to have only one god, (and this idea was taken into the religion of the whole tribe).
- Sy7.1. Everyone should *care for and share with* everyone else, enemies as well as friends, even if it leaves you naked.

These are, naturally, rather inadequate translations, especially since they take no account of what the people who first said them thought they were saying. However, we modern people (symbolised by Geering) know best what was motivating them, no matter how poetically concrete their language! But the poetry and old meaning is not the only loss; try the following for a translation of Sy6.:

- Sy6.2 Have no other *values, aspirations* and *goals* but those Yahweh is credited with.

This keeps the statement as a command (lost in Sy6.1) but leaves it unclear who is doing the commanding.

- Sy6.3 My *values* tell me to have the same *values* and *aspirations* and *goals* as Yahweh.

This is a command from me to myself and so is still inadequate as a full translation of Sy6, but it immediately highlights a major problem: what if my values and those of Yahweh clash? This is no small problem since my values include not killing people and Yahweh's included the slaughter of anyone who got in the road of his chosen people. Does the value I place on obedience over-ride the value I place on preserving human life? We might like to take out the personal element, remembering that Sy6 was the work of ancient clansmen and women, and look for a translation like this:

- Sy6.4 The *values, aspirations and goals* of today's adherents of the Jewish religion, require them to have the *values, aspirations and goals* of a god called Yahweh, as understood today and thus somewhat modified from the original, 4000 year old model.

Again we have lost the command, and we still have problems if today's Jews' values clash with the modified Yahweh values; and we now have a factual statement which can be checked with sociological and psychological tools.

Is Geering's post-modern use of 'God' as a symbol for values, aspirations and goals going, then, to drive all commands out of his theology? This seems most likely. We are left with a theology which can handle factual statements like Sy5. and morality, like Sy7.1. This seems to be no bad thing: once you have decided that there is no 'person' out there to give commands about how we should behave, no person to whom we might give allegiance, no person who is an 'explanation' of phenomena, then we will have to give commands to ourselves about how to behave, give allegiance to our own consciences, and seek our own explanations for what there is and what happens. Religion then becomes intensely, almost exclusively, personal and individual; relativism takes the place of idealism/absolutism; and we are back to square one with 'man [and particularly myself] the measure of all things'¹⁹. This is the position of many feminist theologians, as we will see in Chapter 12, and could also be seen as the position of Buddhists and Confucians.

If Geering likes to adopt the rather convoluted stratagem of saying that all moral (or immoral) actions we do can be regarded as commanded by our values, aspirations and goals then a version of theological commands can be used:

- Sy7.2 I command myself (my conscience following the *values, aspirations and goals* of Jesus) to care and share with everyone else, enemies as well as friends, even if it leaves me naked.

However, this (commanding myself) does smack of a rather dualist and old-fashioned theory of psychology.

Most Christian theologians would not divide their attention between factual, commanding, and ethical propositions; they would be concerned with the effects of a symbol-God on topics such as revelation, the doctrine of the trinity, the problem of evil and sin, and the resurrection. Each of these topics is going to give rise to problems when a symbol-God is substituted for a 'real' God, that is, for a God who can be described (perhaps poetically, but with more than imaginative intent) as existing, having contact with people, interfering in history, caring what happens, being merciful, preparing a place for his worshippers....

These contacts, described as if they take place between people, give rise to descriptions and reasoning in theology under headings such as 'revelation', 'epiphany', 'incarnation', and 'miracles': God reveals himself by *calling* Abraham, *inspiring* the prophets, *putting* his words into Jesus's mouth. God *visits* earth in a burning bush that does not get consumed, God *parts* the Red Sea, *gives* Moses the tablets of the law, *burns* Elijah's sacrifice on Mount Carmel. God is *born* as Jesus, son of Mary, in Bethlehem in the year 6BCE, God *turns* water into wine, *cures* a paralytic, *frees* St Paul from prison. The de-mything process has probably re-interpreted those of these occasions which can be seen as myths, but the God-as-symbol theologian must go further: the de-mything process may interpret the burning bush as a way of impressing upon the listeners that God is powerful enough to do the impossible, is not just like a powerful king, is not still or static, and is both mysterious and changing. ('I am becoming who I am becoming', *Exodus* 3:14); but the post-modern theologian must also deal with the factual events. For example, when the de-mything has 'explained' the burning bush myth, we now have a fact – the Israelites believed there was a powerful, mysterious and changing god. But, for the Geering-esque theologian, the god they believed existed did not exist. What did, if anything?

At this point the post-modern theologian can take one or other of two paths. He or she can say the Israelites were just wrong. Or he or she can say that Israelitish *values, aspirations and goals*

existed, and personifying those in the symbol-God-in-a-talking-burning-bush is not surprising. In this second case

Sy8. God was in the burning-bush

becomes

Sy8.1. The Israelites *valued* magical power, mysterious and changing.

Now try another theological/factual statement

Sy9. Jesus, son of God, was born in Bethlehem in 6BCE.

Half of this cannot be denied – it is a fact that Jesus was born in Bethlehem in 6BCE. The ‘Jesus was the son of God’, the theological part, cannot be denied by the Christian, (not because it is a fact, but because it is in the nature of theological statements to be undeniable) but it can be denied by an atheist (who believes there is no God, so the theological statement is illogical) or any theist who believes there is a God, but not that God had Jesus as a son. Again the post-modern theologian will leave the factual statement intact but must try to re-interpret the theological part (or abandon it altogether). A try at a re-interpretation might be made with something like

Sy9.1 Jesus, born in 6BCE, had the same *values, aspirations* and *goals* as I, and most Christians, have.

Conclusion to the current situation

I could have a look at the other concerns of Christian theologians in general, under their headings, (the trinity, theodicy, the resurrection...) and try to see what God-as-symbol theologians might make of them. But I feel I have done enough to have demonstrated that if you are tough enough, willing make profound changes to Christianity, it can be done. The changes can be of two sorts: (a) to take most statements about God in the Bible and in most theology up to the post-modern stage, as just plain wrong; or (b) re-interpret most Biblical and theological statements up till now by denying the God part and ‘reducing’ them to factual and ethical statements.

Unfortunately the symbol-God theologians have baulked at carrying out the reduction process in a way which makes it clear that ‘God’ really is a symbol in their system – they could be accused of trying to have their god and symbolising him-her too. The confusion caused by sticking to the word ‘God’ despite giving it a completely ‘logically other’ role (meaning) does their cause no good. Most of us are not good at making quick translations from Sy9. to Sy9.1. Nevertheless, if a religion can be built upon a serious list of the best values, aspirations, and goals, the post-moderns should be encouraged to try. Perhaps they could

- (1) invent a new word or acronym to symbolise the *best values, aspirations* and *goals* (‘Bevasgo’, suggests itself),
- (2) work exclusively in places of great need, and
- (3) live on charity (‘Only the destitute are blameless’ *Luke 6:20* Crossan translation).

By their works you would know them. It could be a wonderful religion.

Polytheistic religions and symbol-gods

I have been looking at the efforts of Christian theologians to find a satisfactory new meaning for 'God', and using an initial capital 'G' to help make the point that these theologians come from a monotheistic tradition. They do not seem to be interested in applying their 'symbolification' project outside Christianity. However, their programme could be applied in polytheistic religions too: the many gods in the Hindu pantheon, early Maori religion's gods, and the gods of the religions of West Africa, could all be declared to be symbols. In fact, in these religions, each god is usually associated with one or two characteristics, rather than having to take all natures to him-herself. Thus Shopona is the Yoruba god of smallpox, Tu Matauenga is the Maori god of war, Shiva is the Hindu god of destruction and of progress. These gods can be thought of as *symbolising* smallpox, war, and change, instead of being thought of as supernatural beings. For example, Shopona lives deep in the jungle in the rainy season but comes to town in the dry season (when the worst smallpox epidemics occur) to listen to the music and drumming, often appearing as a small whirlwind; his anger is stirred up if people are growing sesame seed, burning corn cobs or whistling and he ruthlessly gives the disease as punishment to those who break his taboos and lets it spread to the innocent.²⁰ Now, if Shopona is thought of as a symbol, (and the scientific theory of such diseases is current) then Shopona mainly represents the nature of the disease: deadly, indiscriminately infecting, quickly passed to others, in other words, a disease which behaves like a spoilt, vicious, resentful, powerful, bully with a deadly weapon and no conscience about using it. The connections with whirlwinds, sesame seed, corn cobs, and whistling, will have to go (under the pressure of scientific enquiry) and the connection with the dry season will get another explanation. But the symbol may survive if the disease reappears, or the death of Shopona may be added to the poetry and mythology of the Olorun religion.

A new symbol-religion and the Theologic

In the *Theologic* (see Chapter 5) I used *X* to stand for multiple notions, the easiest of which was: *The god is pleased*. Polytheistic religions will find it easy to use this notion in their theologies: just name one, or a choice, of the gods, rather than talking about only one. However, both monotheistic God-as-symbol and polytheistic gods-as-symbols religions are going to find it difficult to see what *X* can mean for their theologians.

Is a symbol to stand for a symbol? This is a fairly natural thing to do in mathematics, where *x* can stand for (symbolise) any number, a number being also a symbol (for example, the symbol 2 stands for all pairs). However, it is not proper to translate *X* as: *A symbol is pleased*. We will come back to *X* after looking at the theologic constants *g* and *h*.

The aim of the post-modern Christian religion (Geering style) is to have people living up to their best values, aspirations and goals (bevasgo). This, then, can be what *h* is used for. Perhaps it could symbolise *attaining* bevasgo (a Buddhist style of religion), or just the state of *striving* for bevasgo (A Christian style of religion). The symbol *g* is then used to represent failing to attain, or not striving for, or even working against, your bevasgo. For the moment I will try the Buddhist style and use *h* to mean *attain bevasgo*. If we want to find out what *X* can mean for this new religion we can work backwards using the *Theologic* definition of *Xp* as *LChp*:

- $LChp =_{Df} Xp$ < It is necessary that if *h* then $p =_{Df} Xp$ >
 < It is necessary that if you *attain bevasgo* then $p =_{Df} Xp$ >
 < Necessarily, if you *attain bevasgo* then you are happy $=_{Df} X$ you are happy >.

The earlier translation of X as 'the god is pleased when ...' would fit, giving us:

< Necessarily, if you attain bevasgo then you are happy $=_{Df}$ The god is pleased when you are happy >

but now that the gods are symbols this will not work (symbols cannot be pleased). Therefore, we can try:

< Necessarily, if you attain bevasgo then you are happy $=_{Df}$ Attain bevasgo then you are happy >.

But by this move we have hardly gained anything because X and h are almost identical in meaning. This may be inevitable in a symbolist-god theology.

However, if we understand X to mean 'the world will be a better place when...' then we get:

$LChp =_{Df} Xp$ < Necessarily, if you attain bevasgo you are happy $=_{Df}$ The world is a better place for everyone when you are happy >

But p is a variable, for a proposition – such as 'you are happy'. It could just as well stand for 'you are unhappy', or 'the world is a better place', or 'pigs can fly'. In making 'translations' as examples you have to be careful to remember that you want meanings for X and h which work with every possible substitution for p .

< Necessarily, if you attain bevasgo then pigs fly $=_{Df}$ The world is a better place when pigs fly >.

A bevasgo religion would not have, as an axiom, such a definition; but it would have, perhaps, where instead of p , a propositional variable, we have a predicate constant, for example, a , standing for a person. Note, in this next 'translation' I have turned the definition around.

$Xa =_{Df} LCha$ < Anna-Louise attaining her best values, aspirations and values is the same as (Attaining bevasgo necessitates being Anna-Louise) >.

This is not immediately understandable but is possibly useful for logicians. A more likely axiom would be a form of the definition (where ϕ = attaining):

$\Pi x X\phi x =_{Df} \Pi x LCh\phi x$ < Everyone attaining bevasgo is the same as (Attaining bevasgo necessitates everyone doing it) >.

In this last formulation we have X not as a command but, as in Chapter 5, as a sort of infinitive verb: X = to attain the best values, aspirations and goals.

This new religion could well have as its fundamental axiom (its most important belief) the idea symbolised by single special axiom of the Theologic:

Mh < It is possible to attain bevasgo (your best values, aspirations and beliefs) >.

The symbol h includes the idea of attaining or (if you wish) striving to attain. The word 'bevasgo' is a symbol for what you are trying to attain. Another fundamental axiom would have to be:

Oh < It is obligatory to attain (or strive to attain) bevasgo >.

This would bring in the necessary ingredient of ethics.

This does leave problems about whether our new interpretation of symbol *h* (and therefore the religion) is just a personal route to salvation or is about everyone and for everyone; presumably it would be available to everyone but when would *h* be reached? When a person became perfect (attained bevasgo) or when everyone became perfect? Sorting this out would be one of the new religion's first theological tasks.

Axioms for the new theology

St.1 [The word 'god', if it is to be used at all, is a symbol for an idea abstracted from facts 1, 2, 3, 4, ... , for example, 1. I value friendship, 2. I aspire to be forgiving, 3. my goal is to be helpful, 4 ...]

St.2 [Symbols must not be treated as if they are concrete physical objects.]

St.3 [It is possible to attain your values, aspirations, goals, ...]

St.4 [It is obligatory to strive to attain the best values, aspirations, goals, ...]

It is interesting to note that none of these axioms are about God or gods. *St.1* does mention 'god' but the quote marks indicate that it is only the marks on paper, or the noise that goes with the marks, or the thought that goes with the marks and noise, (that is, the symbol) that is being discussed. God or gods are not being discussed. Therefore, the square brackets go round *St.1*, to show that it is not, in the strict sense, a theological axiom. This in itself is a quick guide to the use of these axioms: none of them will bring down the Duncan-Jones limiting rules: with these axioms, along with facts and moral statements, facts and moral dicta may be inferred; no theological statement is present to limit the conclusion to theological statements only.

A look at the underlying logical shape of these axioms, using the various logical calculi which have been talked about earlier, will give us a mixed bag of logic symbols. I have not attempted to put them together and reason my way to further God-as-symbol theological theses. However, I suggest the following for appraisal:

St.1 Universal domain; $g = \text{constant for God}$; $\pi x = x$ is a person; $\delta x = x$ is an idea
 $\beta xy_1 \dots y_n = x$ is abstracted (generalised, summarised) from $y_1 y_2 y_3 \dots$ to y_n

St.1.1 $C \delta y \Sigma y_1 \dots y_n \beta g y_1 \dots y_n$ < there are some ideas from which God is abstracted >.

It is interesting to note that the list of ideas from which God is to be abstracted varies according to the occasion, or to the religion, or person using the formula, and y_n stands for the last member of the set of ideas being used. The following might catch the idea better:

Universal domain; $g = \text{God}$; $a_1 = \text{I value friendship}$; $a_2 = \text{I aspire to be forgiving}$;
 $a_3 = \text{my goal is to be helpful}$; ... $a_n = \text{(the last idea to be incorporated)}$.
 $\beta x a_1 \dots a_n = x$ is abstracted (generalised, summarised...) from $a_1 \dots a_n$

St.1.2 $\beta g a_1 \dots a_n$ < God is abstracted from the ideas $a_1 a_2 a_3 \dots a_n$ >
 < God is abstracted from my valuing friendship, my aspiring to be
 forgiving, my aiming to be helpful ... my desiring to live like Jesus >.

This looks surprisingly like one of the feminist ideas of God in the next chapter, and again is clearly (like the morality of Escapism) tailor-made for the idea of each person's God, being uniquely fashioned for him or her.

St.2 Universal domain; $\sigma x = x$ is a symbol; $\tau x = x$ is treated like a physical object

St.2.1 $\Pi x C \sigma x O N \tau x$ < it is obligatory to not to treat all symbols like physical objects >.

St.3 The Theologic with h = attaining your best values, aspirations and goals

St.3.1 $M h$ < it is possible to attain your best values, aspirations and goals >.

St.4 Universal domain; $\xi xy = x$ strives to do y ; h = attaining bevasgo

St.4.1 $\Pi x C \pi x O \xi x h$ < it is obligatory for everyone to strive to attain bevasgo >.

Conclusions

God-the-symbol is, in the hands of the theologians who have espoused this way of modernising Christianity, not yet logically adequate. But at least, these post-modern theologians have tackled the problems for Christian dogma in a scientific age.

I looked at the tangles just talking about God as a symbol can get one into, then quoted Alisdair MacIntyre's excellent summary of why it is so hard to make any sense of God-talk at all, and noted how such concerns give impetus to the work of such theologians as Tillich, Kaufman, Cupitt, and Geering. Karl Popper suggests that what there *is* can be classified into three 'Worlds' and that the second of these, just as real as physical things and ideas, are our states of consciousness, thoughts, dreams, experiences, and feelings. These ideas were looked at, mainly because they are part of Geering's way of thinking. This led on to a consideration, mainly using the insights of Wittgenstein, of the idea that religious truth is to be found in our personal feelings, dreams, emotions, and in mystical or spiritual revelations to us. The idea was not found to be substantial, for both logical and scientific reasons. Nor does expanding Popper's classification to encompass a fourth 'World' just for God or gods, lead to better thinking.

Tillich, unfortunately, falls into several logical traps, which were explained. But a look at how a more nominalist (rather than idealist) view of how biblical and scientific talk can be brought together, following on ideas from Geering, shows that a 'godless' religion could be invented. It has no theological axioms; nevertheless, for its study the *Theologic* could still be a useful tool.

However, it must be noted, in conclusion, that to call such a religion 'Christian' might be said to challenge any 'Act to Enforce the Proper Description of Goods': the term 'Christian' surely makes the claim that its adherents believe that Jesus was sent by God. If the followers of the new 'godless' religion take the life of Jesus as their guide for living according to the best values, aspirations and goals ('bevasgo'), then 'Jesus-ian' or 'Jesuline', would be a better description.

Notes and References

1. Paul Tillich, *The Dynamics of Faith*, p.45.
2. Giving a sense to *Our ultimate concern created the world*.
This would need:
(1) a discussion of how we know anything;
(2) a belief that we create or construct our own world ;
(3) a conviction that our greatest concern is to get the sense data and emotions we experience into some order which we can then call 'our world';
(4) a feeling that other people's experience on this one is the same as ours.
I am worried by the propositions in this chain of reasoning:
Proposition (1) is based on a shaky theory of perception;
Proposition (2) might be a rhetorical device to make a clear contrast with the deterministic idea that we are made of the particles/energy and forces of the world. However, it ignores its own implication that 'my world' must be different from everyone else's because each person sees things differently; and this in turn ignores the public nature of language and therefore knowledge;
Proposition (3) sounds quite unlikely – though one has to admit that something like (3) may be what Tillich argues is our ultimate concern.
Proposition (4) is unimportant: we live our lives in total unawareness of what other people are experiencing, but this does not matter at all – see discussion of Wittgenstein's contribution on this matter later in the chapter.
3. MacIntyre, Alisdair, 1957, 'The Logical Status of Religious Belief', in *Metaphysical Beliefs*, 1957, SCM Press, 1957, pp. 176-7.
4. Geering, Lloyd, 1994, *Tomorrow's God*, Wellington, Bridget Williams, pp.79-80.
5. See §5.3 and §5.4 in Chapter 3, pp.56-7.
6. Paul Tillich, *The Dynamics of Faith*, pp.1 - 2.
7. Ibid. p.41.
8. Ibid. p.44.
9. Ibid. p.46.
10. Ibid. p.47.
11. Tillich, Paul in *The Essential Tillich*, edited by F.F. Church, 1987; and in *Paul Tillich, Theologian of the Boundaries*, selected by M.K. Taylor, 1987.
12. Kaufman, Gordon D., 1981, *The Theological Imagination, Constructing the Concept of God*, Philadelphia, Westminster Press, p.32.
13. When we get to Chapter 16 we will be perhaps surprised to see that there are few differences (if we have got Tillich aright) between his attitude and that of Confucius, though Confucius – in a different culture – does not use 'God' as a symbol for his basic virtue, humaneness.
14. Paul Tillich, *The Dynamics of Faith*, p. 47.
15. Ibid. p.45.
16. Ibid. p.46

17. Geering, Lloyd, 1994, *Tomorrow's God*, Wellington, Bridget Williams, p.223.
18. See Ryle (1949). The theory of there being a soul, or any animating spirit in people or anything alive or dead (such as rivers, the wind, machines ...) is thoroughly exploded in this classic of linguistic and logical philosophy. His picture of dualism as perpetrating the myth of 'the ghost in the machine' should have been enough to drive this idea away for ever. His reduction of talk of the mind to talk of people's behaviour, though thoroughly Wittgensteinian, has been much criticised, but not to destruction – it is mainly misunderstood or unknown, or ignored.
19. Παντων χρηματων ανθρωπον μετρον ειναι. Protagorus (481-411 BCE), quoted by Plato in the *Theatetus*, 160d. See the Loeb Classical Library, *Plato II: Theatetus and Sophist*, London, Heinemann and Cambridge Mass., Harvard University Press, 1930.
20. From discussions with Yoruba teachers at Mayflower School, Ikenne, 1963. See also Bascomb (1969).

Chapter 12

Post-Modern Christian theologies 2. Feminist

Introduction

Four Feminist Theologians:

Mary Daly

Luce Irigaray

Grace Jantzen

Daphne Hampson

A Daly Theology: God-the-verb

Can we save this new concept? Egocentric Logic; Summary; Comment

A Quick Test for New Theologies

Sorting Hampson's Theologies

A Hampson Theology: God-is-me

God-is-me and the Theologic; The attributes of God; Two ideas for theologians to ponder;

Hampson's use of the word 'spiritual'

Conclusion

Introduction

To give a taste of the sort of writing, and therefore logic, being done by women in this field I look at four feminist writers, Mary Daly, an American academic, famous for her very public spat with her conservative Catholic university; Luce Irigaray, a French philosopher; Grace Jantzen an English theologian; and Daphne Hampson, a Scottish theologian. Then I will look at the logical consequences of Mary Daly's very logically interesting idea that 'God' should be not a noun but a verb. I then attempt to find a set of axioms which will fit some of the feminist theology/theologies of Daphne Hampson which she expounds in her book, *After Christianity*, 1996, London, SCM Press, and in particular in her final chapter 'Spirituality and Praxis'. Finally I try to show how an axiomatic analysis of these theologies, and my theologic, might be used to assist the development and discussion of this feminist theology.

Four Feminist Theologians

Mary Daly

Mary Daly is a famous polemicist for the cause, is an inventor of new words, is often poetic and liturgical in the language of her denunciations, is vitriolic in her attacks on what she calls 'the cockocracy', and unceasing in her assault on the theology, preaching and attitudes of the clergy of the Roman Catholic Church, in which she grew up. However, she was a lecturer in theology and her writing contains, particularly in its language, a way of approaching the problems of what there is.

She is particularly fond of the word 'ontology' which is simply the study of what is, and her approach assumes there are problems where no problems exist. For example, the words 'being' and 'non-being' were found so unhelpful by philosophers such as Hume, G E Moore, Austin, Wittgenstein, and Ryle that they avoided them, discovered that they could be done without. The later of these philosophers worked out that there was a class of pseudo-problems the words were creating ('category mistakes') and found better ways of talking about the topics. Logicians found the words even less useful and quite unnecessary. Arthur Prior, noting the controversies surrounding what was meant by 'being' and 'existing' and 'substance' found that the simple 'is' was less controversial, well understood, and all that was needed for discussion of, for example, 'the ontological status of God'.

Also, a whole new class of technical words has been created by the European philosophers of the existentialist school, and more lately by the deconstructionists, which have not yet been subjected to the painstaking and pedantic process of analysis for meaning which the so-called linguistic philosophers of Britain subjected traditional philosophy to in the twentieth century. The result is that any theologian using the language and considering the problems of traditional Catholic and modern European theological discussion without the benefit of the insights of the linguistic philosophers can appear very old fashioned, or very 'trendy', but very obscure.

There is no harm in looking for new ways to describe old truths, and in fact, that is the way to make progress: Newton was my example – he looked at the 'truth' that apples fall, but described it with the same physics as horses pulling – and tremendous progress was made. In biology Darwin looked at the old truth that there are birds with seed-eating beaks and birds with nectar-sipping beaks but described this as the result of sports and natural selection. When you take five apples from five apples you have no apples left, but the invention of a new way of talking with the concept of zero (the number you have left after 5 minus 5) was a tremendous boost to mathematical thinking. Possibilities we have always talked about, but in logic it was a great gain when the idea of discussing possible worlds and their relationships became a way of describing problems such as time and morals. The key similarity in these example of new ways of looking at what there is, is that they have been useful; for example, we would have no satellites carrying the world wide web without Newton's new insight. Some ways of talking about what there is, have not proved useful: for example, talking about something called 'phlogiston' filling up all the space between atoms. The jury is still out on talking about deconstruction, but the concepts of Freudian psychology have not proved helpful in curing mental illness, and I would say have not proved helpful in philosophy. Certainly the concepts of 'being', 'substance', 'transcendence', from medieval theology and philosophy are no longer useful. Perhaps Daly's new vocabulary and new ways of looking at God, for example, as a verb, will prove useful and enlightening. I propose to do a little of the sort of logical analysis, which, with linguistic analysis, I have recommended as a way of avoiding pseudo-problems.

The first extract is from the 'The Original Reintroduction' in *Beyond God the Father*, 1986, London, The Women's Press; the second and third are from later in the same book. The capitalisation, hyphenation and use of italics are Daly's. I have left out her numerous footnotes which are mainly acknowledgments of where particular ideas have come from. These quotations have been chosen mainly because they demonstrate Daly's fiery approach, her vocabulary and the problems she is trying to tackle, and the new idea that 'god' is a verb.

Quotation 1

This book [*Beyond God the Father*] takes on the task of de-reifying 'God', that is, of changing the conception/perception of god from 'the supreme being' to Be-ing. The Naming of Be-ing as Verb – as intransitive Verb that does not require an 'object' – expresses an Other way of understanding ultimate/intimate reality. The experience of many feminists continues to confirm the original intuition that Naming Be-ing as Verb is an essential leap in the cognitive/affective journey beyond patriarchal fixations. ...

Serious and unacknowledged difficulties can arise when those who speak and/or write of *The*

Goddess or *goddesses* avoid the giant step/leap of Realizing ultimate/intimate reality as movement, as Verb. ... The noun-goddess, then, is a simple off-shoot of the noun-god, who is a reified reversal of the ancient Verb-Goddess, the Triple Goddess of many Names. As a derivative of this reified reversal she-he is indeed a baffling and bamboozling phenomenon. She-he can be found lurking in many circles, including christian circles, and she-he legitimizes the endless senescent circling of such circles.

In contrast to all this, Goddess-images – insofar as these inspire creative activity, Self-Realising bonding with Other women in the work of Weaving and Dragon-identified passions such as Rage and Lust for Nemesis – can function as Metaphors of metamorphosis, as verbs fostering participation in the Verb, Be-ing.

In these instances, *Goddess* Names active participation in Powers of Be-ing. As Metaphor of Metabeing she calls for action, for movement. As Nelle Morton has explained, she evokes a shock, a clash with the 'going logic', introducing a new logic.¹

Quotation 2

The Unfolding of God

It has sometimes been argued that anthropomorphic symbols for "God" are important and even necessary because the fundamental powers of the cosmos otherwise are seen as impersonal. One of the insights characteristic of the rising woman consciousness is that this kind of dichotomizing between cosmic power and the personal need not be. That is, it is not necessary to anthropomorphize or to reify transcendence in order to relate to this personally. In fact, the process is demonic in some of its consequences. The dichotomizing-reifying-projecting syndrome has been characteristic of patriarchal consciousness, making "the other" the repository of the contents of the lost self. Since women are now beginning to recognize in ourselves the victims of such dichotomizing processes, the insight extends to other manifestations of the pathological splitting off of reality into falsely conceived opposites. Why indeed must "God" be a noun? Why not a verb – the most active and dynamic of all? Hasn't the naming of "God" as a noun been an act of murdering that dynamic Verb? And isn't the Verb infinitely more personal than a mere static noun? The anthropomorphic symbols for God may be intended to convey personality, but they fail to convey that God is Be-ing. Women now who are experiencing the shock of nonbeing and the surge of self-affirmation against this are inclined to perceive transcendence as the Verb in which we participate – live, move, and have our being.

This Verb – the Verb of Verbs – is intransitive. It need not be conceived as having an object that limits its dynamism. That which it is over against is nonbeing. Women in the process of liberation are enabled to perceive this because our liberation consists in refusing to be "the other" and asserting instead "I am" – without making another "the other." Unlike Sartre's "us versus a third" (the closest approximation to love possible in his world) the new sisterhood is saying "us versus nonbeing." When Sartre wrote that "man [sic] fundamentally is the desire to be God," he was saying that the most radical passion of human life is to be a God who does not and cannot exist. The ontological hope of which I am speaking is neither this self-deification nor the simplistic reified images often lurking behind such terms as "Creator," "Lord," "Judge," that Sartre rightly rejects. It transcends these because its experiential basis is courageous *participation* in being. This ontological hope also has little in common with the self-enclosed "ontological arguments" of Anselm or Descartes. It enables us to break out of this prison of subjectivity because it implies commitment together.²

Quotation 3

[Daly is discussing the theology of Wolfhart Pannenberg, who she calls 'a prominent exponent of the theology of hope'. However she sees this as an ironic description since she immediately says 'Pannenberg casts us into a state of real hopelessness by his fixation on the figure of Jesus.' She quotes from page 42 of his *Theology and the Kingdom of God*: '...the future has arrived in a permanent present.']

One is compelled to wonder what sort of future this might be. At any rate the symbolic message tells us that the prospects are dismal, and that this perspective is far more paralyzing than that of the Greeks. It is particularly depressing, though consistent, that this theologian finds the epiphanies of the "gods" (small "g") in *human* as well as in animal form to be external to the essence of the deity, apparently because these are *replaceable*. That is, there is no vision here of the universal presence of the Verb who is

Be-ing, who has *not* been revealed once for all time, who can be revealed at any moment in a constantly unfolding (not merely repeated) revelation. Genuine *hierophanies* (manifestations of the sacred) are not "replaceable." Rather, they are manifold and unique manifestations of Be-ing. The fact that they are many and new, and not once and for all, is precisely because *they are not external to the essence of the deity*. The manifold and new quality of genuine hierophanies – genuine in so far as they are manifestations of Be-ing – that is, *ontophanies*, is possible because of *participation* in Being which is Be-ing. Be-ing encompasses and engulfs with healing power the false dichotomy between "true being" and becoming, revealing its unreality.

Luce Irigaray

Luce Irigaray is one of the most influential feminist philosophers and one of the most difficult. When she gave lectures in 1982 in Rotterdam at the Erasmus University which were published in 1984 (and translated for an English edition as *An Ethics of Sexual Difference*, 1993a) she was Director of Research in Philosophy at the Centre National de la Recherche Scientifique, in Paris. She is also a psychoanalyst in private practice, and at least two of her other books (*Speculum of the Other Woman*, and *This Sex Which is Not One*) are also available in English.

Feminist writers in English quote her rather gnomic prose a great deal and have accepted much of her phraseology, for example, the use of words such as 'envelopes of identity', 'sensible transcendence', 'the horizon of our being', which appear below. Irigaray's prose is not at all easy to con; she has her own terminology, uses classical Greek words such as *hypokeimemnon* and *apatheia* not well known to most of us, and uses some in her own, non-standard, sense; she uses ellipses and italics idiosyncratically, and occasionally does not use full grammatical sentences – these problems her translators have tackled not by 'correcting' her, they say, but by producing as accurate a version as possible, of both her ideas and the way in which she says them. That, unfortunately, includes the quoting of ancient authors without clear marks, either by punctuation or parenthetical remarks, of where the quotations begin and end, and not making it clear of which quotations she approves and which she denies. As an example of this see the fifth quotation below.

Irigaray, in *An Ethics of Sexual Difference*, a book I have found quoted by the other feminist theologians again and again, sees the development of a new ethics of sexual difference as a liberating and creative task. Although sexual differences is her topic many of her illustrations, and certainly her approach, is 'theological' in its language. Because it ties in so well with the proposal that 'God' should be a verb, I have also quoted (*Quotation 9*) one of Irigaray's comments on becoming divine, from her *Sexes and Genealogies*.

In the quotations, in all cases, both italics and punctuation are Irigaray's.

Quotation 4

Sexual difference is one of the major philosophical issues, if not the issue, of our age. According to Heidegger, each age has one issue to think through, and one only. Sexual difference is probably the issue in our time which could be our 'salvation' if we thought it through. ...

Think of it as an approach that would allow us to check the many forms that destruction takes in our world, to counteract a nihilism that merely affirms the reversal or the repetitive proliferation of status quo values – whether you call them the consumer society, the circularity of discourse, the more or less cancerous diseases of our age, the unreliability of words, the end of philosophy, religious despair

or regression to religiosity, scientific or technical imperialism that fails to consider the living subject.

Sexual difference would constitute the horizon of worlds more fecund than any known to date – at least in the West – and without reducing fecundity to the reproduction of bodies and flesh. For loving partners this would be a fecundity of birth and regeneration, but also the production of a new age of thought, art, poetry, and language: the creation of a new *poetics*.⁴

Irigaray has, refreshingly, little of the constant diatribe against men that invests much of feminist literature, including feminist theology. Her comments about the way theology and the myths of Christianity have been paternalistic and ignorant of the insights of women, have a historic imagination, a scientific objectivity and a non-judgemental tone, and at times a loving heterosexual feel about them. Here are two quotations which bring out some of these aspects.

Quotation 5

The transition to a new age requires a change in our perception and conception of *space-time*, the *inhabiting of places*, and of *containers*, or *envelopes of identity*. It assumes and entails an evolution or a transformation of forms, of the relations of *matter* and *form* and of the interval *between* ...

Desire occupies or designates the place of the *interval*. Giving it a permanent definition would amount to suppressing it as desire. Desire demands a sense of attraction: a change in the interval, the displacement of the subject or of the object in their relations of nearness or distance.

The transition to a new age comes at the same time as a change in the economy of desire. A new age signifies a different relation between:

- man and god(s),
- man and man,
- man and world,
- man and woman.⁵

Quotation 6

To arrive at the constitution of an ethics of sexual difference, we must at least return to what is for Descartes the first passion: *wonder*. This passion has no opposite or contradiction and exists always as though for the first time. Thus man and woman, woman and man are always meeting as though for the first time because they cannot be substituted one for the other. I will never be in a man's place, never will a man be in mine. Whatever identifications are possible, one will never exactly occupy the place of the other – they are irreducible one to the other. ...

Who or what the other is, I never know. But the other who is forever unknowable is the one who differs from me sexually. This feeling of surprise, astonishment, and wonder in the face of the unknowable ought to be returned to its locus: that of sexual difference. The passions have either been repressed, stifled, or reduced, or reserved for God. Sometimes a space for wonder is left to works of art. But it is never found to reside in this locus: between man and woman. Into this place came attraction, greed, possession, consummation, disgust, and so on. But not that wonder which beholds what it sees always as if for the first time, never taking hold of the other as its object. It does not try to seize, possess, or reduce this object, but leaves it subjective, still free.⁶

Irigaray has a whole chapter devoted to this sense of wonder between the sexes.

In the next quotation we have an example of one of those passages where it is very difficult to tell if Irigaray is putting forward a description of how things were before feminist insights, or if these are her own comments and conclusions.

Quotation 7

In the beginning there was space and the creation of space, as is said in all theogonies. The gods, God, first create *space*. And time is there, more or less in the service of space. On the first day, the first days, the gods, God, make a world by separating the elements. This world is then peopled and a rhythm is established among its inhabitants. God would be time itself, lavishing or exteriorising itself in its action in space, in places.

Philosophy then confirms the genealogy of the task of the gods or God. Time becomes the *interiority* of the subject itself, and space, its *exteriority* (this problematic is developed by Kant in the *Critique of Pure Reason*). The subject, the master of time, the axis of the world's ordering, with its something beyond the moment and eternity: God. He effects the passage between time and space.

Which would be inverted in sexual difference? Where the feminine is experienced as space, but often with the connotations of the abyss and night (God being space and light?), while the masculine is experienced as time.⁷

Next is Irigaray discussing Diatoma's speech in Plato's *Phaedo*, about a person who loves beauty and by uniting with beauty becomes 'dear to the divine' and is made immortal:

Quotation 8

The person would have obtained what I call a *sensible transcendental*, the material texture of beauty ... beauty itself is seen as that which confounds the opposition between immanence and transcendence. As an always already sensible horizon on the basis of which everything would appear.⁸

Grace Jantzen bases a lot of her thought on interpretation of Irigaray and uses as the header for her Chapter 1 in *Becoming Divine* a quotation from *Sexes and Genealogies* (Irigaray 1993b)

Quotation 9

Love of God ... shows the way. God forces us to nothing except *become*. The only task, the only obligation laid upon us is: to become divine men and women, to become perfectly, to refuse to allow parts of ourselves to shrivel and die that have the potential for growth and fulfilment.⁹

Grace Jantzen

Grace Jantzen is John Rylands Professorial Research Fellow in the Department of Religions and Theology at the University of Manchester. Her main major writing is in the books *God's World, God's Body*, 1984; *Power, Gender and Christian Mysticism*, 1995; *Becoming Divine: towards a feminist philosophy of religion*, 1999. She has many contributions to academic journals and to edited collections of essays on feminist thought.

Of the four feminist theologians I am looking at Jantzen takes the problems of logic, or rather the logical problems to be found in theology, most seriously. In *Becoming Divine* she suggests that the way beyond the previous one-sided and uncomfortable picture of God, and away from the theology based upon it, is to see the aim of religion as the aim of becoming divine. As you read into her arguments for this attitude to religion you may get the feeling that what we are being urged to do is more or less what those past philosophers and theologians (and school principals at assembly) recommended, namely, to become the best humans we can. Theist theologians have described this as 'God created us in his image; an image we have sullied, but towards which we must strive'; Christian theologians have described this as 'Jesus was the perfect human, we must strive to be like him'; humanists have said 'Nothing human to me is alien', and 'The proper study of mankind is man'; and a well-remembered headmistress was constantly exhorting the children to, 'Be the very best editions of yourselves.'

Jantzen, however, arrives at her conclusions from her study of her own feelings about the inadequacy of masculine theology, her discovery of current European (as opposed to British) philosophy, particularly the French deconstructionists, and from her reading of Luce Irigaray. Jantzen heads her opening chapter of *Becoming Divine* with a quotation from Julian of Norwich and a quotation from Irigaray – *Quotation 9* just above – and of her 11 chapters, seven are headed with quotations from Irigaray, some with two. In her text she constantly refers to other quotations from Irigaray, mulling upon them and receiving inspiration from them.

One of Jantzen's feelings is that there is a need for 'thinking differently', and in her chapter on this topic talks of this as bringing about a change in the symbolic order, and rather like trying to invent a new language. She explains Derrida's 'binary opposition' and says 'It is the binary logic characteristics of western philosophy that Derrida wishes to bring into question by means of deconstruction.' [page 62] In *Quotation 10* below I give a paragraph of her further comment on the programme she sees as necessary.

Quotation 10

Derrida is much influenced by Nietzsche's exposition of the 'faith in binary thinking at the centre of philosophical discourse' (Schrift, 1995 p. 22): good/evil, truth/error, reality appearance, and the like. ... philosophy has been able to focus attention on the opposition of the binaries themselves, and thus exclude from consideration any other radically other perspective, a perspective that is neither 'A' nor 'not-A', but something different altogether. What Derrida seeks to do in deconstruction is to show how much oppositional hierarchies have dominated western thought, and to locate a space for alternatives which have been refused or repressed in traditional philosophical work.¹⁰

Jantzen examines the binary pair *theism/atheism* and decides that a gap can be opened up between what 'appear at first to be mutually exclusive and exhaustive possibilities, the classical "A or not-A" of western philosophical thought... instead of [this] insistence on belief we might focus on other possibilities – love, for example, or longing, or desire.'¹¹

Jantzen goes on with her quest for what may be between, if we prise opposites apart, calling the gap, for theology, 'the chiasmus'. She finds *desire*. Much of this chapter is a criticism of the logical conservatism shown in Paul Helm's book *Belief Politics* (1994). The main effect is to display clearly that these two are 'talking past each other'. In *Quotation 11* we find Jantzen being passionate about Helm's desire for rationality. She begins by paraphrasing Helm's view:

Quotation 11

Above all one must not overturn the priority of rationally-held beliefs over desires, especially in religion: to do so would make religion a matter of wish-fulfilment. And Helm, with many others, takes for granted that if religion were wish-fulfilment, that would be a very bad thing indeed. But why? Helm, like most traditional Anglo-American philosophers of religion, simply accepts this as given: but we can see from the perspective of a feminist philosophy of religion couched in terms of the desire for becoming divine, the matter is far less obvious.

Desire then, turns out to be the fulcrum of the chiasmus.¹²

My first criticism of Jantzen is that she misunderstands what logic is, and what it can do: logic is a helpmate, not an obstruction to clear thinking; nowadays a logic can be found to express whatever you wish to say – though you may not necessarily like the consequences that will flow from the logic that fits your starting point. She may choose a logic that refuses to use the law of excluded middle (she calls it 'A or not-A'), or use a logic which gives an infinite gradation of truth values between true and false, but there is no need to throw out all logic (as she thinks she is doing) with her attempt to work up a new language and theology. In fact, of course, she writes logical sentences all the time; it is her fears and hopes that are misplaced, not her reasoning.

Secondly, it is a pity that Jantzen has chosen to try to slip between the horns of her dilemma by denying the usefulness of even old-fashioned logics. She has, along with almost all the theologies I have looked at so far, had to confront uncomfortable consequences of the collision between modern

thought and old theological formulæ; in her case the collision is not so much between science and theology (as with the PD theologies), nor with modern moral thinking and theology (as with Daphne Hampson, discussed below) but between new, feminist, aspirations and old theological myths, dogmas, and rules. Logic can help sort out how new ideas fit together.

Here follow some shorter extracts from the last chapter of *Becoming Divine*, that is, from the part most pertinent to a discussion of feminist theology's logic.

Quotation 12

Imminence and transcendence are together opposed to reductionism. ... It is indeed true that if the divine is to serve as the horizon of our being, then the divine must be transcendent, ever beyond present actuality and certainly not reducible to the set of physical particulars of the material universe.¹³

Jantzen then says being transcendent does not mean something like a soul in a body - a dualism she says has been almost entirely rejected in modern philosophy but not in theology. She then quotes the 5th Irigaray passage above (*Quotation 8*), and comments:

... Just as beauty cannot be detached and float free from the physical matter of a painting or sculpture, nor can transcendence float free of its sensible configuration.¹⁴

Quotation 13

... Divinity in the face of natals [sic] is a horizon of becoming, a process of divinity ever new ... the divine is in process; hence traditional attributes like timelessness and changelessness cannot be predicated of God. The divine is not static but Becoming, not aloof but feeling and responsive.¹⁵

Quotation 14

Jantzen quotes Mary Daly, *The Church and the Second Sex*, 'Why indeed must God be a noun? Why not a verb - the most active and dynamic of all?' and then says,

... [This idea] has been echoed by other feminist thinkers who resonate with the idea of ... 'God the verb', the processing of 'Godding', of becoming divine.¹⁶

Quotation 15

... a radical revision, so that [the philosophy of religion] can point the way ... towards becoming divine, towards the flourishing of the natals.¹⁷

Quotation 16

The divine must be thought of, not as aloof from suffering, or even as compassionate at a distance, but rather involved in it ... 'God is a fellow sufferer who understands.'¹⁸

Quotation 17

The world is to God somewhat as my body is to me: it is my body-self but I am not reducible to its physiological processes ... The divine and the physical universe cannot be separated as they are in traditional philosophy of religion.¹⁹ [page 565]

Daphne Hampson

Daphne Hampson is Senior Lecturer in Divinity at the University of Saint Andrews. She wrote *Theology and Feminism* in 1990, an important essay in *Swallowing a Fishbone? Feminist Theologians Debate Christianity* (SPCK) in 1996, and *After Christianity*, (SCM) in the same year. In *After Christianity* she argues, very cogently and logically, that attempts to take the Christian myth seriously have not worked properly since at least Schleiermacher (1822) and Kierkegaard (1884); and that Bonhoeffer (1933) and Bultmann (1941) have not managed to re-argue the case. She sees their lack of success in their inability to let go of ideas which worked in a pre-scientific age but which do not work now; she uses the resurrection and the virgin birth as prime examples.

In the last part of her early chapter on 'Christian Particularity' (the idea that Christianity describes God breaking into history in particular acts such as the resurrection) she says,

Quotation 18

But whatever may be the explanation as to how such beliefs as virgin birth and resurrection grew up, I do not think that we can credit them.²⁰

She then makes a move crucial to the rest of her book

Quotation 19

Either Christians must continue with the former, pre-scientific, understanding of the world, such that their theology remains divorced from the rest of human knowledge. Or else – as has increasingly happened – they must make a move sideways, holding that the Christian story, though not 'actually' true, represents a 'true myth'. But what if this myth is not 'true', if it is not a helpful story? What if our ethics clashes with the 'truth' which this myth is supposed to convey? ²¹

These sentiments, and Hampson's criticisms of 'modern' theology from within the discipline of Christian theology, strike a chord with my programme – which shows, I hope, that not only modern science, but also modern logic makes it increasingly difficult to use the old theological terminologies and myths (the old ways of describing what there is). In particular I agree with Hampson when she insists that ethics is as deeply involved as physics in requiring a new attitude to old beliefs. Her question, quoted above, is very pertinent and, wisely, asks about what the myth is about – what *is* – and not about the truth, historical accuracy, etc., or otherwise of the words of the story.

However, as the whole paragraph quoted above shows, Hampson's interest in an ethical clash, and its effects on Christianity, is the feminist realisation that Christian theology, and the myths on which it has been based, do not fit (being very masculine in tone) with the ethical understanding women have. The rest of the book makes a great deal of these differences, spelling them out, giving example after example of Bible authors' choices of stories to tell, their manner of telling, their comments upon women, their choice of words, their underlying masculine world-view, and of theologians' reasonings and dogma built on these stories and attitudes.

I see some lack of historical imagination in this standard feminist line; but if Hampson can make a case for an ethics peculiar to women but available to everyone, long ignored or repressed, then it is a job well worth doing. There is also the problem that there is good evidence that the early church (first century, scattered, unorganised, with people still alive who had at least second-hand knowledge of Jesus) was very inclusive, not anti-female, less paternalistic than at any time since, except in occasional small sects. The evidence is in parts of St Paul's letters, the *Acts*, the *Didache*, the 90 or so reasonably historically reliable sayings of Jesus, and in the small number of similarly reliable reported actions of Jesus, none of which exclude women and all of which are 'feminine' in their compassion and spirit. Is this early church to be condemned along with the later, organised, theologically disputatious church?

Hampson is clear that she has made boundaries for her account of Christianity: that she is defining 'Christianity'. I might like to take issue with her on that, trying not to be over-careful about how to use the word 'God', and trying to get her to talk more clearly about the meaning of the myths rather than the (masculine) language in which they are couched – we want to know what *is*, not what hackles are raised. However, there are plenty of logical problems with any theology which insists that there is a god, as earlier chapters have shown.

For me, in my interest in the logics of theology, her most important job is to demonstrate that there is a feminine basis for ethics, an ethics with which the old Christian myths clash, and which will create not only the death of the old religion (where exclusively masculine) but be the birth of a new religion. The remaining chapters of *After Christianity* do have this aim, but they result – particularly in Hampson's last chapter which she calls 'Spirituality and Praxis' – in a great mixture of ideas, some of which I will show, are contradictory. I can do little else but display these ideas and make some suggestions about how they might be given the help of some new logical thought. Hampson says that the ideas in her last chapter are a 'patchwork skirt' of the ideas that women bring to religion, and definitely not the creation of a theology ('an abstract religion' she says).

It will, no doubt, be said that I am missing the feminine understanding of such matters as intuition, empathy and (particularly) spirituality, necessary to appreciate what Hampson is saying. All I can plead is that what I am discussing has been said, by Hampson, in the English language, and progress towards ideas being accepted involves testing and clarification.

Quotation 20

[People] crave healing in their lives; they seek to be both centred and connected; and they find themselves compelled to respond to the natural beauty of the world ... All these involve a certain spirituality. There has been an 'anthropomorphic' shift ... in the yearning for a humane spirituality, centred on the human person.

In being most fully ourselves we are also realising God in the world ... God should be conceived to be the fullness of all our potentialities, if also more than what we are individually and perhaps collectively ... Women are rapidly discovering their very humanity, which is to say also their spirituality.²²

Quotation 21

The evidence suggests that people have found that they can draw on the resources of God, direct healing towards others, and find empowerment in their lives. Maybe in time we shall attain to greater understanding of how we are connected to that which is more than ourselves, how extra-sensory perception (and therefore prayer) works, of how body and mind are interconnected ... We shall need a much more dynamic understanding of God: as energy, light, power, love and healing. These things themselves should be understood to be what God is: something to which we have access.²³

Quotation 22

... feminists have often wished to speak of the self as having 'permeable' ego boundaries. Given such a model it becomes easier to conceive of that which is more than what we are, yet with which we stand in the most intimate relationship. [quoting Linell Cady] '...love as a primary metaphor for depicting the orientation of human life that most facilitates the emergence of greater being and value. Incarnating this spirit is analogous to what has been traditionally understood as love of and relationship to God. ... [But] the self does not relate to an independent divine being but embodies the spirit of the divine.'²⁴

Quotation 23

A theology of experience, as I have called it, places the human self centre-stage. God is known with and through the self ... Theology is predicated upon our recognition as to what is the case. Such a theology affirms, rather than seeking to overcome or deny, that which is already given. ... what is notable about such a religious position is that it in no way requires the Christian myth.

I have argued that there is no need for human awareness of that dimension of reality which is God to be thus captured by this myth.

The need to jettison this myth has been with us for some time ... a God conceived as somehow set apart from the universe flies in the face of what scientifically has come to be our understanding of reality...

But to place ourselves at the centre in this way is not to exclude God, since God is to be understood not as set over against us, but as one with our self-realization. We may think that which we have named God to be a dimension of all that is: something which we may recognise, on which we can draw, and which allows us to be all that we have it in us to become. ... We shall need ways of speaking of connectedness and relationality which, while leaving us with full autonomy, allow us to conceptualise the self in relation to that which is more than self...

I may believe that we need to discard as untenable the Christian myth and theological system which is Christian doctrine. But I do not doubt that, in all ages as also in ours, there may have been many who have lived with an awareness of God. I clearly think the word God to have a reference. It is not simply to be 'de-mythologised', nor is human spiritual awareness to be translated without remainder into ethics. The word God must refer to a dimension of reality which has always been the case. ... Spirituality must be bound into the matrix of our being what we are and our acting as we do. Inasmuch as there is an objectivity in religion, it must surely be that 'objectivity' which consists of healed lives.

After Christianity there will be – people; people set in the midst of glory and the wonder of our world. ... We shall have to live now with *spirit* and without *absolute* ... to have that, truthfully, is enough.²⁵

The ideas of God that are on offer

In the 23 quotations we have a lot of different ideas, most of which add substantially to the rich mix of religious ideas with which the modern world is afloat. To select and summarise, for my purpose:

Daly says God is not a 'she-he' (i.e., a male and female) deity, but is an intransitive verb-goddess. By this concept she says she means a different way of understanding ultimate/intimate reality, perhaps best called a 'Be-ing'. Goddess images can be metaphors which foster participation in Be-ing. She (the verb-god) introduces a new logic.

Irigaray says that God would be time itself, something between moment and eternity. She also says that God is a horizon of our being. God asks nothing but that we become, perfectly.

Jantzen, expanding on that says, God (she actually says 'the divine' most often) is a process of divinity ever new; is not static; is not aloof but feeling and responsive; is the process of 'Godding', of becoming divine.

Hampson says God is the fullness of our potentialities; is energy, light, power, love and healing; is a dimension of reality; has always been the case; is not set apart from the universe; is as one with our self-realisation; the word 'God' has a reference; God is not absolute.

A Daly Theology: God the Verb

Of these ideas perhaps that of Jantzen (usually the most theologically conservative) when quoting Mary Daly and picking up the active idea in Irigaray of 'God' being a verb rather than a noun, is perhaps the most startling. This idea may not be as new as these writers may think; some scholars

would be pleased to translate God's answer to Moses at the burning bush as 'I am becoming who I am becoming' rather than the usual 'I am who I am'. In logic we treat verbs with more care than whole propositions (of which they are a part) and hedge them about with more rules. And certainly to simply say that 'God' is a verb will give us a lot of things which cannot be said simply, if at all.

Firstly, new things may be said by the theologian who uses the new verb. For example, if, as Jantzen (*Quotation 12*), expanding on Daly, says:

...the process of Godding, of becoming divine.

This must mean that

'Godding' = 'the process of becoming divine',

and consequently sentences such as:

The process of becoming divine is natural to women

The process of becoming divine is usually only accomplished over a lifetime

The process of becoming divine is seen in the saints

The process of becoming divine is not the same as attaining nirvana

The process of becoming divine is what we find when we prise open the chiasmus between believing there is a God and believing there is no God; and the process of becoming divine is found in desire, the Love of God which forces us to nothing except become.

have new short-hand (or theological jargon) equivalents, namely:

Godding is natural to women

Godding is usually only accomplished over a lifetime

Godding is seen in the saints

Godding is not the same as attaining nirvana

Godding is what we find when we prise open the chiasmus between believing there is a God and believing there is no God; and godding is desire, the Love of God which forces us to nothing except become.

Other seemingly new things, such as:

I was godding

You will be godding

Jesus is still godding

can be said. Some of these will perhaps be true, others false; most of these being reasonably easy to understand.

Secondly, a lot of sentences from past theology will become inexplicable (no bad thing say many of these theologians.) For example, no longer can one say:

God raised Jesus from the dead.

There is no way of squeezing 'the process of becoming divine' into that sentence and have it meaning the same thing as before. We can say:

The process of becoming divine (godding) raised Jesus from the dead

and mean (as many modern historians of early Christianity, and some theologians, would agree)

The idea that Jesus was divine gave a proselytising drive to the young Church and can be poetically described as 'bringing Jesus to life after his actual death.'

The more DP inclined theologians would not find that acceptable, so might venture:

In rising from the dead Jesus became divine.

as a possible parallel tenet of the new God-as-verb theology. At the same time they would note that the idea of Jesus being human only, and not divine until his resurrection, was current in the third century and was roundly condemned as the Arian heresy and specifically excluded from orthodox Christianity at the Council of Nicaea by the words 'We believe in ... the one Lord Jesus Christ, the only begotten son of God, begotten of the Father before all ages ...' in the resulting Nicene Creed.

However, a DP theologian would also note that the statement leaves out any reference to God, and would insist that Jesus is a part of God; Jesus was divine from his birth; it was not an automatic result of his rising from the dead.

In all the cases above we do not have a translation or adequate rewording of the original, *God*

raised Jesus from the dead. In fact any sentence using 'God' as a noun is not translatable into a sentence using 'God' as a verb without major logical gymnastics which will be described later.

However, there must be delight among feminist theologians at the automatic rejection of old theological definitions of God's attributes. We cannot say that becoming divine is all powerful, all knowing and all loving. The theodicy problem (the problem of evil if God loves us) flies away, being unsayable. Unfortunately so has one foundation for morality, or a foundation for free will. In the case of morality, becoming divine may be something we should all strive for, but not because it is what becoming divine (goddling) wants – that does not make sense. We will have to ask questions such as:

'What are the moral characteristics we must take on if we wish to be divine?'

'Perhaps there are no moral question?'

'Is being divine to be free of moral rules?' and

'Why should we become divine?'

When trying to understand free will we will have to ask:

'Is it possible to become divine?'

'Is it inevitable that we become divine?' 'Are we perhaps divine already?'

'Are the divine able to make choices?'

and other questions like these.

These are questions which we can ask already – we do not need to abandon a noun-god to ask questions about becoming divine. Perhaps by making 'God' a verb we have lost something and gained nothing. Is this endeavour going to prove, like invention of the concept of phlogiston, to be a rather useless move?

Can we save this new concept?

Is it possible to save this interesting concept (that God is action rather than actor or acted-upon) without abandoning the major tenets of Judaism, Islam and Christianity? Two possibilities suggest themselves: the first is the possibility of using 'Goddling' as a gerund (a verbal noun), somewhat as Jantzen appears to do when she put the definite article in front in her phrase, '*the* process of Godding...'

Pursuing this idea further: 'God rolled back the Red Sea' cannot simply be translated into 'Goddling rolled back the Red Sea,' or 'Becoming divine rolled back the Red Sea.' After all, 'Goddling' is a verb and the sentence requires a noun as its subject. However, sentences can take gerunds as subjects, for example:

Rolling up the Red Sea [gerund phrase] *assisted the escape of the Israelites.*

Just as common would be to hear this idea in the sentences,

The rolling up of the Red Sea assisted the escape of the Israelites

where the definite article, *the*, gives notice that the next word is not to be treated as a verb pure and simple but as a noun, and subject of the transitive verb *assisted* ; or

The Israelites were assisted to escape by the rolling up of the Red Sea

where the gerund phrase is the agent adjunct. But this will not do – we cannot say 'The godding rolled back the Red Sea,' nor 'The Israelites were assisted by the godding'. It is nonsense to say, 'The becoming divine rolled back the Red Sea.' or, 'The Israelites were assisted by the becoming divine.' It is not nonsense to say '[By] becoming divine, [the Israelites, or God] rolled back the Red Sea.' or, 'The Israelites were assisted by coming divine.' but neither is a good translation of the original idea – which, after all, is about the intervention of a supernatural being.

Part of the problem is giving a meaning to 'Godding'. If we read it as a neologism for 'the active intervention of God' (rather than Jantzen's 'process of becoming divine') we may find it comprehensible in a very generalised way, but we have defeated the purpose of the move, by re-introducing the name, God.

On first hearing the word 'Godding' my mind wants to find a possible meaning in parallel to 'becoming', that is, fitting into sentences such as, 'The leaves are becoming brown', 'My faith is becoming stronger'. In sentences with such verbs both older and more modern grammars accept an adjective as a possible word in the place normally reserved for a noun, object of the transitive verb. The adjective (or noun) is referred to as a 'complement' of the verb and the number of verbs which can take complements are usually thought of as few and quickly numerable, for example, the verbs 'to be', 'make', 'become'. These are the so-called 'factitive verbs'. However, 'becoming-divine' is not a factitive verb. Another line of musing notes that adverbial phrases may be added to sentences producing such sentences such as 'I am godding in the garden'; 'She is godding with her usual flair'; 'We are godding at five in the afternoon'. This works if 'godding' does indeed mean 'becoming-divine' and I am becoming divine in the garden, or with flair, or at five. But I then find myself looking at sentences such as 'The Red Sea is godding dry', 'My faith is godding brighter', 'Jesus on the cross is godding us'. The new meaning will not work if the Red Sea is not becoming divine (not being the sort of thing that can), nor can my faith be godding brighter since godding is not factitive, nor can Jesus be godding us since godding is neither transitive nor factitive.

In these cases I am using 'godding' as a present participle. Modern grammarians treat present participles as separate grammatical entities; older grammarians usually treated present participles as making a special tense of the root verb of the participle. Thus 'is becoming' was a tense of the verb 'to become', in the same style as 'will become' and 'have become' are tenses of 'to become'. Thus in older grammar the idea that godding = is-becoming-divine is easy to accept theoretically as the creation of a new verb; it will have its new tenses in this pattern:

<i>simple present</i>	<i>future</i>	<i>past</i>	<i>continuous</i>
god	will god	has god	godding
<is divine>	<will become divine>	<has become divine>	<is becoming divine>.

It must also be recognised that Jantzen's equation of godding with becoming divine is only one way of turning 'god' into a verb. In Irigaray and Daly we see several different possible uses incompletely spelt out. 'Godding' could mean 'powers of Be-ing' as Daly suggests, mentioning 'creative activity, Self-Realising bonding with Other women in the work of Weaving and Dragon-identified passions such as Rage and Lust for Nemesis' as 'metaphors of metamorphosis, as verbs fostering participation in the Verb, Be-ing.' (See *Quotation 1* above.) In Irigaray we have 'God' used almost in the standard way many times and such phrases as 'Love of God' which translates very awkwardly and doubtfully into 'Love of becoming divine' or 'Love of creative activity, love of self-realising bonding...'

In one remark Mary Daly has a clear idea about how the new verb-god should be used. She says that 'goddessing' (god-as-a-verb) is intransitive. If 'goddessing' is intransitive she will have to reject such sentences as 'I am goddessing you', or 'She goddesses us all', or 'Womankind will goddess humankind'. It is by no means certain that she would want to reject such sentences. This may not be the problem it at first appears. I venture a translation of her new verb:

to goddess = to behave as a female version of the Christian God would behave if there was such a supreme being.

Now we can translate many sentences, for example, 'Mary is godding with passion' becomes the rather long winded, 'Mary is behaving as a female version of the Christian God would behave, and with passion'. And we can also translate the meaning of the sentences above which have transitive verbs into sentences which have intransitive verbs. 'She goddesses us all' becomes 'She is behaving as a female version of the Christian God would behave to us all'.

If 'Goddling' is used as a shorthand term for *acting in what used to be called a God-like way*, as suggested above, we may be getting nearer to the feminist conception of God-the-verb. This may work comparatively well for human actions and for putting a new slant on moral exhortations.

'Everyone has a little of God in them'

would then become

Everyone does at least some Godding.

'Jesus wants me for a sunbeam...'

becomes

Goddling is for everyone even small children.

However it does not work well for natural phenomena or history:

'God sends his-her rain upon the fields.'

does not helpfully translate into

The rain is Godding on the fields.

Nor does

'God sent his son.'

helpfully become

Jesus was godding.

This last formulation would certainly be shunned by DP theologians as inadequate.

As an alternative to the definition above, 'goddling' could be defined ostensibly, probably by pointing out actions and events which can be named as 'goddling'. Helping old ladies across the road, recycling beer cans, voting, confessing your wrongdoings, turning the TV off at mealtimes, digging a drainage ditch in the garden, supporting Save the Children and Amnesty International, remembering a birthday, saving the Kakapo ... the list is a large one, and no doubt pointing out which actions were anti-goddling, such as pushing old ladies under buses, tossing beer cans onto the roadside, not voting, and so on will be mentioned. This may give us a heterogeneous list of actions, and the word 'goddling' will have a use, that is, a meaning. We can note that it will also give us a meaning for non-goddling (or sataning) but neither verb creates (nor points to) some *thing*. We have not created God, nor Satan, by this process; we have two new multi-purpose verbs – verbs which I suggest will not prove very useful except to help distinguish actions we like from those we dislike. We could expect their use to be mainly confined to exasperated mothers and fathers saying, 'For heavens sake try to *God* a bit more,' instead of 'Try to behave'. Moral leaders could say, 'Putting litter in bins seems like a small thing but it is a part of *Goddling*.'

Various tricks to assist this mind-altering change, making 'god' a verb, suggest themselves. The logician might like to bring out the uniqueness of the new verb by thinking of 'goddling' as meaning 'become-divining', thus putting the continuous (-ing) ending at the end of the compound. Typographers might help by using a different typeface for the verbal use of 'god', and thus to write

'I *god*, you *god* (thou *godest*), he/she *gods*, we *god*, you *god*, they *god*, ...

Inventive linguists might like to add some made-up inflections to point out the verbal use: I god-a, you god-e, he/she god-i, we god-o, you god-u, they god-y.

Even more delightful is that Latinists, noting the Latin ending available for Inceptive verbs which are made of other verbs and indicate the idea of 'beginning to' and noting its appearance in English in the ending '-esce' in 'effervesce', 'coalesce', 'convalesce', 'acquiesce', 'phosphoresce' and a few others, may suggest we form a word for the idea of becoming divine with a new English coinage, 'goddесce'.²⁶

Egocentric Logic

A second way in which we might attempt to save this interesting concept that God is action rather than actor or acted-upon, without abandoning the major tenets of many religions, is to use a very Priorian system of embedding one way of talking in another till the first is transformed into the second. The place where Prior most accessibly uses this *technique*, which seems very much his own invention, is in an article called 'Egocentric Logic' in *Noûs*, Vol ii, No. 3 (Prior 1968). He invents Egocentric logic, which is a systematic logic of personal pronouns, to bring out the similarities between logics where properties are located in individuals the same way as events are located in times by means of tense. The details of the parallels do not concern us, but putting the noun-god and the verb-godding into Egocentric does give feminist theology a possible way of avoiding the noun-god.

Egocentric has two basic concepts:

A.

The basic building blocks are propositions, but shorn of the 'subject' since the subject is understood to be the individual making the statement. This leaves just a verb (usually the present participle) and often quite an odd-sounding one. For example: I am represented in Egocentric by the verb 'Llewelynising' and 'Llewelynising' can stand alone as a fully fledged proposition.

Transformations from ordinary propositions into Egocentric form can now begin to take place:

1. I am Jane
 - = 2. *Janising* is the case for me.
- and
3. There is no God but Allah
 - = 4. Allah alone *Godises*
 - = 5. *Godding* is the case with Allah alone.

Thus in Egocentric (when we get to its full flowering) individuals will not be mentioned at all, although the speaker has a verb which characterises her or him uniquely.

Other propositions in Egocentric are the usual predicated of common speech such as 'standing', 'drinking', 'mowing the lawn', and by themselves mean what is usually meant by 'I am standing', 'I am drinking', 'I am mowing the lawn'. New verbs such as 'godding' and 'satan-ing' I will reserve, to avoid confusion, for the verbal characterising of individuals; for example, reserving 'Godding' as the defining character of God, as 'Janising' is of Jane.

You may find these strange usages easier to accept when you think of the verbal, subject-less, phrases in common speech which are akin to them: 'I remember *being* at the meeting' is such a transformation (alternative phrasing) of the idea in 'I remember *that I was* at the meeting.' A somewhat more religious one might be, 'Imagine *becoming* immortal!' instead of 'Imagine *that you suddenly were* immortal!'

B.

From Leibniz is borrowed the idea that all people can be arranged in a scale of comparative perfection - from most holy or perfect (just below God, or, one step from nirvana) to least holy or perfect (just one step above Satan, or, not yet on the path to nirvana). Then the new subject-less propositions can be arranged in inferior-to and superior-to relationships to each other. This will allow us to proceed beyond proposition 5. above into a fully Egocentric way of talking, since there is now a way of getting each individual truly individualised: there is just one proposition which is true of me alone:

I am Llewelyn but not Prior and not Quine and not Irigaray and not Daly ...
etc., until I have exhausted every possibility.

This in Egocentric is

Llewelynising is not Priorising and not Quineising, and not Irigarayising and not Dalyising ...

Now we have

3. = 4. = 5. = 6.

6. *(Goddling and Allah-ising) but not superior-to-(Goddling and Allah-ising) and not inferior-to-(Goddling and Allah-ising).*

in which there is no noun.

It may be helpful to spell out more translations from ordinary speech (that is, with nouns) picking on theological or quasi-theological propositions, into Egocentric (which has no nouns).

7. Yahweh gave Moses the Ten Commandments
 = 8. *Giving-the-Ten-Commandments* was the case with Yahweh
 = 9. *Giving-the-Ten-Commandments and Yahweh-ising* is the case with someone
 = 10. *Giving-the-Ten-Commandments and Yahweh-ising* is the case either with me or with someone more perfect or with someone less perfect
 = 12. *Either (giving-the-Ten-Commandments and Yahweh-ising) or superior-to-(giving-the-Ten-Commandments and Yahweh-ising) or inferior-to-(giving-the-Ten-Commandments and Yahweh-ising).*
13. Allah is always-being-merciful
 = 14. *Always-being-merciful* is the case with Allah
 = 15. *Always-being-merciful and Allah-ising* is the case with someone
 = 16. *Always-being-merciful and Allah-ising* is the case either with me or with someone more perfect or with someone less perfect
 = 17. *Either (always-being-merciful and Allah-ising) or superior-to-(always-being-merciful and Allah-ising) or inferior-to-(always-being-merciful and Allah-ising).*
18. God (Vishnu, Buddha, Shango, Hine-niu-te-Po, Gaia, ...) is more perfect than Jane
 = 19. *Superior to Janising* is the case with God (etc.)
 = 20. *Godising and superior-to-Janising* is the case with someone
 = 21. *Either (Godising and superior-to-Janising) or superior-to-(Godising and superior-to-Janising) or inferior-to-(Godising and superior-to-Janising).*

In passing from 4. to 6., from 7. to 12., from 13. to 17., from 18. to 21. we start with an ordinary way of talking about or describing God (or Allah or Yahweh, or it could be some pantheon) and finish with a sentence in Egocentric logic. In each case (6., 12., 17., 21.) there is an implicit characterization of the speaker; thus a typical statement about God is reduced (or transformed) to a statement about me – and in a language (a logic) with no other subject than me, this subject can go unmentioned. For the feminist theologian (or any theologian looking for a verb-god instead of a noun-god) as long as 'I' am a basic starting point, a given, an axiom, and as Pope put it (before the linguistic change feminism has wrought) 'The proper study of mankind is man,'²⁸ then Egocentric interpreted in my manner may help. Hampson (see later) would approve.

Prior says his use of Leibniz's notion of a scale of perfection was not accidental since for Leibniz, self-knowledge was the starting point of his understanding of the world. In a famous passage Leibniz says, 'I find that every predicate, necessary or contingent, past, present or future, is comprised in the notion of the subject.'²⁹ He is saying that a subject is made up of predicates (verbs, etc.) and that is just what an Egocentric proposition is. Leibniz is not so sure about God. His often quoted dictum, 'Every soul is a world apart,' does not end there but is, in full, 'Every soul is a world apart, independent of everything else but God.'³⁰ Prior thinks that to be consistent Leibniz should agree to God (the 'Supreme Monad' in Leibniz's terminology) saying the Egocentric sentence:

For any x, either not-inferior-to-x (because I am the Supreme Monad) or inferior-to-not-inferior-to-x (because someone else more perfect than me is the Supreme Monad).

That is how you would state the existence of God in Egocentric.

The characteristic action need not be *superior-to-all-others*, but must be characteristic: *creator-of-the-universe* might do; *what-is-between-moment-and-eternity* might do; *the-horizon-of-our-being* might do; *the-Be-ing* or *the-Goddesce* might do.

However, twisting language to give a verbal way of talking about God, (or ourselves) is not what Daly or Jantzen were looking for.

God-the-Verb and the Theologic

In the Jantzen version of this theology where 'God' is a concept akin to 'becoming divine' the theologic can be interpreted so that

X = becoming divine involves

and

Xp = becoming divine involves p

However, the constant h is used in the theologic for a fixed-meaning proposition. For Jantzen's interpretation it looks as if 'I become divine' is the meaning to use for h .

h = I become divine

This, of course would leave us with a very uninteresting logic with

$Xp =_{Df} LChp$ < by definition, my becoming divine involves p , is the same as: it is necessarily so, that if I become divine then p >

< my becoming divine involves me helping my sick neighbour, is the same as (by definition): it is necessary that if I become divine then I help my sick neighbour >

and just as logically

< by definition, my becoming divine involves my killing the cat, is the same as: it is necessarily so, that my becoming divine implies my killing the cat >.

We might reinterpret the symbols to help get Jantzen's theologic off the ground by saying both

h = I become divine

and

Xp = the divinity of the universe is increased by p

Now

$Xp =_{Df} LChp$ < by definition, the divinity of the universe is increased by p , is the same as: it is necessary that, if I am to become divine then p >

< the universe becomes more divine when I help my sick neighbour, is the same as (by definition): it is necessary that, if I become divine then I help my sick neighbour >

and just as logically

< the universe becomes more divine when the sky is blue, is the same as (by definition): it is necessary that, I become divine implies the sky is blue >.

This does sound as if the whole nature of the universe, divine or secular, depends on my actions alone, but the expansion into predicate calculus should solve some of those problems, one way or the other: either allow that my actions make small alterations to the divinity of the universe, or that

the system shrinks to an entirely personal one where my actions contribute only to my divinity, (which is co-terminus with the divinity of the universe). That might be satisfactory for a solitary acolyte, since we have a very personal theologic suitable for one person at a time only. Similarly for a solitary god. This may be a possibility since Escapism, in its final form, appeared very suitable for each personal morality, and Daphne Hampson's main theological idea seems to arrive at 'God-is-me'.

In the case of Daly's God-the-Verb it seems necessary firstly to have predicates (verbs) available from the beginning, therefore, $p/\phi x$ is a natural move.

$X\phi x$ = to be godding, x ϕ 's

< to be godding, x is lusting after Nemesis >
< I am godding when I am lusting after Nemesis >
< you are godding when you are lusting after Nemesis >

and *h*, which has been a fixed-meaning proposition needs to become a fixed-meaning noun+predicate.

$h =$ I am godding.

Now our definition becomes

$X\phi x =_{Df} LCh\phi x$ < to be godding x must ϕ , means: it is necessary that if I am godding then x must ϕ >
 < to be godding x must lust after Nemesis, means: it is necessary that if I am godding then x must lust after Nemesis >.

Our problem at this point must be to find a reasonable meaning for ϕ .

My own preference would be something like

ϕ = behaving as the god would have us behave	(Theist version)
= behaving closely to how Jesus wanted people to behave	(Atheist Christian)
= actively seeking nirvana	(Buddhist)
= behaving in the best way to save the world's ecosystem	(Gaia-ist)
= behaving so that I become divine	(Jantzen-ist)

Now, using a universal domain we can try out some of the thesis of the Theologic (see Chapter 5) to see if they are enlightening, or give rise to problems. (Thus we both check the technical characteristics and the usefulness of the Theologic with predicates.)

ThP1. $\Pi xXCX\phi x\phi x$ < for everyone, when godding, if godding involves being like Jesus then be like Jesus >.

ThP2. $\Pi xCX\phi xY\phi x$

In the Theologic, $Y =_{Df} NXNp$, therefore a meaning for $Y\phi x$ is $NXN\phi x$. In order to give a clear 'translation' will be best to make that substitution: Y/NXN

ThP3. $\Pi xCX\phi xNXN\phi x$ < for everyone, if godding involves being like Jesus, then it is not-godding to not behave like Jesus >.

This is not capturing the original modal idea of M = 'possible' in contrast to L = 'necessary' and the deontic idea of P = 'permissible' in contrast to O = 'obligatory'. We did capture this idea when X = 'pleases the god', and Y = 'it does not worry the god' but in this Daly-esque interpretation we have lost the middle ground. There is no alternative between godding and not-godding the way

there is a middle ground between L = 'it is necessary that' and NM = 'it is impossible that'; there is no middle ground as there is between X = 'it pleases the god that' and Z = 'It angers the god that' (namely Y = 'it is indifferent to the god that'). Therefore, though the Theologic may, in a truncated form – without Y , without the idea that there is some state between godding and not godding – survive as a mildly interesting artifact, it is unlikely to help someone trying to develop a logic for the Daly ideas about religion.

As an aside, it may be noticed that trying to give 'translations' to the Theologic in the Daly-style with predicates, brings up the problems of how universal amongst people this religion is supposed to be: 'for everyone' could mean 'for all four billion people alive, as a group', or it could mean, 'for each and every one of the four billion, as individuals'. Thus is underlined the problem of to whom the verb 'godding' applies. Is the religion for every one as a whole, and so, just one person not behaving like Jesus on one occasion (to use my illustration) would cancel the truth of, 'godding involves everyone being like Jesus'? Or is the religion intensely personal, and godding is something that I alone am engaged in and so it is true that, 'for everyone, godding is what they do when they behave like Jesus, no matter what religion they espouse.' The distinction can be brought out in symbols by the difference between

$\Pi x\phi x$ < every person is godding >
and
 $\phi\Pi xx$ < godding is being done by each person >

Summary of this preliminary logical investigation of God-the-verb

We have found that using the word *God* as a verb causes (apart from mental indigestion) at least two major effects.

- (i) Theology is radically changed: past theological statements are almost all null and void of meaning, and the number of new theological statements that can be made is limited.
- (ii) An extraordinary logical system can be used to re-phrase statements about God, a system in which the person speaking is the only *given*, the one fact around which all else revolves and God (or Allah etc.) is still 'there' but is described not by a noun but by one characteristic *action* and a relationship between actions.

Comment

Are these problems with *God-the-verb* logical problems with the concept, or mere obstacles to our reasoning because we are more used to a different way of thinking? With Wittgenstein we must agree that the meanings of words are shared with, and learnt from, other people and have no communicable meanings unless shared. With Prior I look for the real things and for real interactions between things, which is what the words and sentences are *about*. If two or more people can see a specific and identifiable form of interaction between things (no matter how wide the list of 'things' may be, ideas as well as pebbles, for example) then for convenience they may agree upon any word they like to use in sentences about that interaction. Two researchers, noting that two amoebæ previously thought not to, do in fact communicate, perhaps by making waves in their surrounding water, may decide to call that interaction 'singing'. Good. It is an extension of the use of the word 'sing' that some people may find odd, but it will work in the scientific uses to which it is now put.

Now we must ask, if feminist theologians wish to make a sweeping change to the nature of what they study (namely Theo-logy, God-study) and now want to say the object of their study is events, actions, and interactions, not a concrete object or objects, then we need to know which of all the myriad events, actions and interactions in the universe, make up the class to which they are applying the word 'God'. The answer from those who wish to talk about God-the-verb may be something like, 'All the events involving women, all the actions by and to women, all the interactions of women with other people and things, all spiritual events, all emotions, all aesthetic and creative occurrences...' This looks like an unwieldy class to me. One hopes for further refinement of the unifying concept. In the meantime, I wish they had chosen some other word than 'God' to name it.

Sorting Daphne Hampson's theological ideas

It is time to return to Hampson, who has, at first sight, a less radical set of meanings for a noun, *God*. In the passages from her *After Christianity* I quoted she gives us a great number of different definitions of God. I paraphrase the seventeen I found, plus two helpful suggestions:

1. *'Being ourselves' realises [makes real] God* (see Quotation 18)
2. *God is the fullness of our potentialities*
[God] allows us to be all that we have in us to become (see Quotations 18 & 21)
3. *God is more than what we are* (see Quotations 18 & 19 & 20)
4. *God has resources [of healing, etc.,]* (see Quotation 19)
5. *God is energy, light, power, love, healing* (see Quotation 19)
6. *God is something to which we have access* (see Quotation 19)
7. *God can have an intimate relationship with us* (see Quotation 20)
8. *God is not an independent divine being* (see Quotation 20)
9. *God is known with and through the self* (see Quotation 21)
10. *God is a dimension of reality ... of all that is*
... of reality that has always been the case (see Quotation 21 & 21 & 21)
11. *God cannot be conceived as somehow set apart from the universe* (see Quotation 21)
12. *God is as one with our self-realisation* (see Quotation 21)
13. *We may recognise God* (see Quotation 21)
14. *We can draw upon God* (see Quotation 21)
15. *God is more than self* (see Quotation 18)
16. *One can be aware of God* (see Quotation 18)
17. *The word 'God' has a reference (cannot be demythologised*
out of existence, cannot be translated without remainder into ethics) (see Quotation 21)
18. *The self does not relate to an independent divine being but embodies*
the spirit of the divine [quoted with approval from Linell Cady]. (see Quotation 20)
19. *Theology is predicated upon our awareness of what is the case;*
such a theology affirms, rather than seeking to overcome or
deny what is already given (see Quotation 21)

We had best sort out these bits of friendly fire into some categories.

1. God as the name for a newly sorted class

For example:

2. *God is all our potentialities.*

That is, Hampson takes a class of things - in this case the class of all things all humans can and may do - and re-names it 'God'.

Many of her definitions are of this sort, though the items (members of) the new class vary a great deal; for example 5. *God is energy, light, power, love, healing*: a mixed bag of items for this new class called 'God'.

It is unclear whether this process creates God out of what there is, or names the attributes of an already existing God. Both ways of talking might fit, but 8. appears to deny God an independent existence.

2. God as the name for activities, usually by individual people

For example:

1. *Being ourselves makes God real.*

Here Hampson suggests that the activities we do are given the name 'God'.

It is a bit glib to say, 'What else can we be, but ourselves?' but it is a real challenge, as we have seen, to make the word 'god' into a verb, or, in this case, into a collection of verbs (the words for actions). Or, she may be suggesting that God does not exist unless people do certain things, or that 'god' is the word to use for a class of actions.

Another of her definitions which names an activity is

12. *God is at one with our self-realisation.*

I'm not at all sure what 'self-realisation' means in this context (it is a pretty vague word anyway) nor what is intended by 'is at one with'. However, I suspect that an external extra-personal being is not here mooted. The, quoted, statement by Cady:

18. *The self (does not relate to an independent divine being but) embodies the spirit of the divine*

[my brackets] suggests that Hampson is making such a point.

It should be noted that the monotheistic religions have had, to this date, theologies which make the creation of God by people, whether by putting together a class of things, or by selecting personal activities (as in 1 and 2 above) quite unacceptable. In classical theology people are created by God, not the other way round. However, feminist theologians are by no means the only modern theologians suggesting that people-creating-God is the right way round. This modern 'heresy' was well known to the ancient Christian Church and is a branch of what in earlier Biblical times was considered idolatry - the worship of man-made objects.

3. God already exists as a separate entity and his-her attributes are slowly discovered/revealed.

There are a great number of these definitions, or parts of a full definition. For example:

3. *God is more than what we are*

4. *God has resources [of healing, etc.,]*

7. *God can have an intimate relationship with us*
13. *We may recognise God*
14. *We can draw upon God*
15. *God is more than self*
16. *One can be aware of God*
17. *The word 'God' has a reference (cannot be demythologised out of existence, cannot be translated without remainder into ethics).*

As you can see several of these seem to be in direct contradiction to other statements that appear in categories 1 and 2. For example, compare the two versions of paraphrase 2; compare the first with paraphrase 15. Compare 5. with 7.; 17. with 12. Most of these statements give little assistance to a full and consistent definition.

4. God is a dimension

The three dimension statements are very difficult for a logician to make sense of.

10. *God is a dimension of reality ...of all that is ... of reality that has always been the case.*

The word 'dimension' is used in science for the separate measurements needed to give a minimum adequate description of an object. For example, the most parsimonious way of describing physical objects of more than quantum size is to use three dimensions, length, width, height. If the object has a history and that is important in the description then we add a fourth measurement, time, and (rather loosely) call that the 4th dimension. Time can be given mathematical expression and incorporated into Einsteinian space and then has an exact use. The mathematical consequences of having fewer or more than four dimensions are well studied.

When used in metaphors, 'dimension' describes any characteristic which seems important: the detective in a novel says, 'Why on earth should the duchess murder a passing taxi driver? The missing dimension in this case is *motive*.' Many religious people are fond of talking about a spiritual dimension – it is often overlooked, we are told. Although Hampson's remarks about God being a dimension are couched in rather 18th Century language we can assume that she does not believe that God can be given a mathematical quantity, used for measuring something, and incorporated into physics.

Suggestions about God as *the* underlying reality tend to make God a superfluous addition to each and every statement, much as in Egocentric Logic it is unnecessary to say 'I am standing', 'I am inferior', 'I am godding', etc., because the 'I am' is ever present in the terms 'standing', 'inferior', 'godding', in this logic. In a more homely example, imagine meeting 'I, Llewelyn Richards, confirm that I am the writer of ...' as the start of every sentence in this thesis. We are content, on the whole (and when quotations are properly acknowledged) to accept the name 'Llewelyn Richards' on the title page as sufficient proof of authorship of the whole. Should we not, therefore, accept Hampson's (and others') declaration that God is a dimension – something that must be taken into account if a complete description of what there is, what is real, is to be made? The catch comes when we ask what has been added to our account of what there is when God is added.

Dimensions assist descriptions: a 2-dimensional description of a shoe-box is not sufficient (we can describe only the planes that encase the box, not its volume). On the other hand 5-dimensions are too many. The mythical Martian who landed on earth and started measuring our shoe-box by checking diagonals rather than height, length and depth might need five or six dimensions to get it properly described; but once communication gets sorted out earth scientists will be able to show the Martians that a different, and more parsimonious set of measurements will do. One of the strongest arguments against there being a God, especially as an extra dimension, is that a God, as myth or hypothesised entity, or dimension, is superfluous to correct, complete, descriptions of what

there is. Hampson is very keen that feminist theology should be based (she says 'predicated') on what is the case, on what is already given: see her definitions 17. and 19. That seems an excellent idea. But is *God-the-surplus-dimension* part of what there is?

There is hot debate among logicians about what there is, usually using the term 'ontology' and discussing if each logic has its own ontology, that is, its own, usually unstated, preconceptions about what there is. Some of these debates have gained greater importance since the method of checking modal logics for completeness against what would happen on possible worlds (and between possible worlds) has emerged. Logicians, and others looking at what logicians are doing, often ask about the 'ontological status' of possible worlds. Some logicians maintain that to them possible worlds are as real as any other thing; and others, perhaps remembering Quine's questions about whether there are more possible thin men than fat men in the doorway, and Russell's method of dealing with such invented 'entities' as Pegasus or the present king of France, find possible worlds to be just what they say they are – no more real than any other possibility, no more a part of what there is than any sort of thought at all. Prior was of this latter persuasion and strongly defended it.²⁷

If feminist theologians are going to pursue the idea that God is a dimension of reality it would be appropriate for them to look at some of the logical problems that are being dealt with in this continuing debate. Such a study would be wise also from proselytising motives as anyone being invited to worship God needs a pretty clear idea of what part or parts of reality are worthy of worship.

The quick test for the scope of a new 'substitute' theology

In searching for what can be said in a feminist theology and what cannot, the logician will suggest that once some general clarity about the nature of God has been reached, then the 'substitution' technique should be quickly applied to old theological dicta to sort out which are now allowable and which are now disallowed. We have used this simple technique quite a lot already. Here is an example in feminist theology of a Hampsonian type:

If

God =_{df} a dimension of reality,

then such a statement from classical Christian theology as

God created the universe

may take the substitution,

A dimension of reality created the universe.

It may be reasonably easy to give a meaning to the latter, with 'dimension' used loosely to mean some sort of class or set. However,

God's son died for our sins

becomes by substitution,

The male offspring of a dimension of reality died for our sins.

and this will not do at all if one believes that the historical person, Jesus, was the son of God. Furthermore, even if 'offspring' is read very metaphorically to mean something like 'one of the

aspects or members of the particular class of real objects called *a dimension of reality*, then we still have a translation into feminist theology, namely:

One of the aspects or members of the particular class of real objects called 'a dimension of reality' died for our sins.

This shows that the classical theology dicta cannot be part of this feminist 'dimension' theology. Similarly 'God is omnipotent' is not the same in meaning as 'I am invincible, I am woman.'

This quick test seems pretty obvious, but I suspect that it has seldom been used by theologians seeking to substitute something better. Making a list of dicta one wishes to preserve and checking new definitions against them would help 'tidy up' such wish-lists of attributes, or interpretations, or definitions as Hampson or the symbolist theologians present us with. Logicians and cynics may be told, 'It is difficult to find new words for what we now realise must be the case, especially when dealing with such difficult concepts as God or gods.' This has, indeed, been demonstrated in the last few pages. My own advice would be for the new, post-modern, theologians to invent new myths rather than new, obscure and illogical interpretations of the old. Teilhard has tried this track. Bergson and Shaw (and modern fantasy writers such as the author of *Star Wars*, and Phillip Pulman) have made such attempts with the idea of a pervading 'force'. Spinoza and Lovelock have tried with a different model – pantheism. Doing without the colourful pageantry and simple hierarchy of medieval society for a religious myth seems very strange to westerners; trying to invent a religious myth based on democratic institutions seems very unexciting – do we vote for president God? Doing without magic and embracing a scientific outlook looks uninspiring at first. But human relationships and moral actions are at the core of most religions and a few religions do without gods at all. Perhaps eastern religions can provide quite other myths.

A Hampson theology: God is me

Hampson's definitions which I have labelled 1. and 12. are of a different kind from Daly's and most of Jantzen's (and Hampson's others) since they name activities of *humans* as the creator of God. Older Christian theologies make much of incarnation (God becoming human, living on earth, etc.,) and by this terminology are usually stressing that God is quite different, mightier, more knowing, more compassionate, etc., than humans: the myth is that of a king deigning to take notice of, and help his subjects. Other religions have, in their more populist forms, God or gods appearing on earth in human form, or sending 'angels' or the like, often mistaken for humans. However, here we have two statements in which the activities of humans incarnate God; to put it less piously: humans invent God.

A quick look at the logical consequences of Hampson's two formulations of 'God-realising' activity:

1. *Being ourselves makes God real.*

This short sentence is obviously meant to be taken very metaphorically since taking it at face value would immediately lead to the question, 'You mean that we are able, sometimes, to *not* be ourselves?' We are certainly not ourselves before we are born and after we die. A logician might even question whether it is possible to say, meaningfully, 'after I die *I* will ...' but between birth and death can we be anything but ourselves? Is Hampson emphasising our actions, particularly those actions

which help distinguish me from everyone else? In that case the murderer, in killing, makes herself particularly distinctive; but is murdering an act which makes God real? On another tack, does Hampson mean to say that God becomes real (having 'existed' only as a possibility before) at birth? Her birth? The first human's birth? Or that the birth of each new person brings a new god into existence? This sort of 'logic chopping' was the delight of the schoolmen and the bane of poets, church reformers and prophets for centuries; but I have hardly begun and am dying to ask if 1. implies that God can be unreal.

Let us take Hampson as meaning something like

- 1a. *The things we do, the decisions we make, in our daily lives, can be thought of not only in physiological, psychological, sociological, economic, and political terms, but also, in theological terms: as making God real.*

This is a pretty drastic expansion of her aphorism but it allows us to put aside one set of logical problems and concentrate on the nature, and perhaps usefulness, of the theological idea of making God real by human actions. What is it to make something real, by action or by decisions?

(1) We can make a blouse (make the idea of a blouse real) by (i) buying, measuring, cutting, and sewing cloth or (ii) by paying a dressmaker to do it for us. Are we also making God when we make, or decide to make, a blouse?

(2) We can complain about unshared housework and decide to cook no dinner till the breakfast dishes are washed by someone else. Does this mean that making God means complaining and boycotting?

(3) We can visit our sick but ungrateful aunt and decide never to visit her again. Does this mean that God is acts of kindness, and decisions to give up being kind, and emotions of exasperation?

(4) Is the question, 'What have you been doing today?' usefully answered by, 'I have been making God'?

There is (purposefully) a great muddle of actions, thoughts, emotions and moral judgements in my examples. We could add, as things which all contribute to who we are and what we do: breathing, wearing clothes, speaking English, remembering, driving a car, changing the baby, using money, speaking on the telephone, killing a mosquito, and putting up with a sciatic twinge... By Hampson's account, these must therefore count towards what makes God real. Is the God that is made real, then, a non-corporeal version of the particular person? This looks rather like either (i) a simple revival of 'there is a spirit in everything' animism, or (ii) a new 'God-is-an-idea' religion, ideas being as 'real' as physical objects (though of a different category, i.e., use).

If, further, Hampson wants 'being ourselves' to mean 'being the best version of ourselves' or some such morally loaded remark, this meaning will have to be unpacked and the problems that it will bring with it revealed. There is a hint of a moral loading in her remark that '... objectivity in religion ... consists in healed lives,' and the full quotation for 1. is, 'in being most fully ourselves we are also realising God in the world.' And again, in the first part of 2. the full quotation is 'God should be conceived to be the fullness of all our potentialities ...' Some sort of judgement has been made about what constitutes 'fullness' and it is seen as being, in some way, better than being less than fully ourselves.

However, even if years of study are needed to elicit exactly what a 'fully herself' woman is, we still have to face a new definition which is the inverse of the normal 'absolutely other' God. Here is a new God who is almost exactly the same as any and every fully womanly woman and (picking up on later Hampson remarks) is not absolute, is changing (not changeless) not the creator but a created thing, not omnipotent but limited in power, not omniscient but ignorant of much ... and so on. Some characteristics of the classic Christian God remain: compassionate, loving, healing, forgiving, just, nurturing. It is not clear why these 'good' characteristics are part of a 'full woman' and not their opposites: vindictive, hateful, destructive, unforgiving, capricious... As justification for the 'good' characteristics one can imagine some sort of pragmatic utilitarian justification, or

possibly some idealist justification ('love just is better than hate, don't ask me why'). But no appeal is allowed, as it is for the classical theologian, to the nature of good in humans reflecting the nature of God; the feminist theologian may not seek to justify her (or his) picture of God's nature in Hampson's way without circularity.

God-is-me and the Theologic

This new Hampson God is, like the Daly God, one of the least accessible to my Priorian theologic, but for different reasons. As set out before

Xp = God is pleased when p

but in a Hampsonian theology I need

Xp = I, in my fuller moments, am pleased when p

and the result is that some laws in the theologic become self evident, whilst others are only occasionally true, or obviously false. Here are some examples (with a universal quantifier added to make the examples read more naturally):

Th2. $\Pi pCXpYp$ < what God is pleased about, he-she is not worried about >.

Inside the pointed brackets is the usual meaning in DP theology;

< what I am pleased about I am not worried about >.

This is Hampson's meaning; it seems perfectly acceptable.

Th1. $\Pi pCXpp$ < if God is pleased, then what he-she is pleased about happens >.

Inside the brackets is the usual fleshing-out of the symbols, for example, in DP theology;

< if I am pleased, then what I am pleased about happens >.

This would be Hampson's use of the formula. It seems intuitively false.

Hampson's meaning of the symbols will occasionally be the case, but often not. For example: if I am pleased to do some action, say, mow the lawn, then the lawn will be mown. But not always – it may get dark before I can get round to mowing, or I may break a leg, or the lawn get swept away in a flood. Another example: if I was pleased that something happened, that the baby did not cry, then I was pleased. But this is $CXpp$ collapsing into Cpp < if I was pleased I was pleased >.

When such 'snags' in the interpretation of a modal logic (and the *Theologic* is a modal logic) occur there are various remedies:

(i) Each offending interpretation – and possible whole laws otherwise acceptable – can be struck out by adding to the axioms a new axiom which forbids this move or interpretation. As you can imagine this can become ridiculously clumsy, especially when (as is the case in many theologies) there are hundreds of axioms already and very few derived laws, that is, very few logical manipulations of the axioms).

(ii) A particular class of interpretations may be ruled inadmissible. In the case we have been looking

out this would involve a new rule for Hampson's theology: that no interpretations about the future are intended or allowed.

(iii) A new interpretation of 'X' can be found which allows what, at first, seemed unlikely to be read in an acceptable way. As an example of this remedy, the Priorian interpretation of 'O' < 'obligatory' > enabled him to proceed where others had been unable to go.

In the Theologic outlined in Chapter 5, I allow that the god(s) of classical religions are themselves (or collectively) in control of the universe; that they can interfere in the lives of people; or they can indirectly interfere by giving each person a fate they must have. This omnipotence is reflected in the usual meaning of 'X' in the Theologic: the simple classical gods are assumed to be so much in control that future events can be manipulated as present events are, and we use the simple 'X' for 'was pleased', 'will be pleased', 'is pleased' about propositions and events no matter what times are involved. In Hampson's theology, however, the god is not omnipotent, being in fact an abstraction from (or possibly a combination of) the attributes of single real people. Therefore, a Hampson theology will require time constraints on 'X'. For Hampson's god the standard Theologic with its 'X' will work only with propositions about, and events in, the past. For Hampson's god new rules or new symbols rather than 'X' will have to be found for proposition about, and events in, the present and future.

The attributes of God

Hampson's third type of statement about God is that God has attributes. These attributes, when added together, build up a picture of a god who has:

10c. *always been the case;*

17. *whose name has a reference, i.e., is eternal and external to 'the self'.*

These parts of an ostensive definition of God are (if I have understood them correctly here) contradictory to her *I-am-God/God-is-me* definitions considered above. The most liberal interpretation I can give to this confusion is that Hampson means the earlier *I am God* definitions to be taken more as hints than hard and fast statements – something on the lines of a suggestion that what we want are statements of this sort: *God is other, but created by ourselves and/or manifest in ourselves.*

On the other hand, she may feel that her *God has a reference*, and *God is not absolute*, apply to a god who is in fact *herself* in her case, *myself* in my case. Or, and this seems most likely, she may feel that I am being too rigorous, too analytical, too literal, too 'logical', in all my readings of her statements. She may, indeed, prefer to take a sort of 'Barthian' position such as, 'Unless you are a woman and have experienced God as a divine spirit within yourself, then you cannot understand what I am talking about.' This is indeed an attempt to leap between the horns of the *God is me/God is other* dilemma. The logician is now puzzled for he or she might have expected a dilemma-defying leap to have invoked God having a new sort of logic, for example, one that would deny that truth is bi-valent, as Jantzen does at times. The proposed way out does rather put a stop to further discussion.

Two of Hampson's ideas for theologians to ponder.

1.

Hampson says that the word 'God' has a reference (page 285) and then adds, '[God] is not simply to be de-mythologised nor is human spiritual awareness to be translated without remainder into ethics.' The de-mything process, begun most notably by Bultmann in the early 1900s, and then abandoned, is now alive and well again. This is not so in systematic theology so much as in popular disdain for 'churchy mumbo-jumbo'; theological jargon is seen to belong to a world before psychology had explained human motivation and at a time when it expressed itself in fanciful stories and metaphors. There is also disdain for talk of God as a real, most powerful, medieval king, living as we do in a solid place, called heaven, in the sky, busy zapping evil-doers unless they repent. Science, democracy, and feminist insights have made such pictures literally untrue and poetically unhelpful.

However, Hampson says we are not to carry de-mything God too far. Perhaps she is suggesting that her own *God-is-me* picture is a mythology? But we need not declare it to be a myth; *God is me* can be a theological/logical/philosophic construct from behaviour and emotions and since mental constructs are as real as anything in this world, the rather pejorative word 'myth' does not need to be used. Other examples of mental constructs must include the heroines of novels, numbers, the average woman, and so on, but, being mental constructs, they are different sorts of things (belong to different categories of things) and have special rules of their own. Propositional logic deals with 'Victoria University is a lively place' exactly the same way as 'Anna Karenina is a heroine of Tolstoy's novel', and 'Xantippe was a woman' and 'Daphne Hampson is a post-Christian theologian' by calling them all propositions; but to say that The Victoria University is a heroine of Tolstoy's, or is a post-Christian theologian, or has a pink hat on; these are not only false propositions but also category mistakes; that is, they are not *logical* errors (a false premise is not a logical mistake), but mistaken in their attempt to convey ideas.

2.

Hampson says that human spiritual awareness is not to be translated, without remainder, into ethics. I think she would be reasonably happy to say God is not translatable thus. As I am inclined to undertake such a process and to recommend it to anyone trying to get logical impossibilities out of a theology or unbelievable dicta out of a religion, I am very interested in her rejection of it.

The process of translating God-talk into ethics-talk may start with two realisations: that God-talk contains a great deal of poetic representation of psychological phenomena; and a conviction that we still have a religion when the translation process is over, when God has vanished, but there remains a set of rules – a corpus of wisdom, if you prefer that description – about how to behave towards other people. Such religions do exist, for example, 'pure' Buddhism and 'pure' Confucianism, that is, those faiths shorn of their gods, magic and demons. Other 'pure' religions have been invented, during the French Revolution, for example. Still others are being developed. It might be argued that Hampson's propositions about *God-is-me* inevitably arrive at a translation, or are better phrased, without the word 'God' at all; Christian theologians who want to use the word 'God' as a symbol (for exactly what does not matter much at this moment) are also removing God from religion. Furthermore, some scholars look for the firmest evidence about Jesus's life and words, and then decide which are reliably Jesus's; if they then find these actions worth imitating and the words inspiring, yet refuse to deify Jesus, they are also following a religion without gods. At least one person can be found preaching this gospel at Hyde Park Corner on Sundays.³¹

These two realisations suggest that all sentences with the word 'God' in them can be mined for comment on the human condition and need not be expected to give descriptions or ostensive definitions about some concrete (or even 'spiritual') object. In the 1950s the phrase 'God is a need-projection' was in vogue in my university circles and summed up the sort of translation or de-mything of Biblical stories that was going on. Thus, God rolling back the Red Sea was seen as a

story which raises one's hopes when things are going badly; the story of Job reminds people that virtue may go unrewarded but is virtue nevertheless; the story of Adam and Eve, the tree of knowledge, the expulsion from Eden, helps to make knowledge and work noble, if uncomfortable; the story of Zaccheus tells us that all people have good in them; the story of the good Samaritan reminds us that good actions may come in the strangest guises and loving behaviour is universal; and so on.

From a logical point of view the use of new meanings for the word 'God' is fraught with problems, and these can be seen first when a simple substitution is expected. Above I have not been able to find good substitutions in such simple statements a 'God rolled back the Red Sea' and nothing like, 'My need-projection rolled back the Red Sea' will do at all. The whole story, regarded for at least 2000 years by the majority of Jews, Christians and Moslems as history, has to be abandoned – it never happened – or, if the sea did dry up at a crucial moment for the Israelites it was either pure chance, or a periodic phenomenon they knew about and could make use of, or only the Israelites knew about the safe paths through the reedy salt-marsh, or something else credible. And what is left is (a) the fact that later Jews saw the escape as the intervention of a friendly god, and (b) a story which is an inspiration to those in trouble (if they believe in such a god). Such are the results of *de-mything*.

The results of *psychologising* are perhaps something like the following: all humans get into trouble, feel pursued by mental daemons, or are pursued by real shooting enemies; if they believe in an external caring power (as demonstrated by this story) they can overcome their mental problems or accept their fate from the real enemies (usually with some theory of sin, retribution or virtue rewarded in another life). The results of other analyses from other disciplines can be added, for example the *sociologists* may add their descriptions of the effect of good stories on mass movements, the willingness to volunteer for wars and get killed, and even cult suicides.

The *Moralist* may also try in his or her discipline to re-interpret the Red Sea story. However, I am not sure how God (or even human spiritual awareness) can be reduced without remainder in this case. We seem to get left with:

Israelites good, Egyptians bad; good wins.

That leaves a lot of remainder, particularly the historical occurrences and the poetic, religious, psychological, and sociological uses of the story since. Also God is waiting in the wings to be popped back into the story if we contemplate a definition of good and bad as 'what God likes' and 'what God dislikes' as it could well be in my Theologic. However, moving from the first stage of the Theologic with the 'X', 'Y' and 'Z' operators read as 'God likes ...', 'God is indifferent about ...' and 'God dislikes ...' to the second stage where '*h*' stands for 'escaping gehenna' *does* remove God from a great number of laws, and possibly without remainder.

Hampson's use of the word 'spiritual'

I have not tackled the feminist use of the word 'spiritual' as in Hampson's, 'God is what spirituality reveals,' and in the *without remainder* passages above. The word means wind, puff of air, breath, and is in Greek, πνεῦμα, *pneuma* (as in 'pneumatic tyre'), and in Latin, *spiritus*, and from there straight into ecclesiastical English and common use. I find it easy to understand the wind metaphor in 'a spirited performance', 'high spirits', 'strong spirits', but almost impossible to understand in, 'God is a spirit', or 'human spiritual awareness.' Hampson (page 284) says of Christianity that it is a system of thought, created by males, which sets God apart from the universe and that this flies in the face of what has scientifically come to be understood as reality. I suggest that her own use of 'spirituality'

sounds like pure animism or neo-platonic dualism and to quote her in this context 'The need to jettison this myth [dualism] has been with us for some time.' Jantzen also says that the philosophy of dualism should no longer be given any credence. I must say that these statements are the only ones with which I wholeheartedly agree in all feminist theology.

Conclusion

In this critique of some feminist theologies from a logical point of view I do not wish to leave the impression that all of what Daly, Irigaray, Jantzen, and Hampson say is totally muddled and illogical; I have come across worse tangles (usually more subtle and therefore more difficult to detect) in the thinking of Christian apologists (mostly male, historically) and the notions of *God-the-verb* and *God-is-me*, are considerably more interesting, and as worthy of logical study, as the theologies of *God-the-other*. At the very least, feminist theologies do not appear to fall into the trap, as Gaia theologies do, of saying that *God-is-everything* and thereby say that *God-is-nothing*. However, I do recommend to all new theologians in all religions, old and new, and to all thinkers trying to find some place for God or gods in a universe being successfully described scientifically, that rigorous application of logic is necessary to give their thoughts credibility.

I have pointed out that *God-the-verb* can be pursued using Egocentric logic and shown something of how the *Theologic* would have to be modified to be useful in both *God-the-verb* and *God-is-me* theology. I have shown that modern 'Christian' or 'Post-Christian' theologies fall into three classes. *God-the-verb* is linguistically, logically and conceptually quite different from all other theistic religions. *God-the-symbol* theologies and *God-is-me* theologies do try to give us something that can be admired, enjoyed, praised, that is, that can be worshipped. I suggest that those who espouse a *God-the-symbol* religion have failed to do this, although not having a worship-worthy deity may not be all bad. The feminist proponents of *God-is-me* create a new abstraction out of very disparate objects, thoughts and emotions (Hampson's 'all our potentialities', 'being ourselves', 'love', etc.) but do not suggest that this class is just a symbol for something else. If feminists had wanted 'God' as a *symbol* then they might have said that the word 'God' stands for what can be admired, enjoyed, and praised in a particular woman (usually oneself), or in womankind. However, these feminist theologians have avoided the strangeness of saying, 'God is the *symbol* for all we admire, trust, enjoy, hope for, etc.,' which would have left us wondering if worship was appropriate – why should one worship a symbol? Worshipping oneself may seem like the sin of pride or idolatry, but at least it is understandable. A fourth class of modern theologies, which we might call *God-is-everything* theologies, is the subject of the next chapter. In its earliest form and its latest form it has no roots in Christianity so Post-Christian is not an adequate description.

It is difficult to write logical analyses of feminist theology because feminists, in general, talk and write in a very 'feeling' style and their arguments come more like a shotgun attack than a sniper's. However, logic deals with what there is, and the relationships between 'things' when they are talked about in propositions with logical form. Feminists use logical sentences, and can be very sharp in bringing out the logical consequences from the axioms or facts which they hold or discover. However, in the examples of feminist theologies I have been looking at, the logical consequences of what is being said need a lot more work.

Notes and References

1. Daly, 1986, pp. xvii - xix
2. Ibid. pp. 33 - 35
3. Ibid. p.183

4. Irigaray, 1993a, p.5
5. Ibid. pp. 6 - 8
6. Ibid. pp. 12 - 13
7. Ibid. pp. 7 - 8
8. Ibid. pp. 27 - 23
9. Irigaray (1993b) p. 68

10. Jantzen, 1999, pp. 62 - 63
11. Ibid. p. 65
12. Ibid. p. 65
13. Ibid. p. 271
14. Ibid. p. 271
15. Ibid. p. 256
16. Ibid. p. 258
17. Ibid. p. 264
18. Ibid. p. 351
19. Ibid. p. 565

20. Hampson, 1996b, p. 49
21. Ibid. pp. 49 - 50
22. Ibid. p. 250
23. Ibid. p. 251
24. Ibid. p. 252
25. Ibid. pp. 284 - 285

26. I thank my wife, Judith, for this wonderful bit of word-smithery, but we both have to admit that A.R.D. Fairburn had already spotted it independently and suggested that 'johnpascoe' could be coined to mean 'I am beginning to take photos of the Southern Alps'.

27. Prior believed that possibilities were just that and did not have any 'real' or 'other dimensional' existence, He strongly defended this idea and quoted with approval Lukasiewicz on the topic of times of suffering and guilt . See *Past Present and Future*, 1967, p.28; also Copeland, 1996, p. 26 - 27.

28. Pope, *An Essay on Man: Epistle II, Of the Nature and State of Man, with respect to HIMSELF, as an Individual*; line2.

29. Cited in Russell (1937), p.206.

30. Ibid. p.259

31. A discovery whilst walking my grandson in Hyde Park past Speakers' Corner, January 2001.

PART 2

Section 3: Pantheism

Chapter 13

Pantheism:

Spinoza, Teilhard de Chardin, Lovelock's Gaia

Ancient pantheism

Spinoza

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Ancient pantheism

Modern pantheism has arisen from a situation where a reasonably clear idea about what there is – namely a single god – has been confronted by a new picture of what there is – in our case, a scientific exploration of things external to us, and new theories about things internal to us, for example hopes, fears, emotions, motives, moral imperatives, and so on. The very name 'pan-theism' shows that the notion of there being a god or gods was current when a word for this type of religious thinking was first catalogued and noticed. However, the first suggestions of a pantheist world view are attributed to ancient Greek and Hindu thinkers who lived in a world of many gods, not our Western monotheistic one.

The very earliest (6th century BCE) Greek thinkers we know about, Thales and Anaximenes had some idea of physical objects being infused with a divine power. Xenophanes took up this idea and added criticism of the anthropomorphic gods of Homer and their immoral ways of behaving. Aristotle said of him, 'with his eye on the whole world he said that the One was god,' but also complained that he, 'made nothing clear.'¹ The Stoics are similarly unclear. The Roman Marcus Aurelius can be plausibly considered as a pantheist – he addresses the Universe as a deity² – but he could be just saying, poetically, that some sort of order is obvious in all the universe, and that such a thought is awesome.

In early Indian thought the idea of Brahman is refined from earlier cults which had propitiating sacrifices to gods. Brahman is the single and infinite reality, unchanging, which lies behind the illusion of material objects and their constant change. Here is a western philosopher of religion (Alisdair MacIntyre) summing up the very clear logical steps in which this idea is refined:

The equation of plurality and change with imperfection is an assumption of the Vedananta teachings. From it is drawn a proof of the illusory character of the material world, as well as its imperfection. Where the material world is real, it must, being neither self-existent nor eternal, have originated from Brahman. But were Brahman such that, from within it, what is multifarious, changing, and therefore imperfect could arise, then Brahman would be imperfect. And what is imperfect cannot be Brahman.

We take the illusory for the real because our knowledge is itself tainted with imperfections. Our ordinary knowledge is such that the knower and the known, subject and object are distinct. But to know Brahman would be for subject and object to become identical; it would be to attain a knowledge in which all distinctions were abolished and in which what is known would therefore be inexpressible.³

Spinoza⁴

The first western philosopher/theologian to arrive at, and write clearly about, a pantheist belief was Baruch Spinoza, who Bertrand Russell calls 'the noblest and most lovable of the great philosophers' and adding, 'Intellectually some others may have surpassed him, but ethically he is supreme.'⁵ In his *Ethics* he treats theology with the highest regard it can have, that is, he treats it rationally. He begins by stating facts he regards as unchallengeable, and these are logical facts, and he calls them axioms. Here are the seven with which (after carefully defining the meanings of some eight terms) he begins his first section, 'Concerning God'; his text reads:

AXIOMS

- I. Whatever is, is either in itself or in another.
- II. Whatever cannot be conceived through another, must be conceived through itself.
- III. From a given determinate cause the effect follows necessarily; and conversely, if there is no determinate cause, it is impossible for an effect to follow.
- IV. The knowledge of effect depends on, and involves, the knowledge of its cause.
- V. Things which have nothing in common with one another also cannot be understood through one another, *or* the concept of one does not involve the concept of the other.
- VI. A true idea must agree with its object.
- VII. If a thing can be conceived as not existing, its essence does not involve existence.⁶

Thirty six Propositions and a greater number of Demonstrations (Proofs), Corollaries and Schola (Notes) to the propositions later, Spinoza sums up what he has achieved in Part 1 of *The Ethics*, beginning his Appendix as follows:

With these [proofs] I have explained God's nature and properties: that he exists necessarily; that he is unique; that he is and acts from the necessity alone of his nature; that (and how) he is the free cause of all things; that all things are in God and so depend on him that without him they can neither be, nor be conceived; and finally, that all things have been predetermined by God, not from freedom of the will *or* absolute good pleasure, but from God's absolute nature, *or* infinite power.⁷

This is not easy reading for philosophers, let alone theologians, of the present day. However, he has clearly stated his position: that nothing exists but God. In Part 1 Proposition 14, he puts it: 'Other than God, nothing can *be*, or be conceived,' and demonstrates this (see below). Thus Spinoza is an uncompromising pantheist. Just talking about his ideas had got him into a lot of trouble; he died in 1674 and his *Ethics*, whose publication he had several times delayed (knowing well what a stir it would cause) was not published till 1676. It is important to look closely at several of the problems his theory had thrown up, particularly the matter of free will (and therefore, ethics); however, in his way of proceeding he and I seem totally agreed.

Agreement about the the basic blocks of rational thinking (the logic, and the axioms on which the logic will work) *must* precede the theology. On many occasions agreement about theology, logic,

and axioms does not precede *belief* – the believer supplies the theologian with the axioms – but the workings of rational thinking will usually engender problems for the believer. Often as not, the beliefs (the axioms supplied) turn out to be inadequate or incomplete or incompatible. Then, if you are to be rational, the options are at least four.

(a) If the beliefs prove to be irrational (illogical) some of them will have to be abandoned. (This is the solution I have proposed for the problem of a creator-god existing before creation.)

(b) Some of the beliefs will have to be modified. (This is the solution I have recommended, in dealing with the problem of evil.)

(c) If the beliefs prove to be not part of the current received theology then you have ‘heretical’ beliefs, and your (heretical) beliefs must be abandoned.

(d) a new theology should be erected on the set of beliefs you do not wish to abandon.
(One or other of solutions (c) and (d) have resulted in most of the schisms of the Church.)

However, we are people of *our* times and many of Spinoza’s concerns, expressed in the language of his day, seem misguided to people of the 21st Century; for example, his concern with the concept of ‘substance’, once useful to theological descriptions of supposed occurrences such as ‘trans-substantiation’, now seems to be a blind avenue, being bad physics, pre-scientific psychology, exploded myth, and/or unhelpful metaphor. Perhaps if Spinoza were reincarnated today he would at first find symbolic logic very strange, but as he got to use it he could well find it very useful for his programme. His programme sprang from his intuition that from basic truths and good reasoning upon them, we may arrive at a new understanding of God, of mankind, and their relationships. Thus he is *constructive* in his endeavours. My difficulty with him is mainly that I reject some of what he regarded as basic truths (for example, his belief that God is, or has to be, an ‘absolutely infinite being’) not with his deductions from them.⁸

Objections to some of Spinoza’s ideas

1. SPINOZA’S COSMOLOGY

Spinoza’s proof that God exists and is an infinite, necessary and uncaused, indivisible being, the only substance of the universe, proceeds in three simple steps. First, establish that no two substances can share an attribute or essence (Part 1 Proposition 5). Then, prove that there is a substance with infinite attributes (i.e., God) (Part 1 Proposition 11). It follows that the existence of that infinite substance precludes the existence of any other substance. For if there were to be a second substance, it would have to have *some* attribute or essence. But since God has all possible attributes, then the attribute to be possessed by this second substance would be one of the attributes already possessed by God. But it has already been established that no two substances can have the same attribute. Therefore, there can be, besides God, no such second substance.

The logic is correct; but the argument depends on there being ‘substance’. Getting around Spinoza’s use of the term ‘substance’ *we* would probably say that Spinoza’s fundamental insight is that Nature is an indivisible, uncaused, substantial whole – in fact, it is the only substantial whole. We, nowadays, would probably say that to see all the multifarious bits of the universe (objects, emotions, thoughts, abstractions... the lot) as a whole, is a mind-boggling leap, seeing how different these bits are. But it is a possible thing to do. The great difficulty is saying anything meaningful

about such a great single 'thing'. To do so seems like trying to talk about God before creation when God was the only single thing – and we have seen how difficult it is to say anything useful in such a case. There is nothing to compare and contrast with the universe-object so saying anything is going to be just as difficult and just as likely to be unproductive. Spinoza's main manipulation of the concept is to compare the unitary universe to a non-unitary universe and to say the two concepts are incompatible (see above).

Outside of Nature, Spinoza maintains, there is nothing, and everything that exists is a part of Nature and is brought into being by Nature with a deterministic necessity. This unified, unique, productive, necessary being, is, he says, just what is meant by 'God'. Nature does not act for any ends, and things do not exist for any set purposes. God does not do things for the sake of anything else. The order of things just follows from God's nature with an inviolable determinism. All talk of God's purposes, intentions, goals, preferences or aims is just an anthropomorphising fiction. Teleology is impossible.

Not only that but, as his Jewish countrymen pointed out when they excommunicated him, it proves 'God existing in a philosophical sense' only. Spinoza, as we know, was pleased that this was so and (in Part 1 Proposition 15 Note) he writes 'There are some who think God to be like a man in mind and body and liable to all passions. But how far they wander from the true conception of God must be agreed from what I have already proved.' Most interestingly, he sees anthropomorphic conceptions of God as resulting in a curtailment of human freedom and activity.

Spinoza's God is the cause of all things because all things follow causally and necessarily from the divine nature. Or, as he puts it (in Part 1 Proposition 17, Note) from God's infinite power or nature 'all things have necessarily flowed, or always followed, by the same necessity and in the same way as from the nature of a triangle it follows, from eternity and to eternity, that its three angles are equal to two right angles.' The existence of the universe is, thus, mathematically or logically necessary. It is impossible that God should exist but not the universe. There are no possible alternatives to the actual world, and absolutely no contingency or spontaneity within that world. Everything is absolutely and necessarily determined.

There are, however, differences in the way things depend on God. Some features of the universe follow necessarily from God directly: these are the universal and eternal aspects of the world, and they do not come into existence nor end. They include the most general laws of the universe: from the attribute of extension (a modern physicist would probably have picked on *mass*) there follow the principles governing all extended objects (the truths of geometry) and laws governing the motion and rest of bodies (the laws of physics); from the attribute of thought, there follow laws of thought (the laws of logic). However, particular and individual things are *causally* more remote from God. All separate things are 'nothing else than modifications of attributes of God, or modes by which attributes of God are expressed in a certain and determined manner.' (Part 1 Proposition 25 Corollary).

Almost no one would talk and argue like this nowadays. The modern logician is quite clear that absolute necessity (and therefore certainty) is to be found only inside systems, not outside them, and having a consistent, reliable, 'valid' system is no guarantee that the system has any parallels, validity, usefulness, or necessity in the rest of the universe outside its narrow side-show. The modern cosmologist *does* look for a universal set of physical laws applicable together to all matter and energy and time. These laws are, however, not yet fully known because matter, energy and time are not yet fully understood. In this they are in agreement with Spinoza, but they find no need to call all matter, energy and time by the word 'God'. On whether matter, energy and time are infinite (that is extending for ever in space and having no beginning or end in time) modern cosmologists are divided and see this again as a matter for investigation, not belief. In this they are quite unlike Spinoza for whom the idea of God (i.e., everything) being infinite was quickly proved from the concept of substance, as shown above. It is clear that modern theories about the nature of the world, the universe, the cosmos, find the concept of 'substance' and 'God' superfluous and distracting.

Can Spinoza's ideas survive, logically? Logicians might look for, and discover, an unstated axiom in Spinoza's arguments. It could well be:

AXIOM VIII: The concept of 'substance' is valid, and there is an infinite, uncaused, necessary, indivisible, ... substance (call it 'God').

A modern Spinoza, with all the benefits of the theories of Relativity and sub-atomic physics, and avoiding such concepts as 'substance' might begin his pantheistic theology like this:

FACT 1 There is a fundamental particle/force from which all matter, energy, space and time derive.

ARGUMENT 1

Then, if there is no randomness in events,
 then, if there are no local variations in the behaviour of the fundamental particles/forces,
 then, if we call the sum total of all fundamental particles/forces and their events, 'God',
 then, ...

Modern scientists and philosophers would call such an argument an example of 'reductionism' at its most rampant. That is, it attempts to explain all events with one basic rule. At its most extreme it suggests that the beauty of a sunset may be 'reduced' to a description of the movement of particles/forces in the sub-atomic bits making up the cells of the brain of the beholder.

Most arguments about reductionism are, on the whole, not well put together, and mainly turn on the fact that the 'reduced' description (of, for example, our pleasure on seeing a particular sunset) does not equal what we experience and therefore will not do as a useful or enlightening substitute – that is, it is not about the same thing. The reductionist will probably reply that it is *about* the same thing (our pleasure on a particular occasion and its cause) and the reduction *adds* to our *understanding* of what is going on (rather than adding to our pleasure, or aesthetic appreciation, or good taste, or the state of the rods and cones in our eye...) and therefore is a new piece of knowledge, if nothing else.

2. FREE WILL AND MORALS

A major criticism of Spinoza stems from his determinism: he is quite sure that everything, being part of God, has a cause and that includes everything people do. This has serious ethical implications. Spinoza, therefore, makes a detailed analysis of the composition of people in the greater part of the *Ethics*. What we have looked at so far is just the First Part, and not by any means the longest of the five Parts that make up the *Ethics*. The Second and Third Parts are on the mind and the emotions; the Fourth on human servitude following from the strength of the emotions; and the last, the Fifth, on the power of the intellect to grant human freedom. If we are a part of Nature, just like other extended and mental beings, as Spinoza has found in the First Part, this implies that human beings are not endowed with freedom, at least in the ordinary sense of that term. This Spinoza sees clearly: our minds and the events in our minds are simply ideas that exist within the cause/effect series of ideas that follows from God's attribute *Thought*, therefore, our actions are just as necessarily determined as any other natural events. In Part 2 Proposition 48 he says 'In the Mind there is no absolute, or free, will, but the Mind is determined to will this or that by a cause that is also determined by another, and this again by another, and so to infinity.'

Although Spinoza follows Descartes in his general view of the power of reason and mathematics, Spinoza is the more rigorous. Descartes, for example, believed that if the freedom of the human being is to be preserved, the *soul* must be exempt from the kind of deterministic laws that rule over the material universe. If there is a soul (and in general he did not like the concept) Spinoza knew it must be subject to the same laws of causation as every part of his system – every

part of God. Spinoza's aim in Parts Three and Four is to put human beings, our actions, our intellectual activities, our decisions and our emotional life into their proper place in nature. Nothing stands outside nature, not even the human mind. He defines 48 *affects*. We would call them our feelings or emotions: our love, anger, hate, envy, pride, jealousy, etc. Of them he says in an introduction to Part 4, 'I shall treat the nature and force of the emotions, and the power of the mind over them, in the same manner as I treated of God and the mind in the preceding parts, and I shall regard human actions and desires exactly as if I were dealing with lines, planes, and bodies.'

Spinoza thinks that usually when we are doing something and when we are having something done to us, there is some change in our mental or physical capacities. Everyone (in fact he thinks everything) has, naturally, such a power or striving. 'Each thing, as far as it can by its own power, strives to persevere in its being.' Importantly, an *affect* (emotion) is any change in this power, for better or for worse. *Affects* that are *actions* are changes in this power that have their source in ourselves, arise from our own personalities and good sense; *affects* that are *passions* are those changes in this power that originate outside us, from other people's actions, or just the vicissitudes of life.

Spinoza would have us strive to be free from the passions – or at least to learn how to moderate and restrain them – and become active autonomous beings. If we can achieve this, then we will be 'free': whatever happens to us will be the result, not of things outside us, but of our own nature.

Will Spinoza's account do as a description of free will? Does it give us the right to say that some actions are right and others wrong? Can we build an ethical or legal system upon it? What sort of a basis does Spinoza give for his advice to strive to be free of passions – is this a utilitarian morality or is it based on some (unnamed) moral axiom of the sort 'natural actions good, passions bad'?

It is fairly clear that Spinoza's argument fails to give him a certainty about ethics as mathematics does about lines, planes and bodies. Again his logical progress has few if any flaws, but his argument relies on a description of the psychology of the mind which is not credible now, even if it was then. We admire his journey but are sure he started from the wrong place; as the Irishman said to the lost traveller, 'If I were going to Dublin I would not start from here.' It is reasonably clear that Spinoza holds a form of utilitarian ethics; he has been called a 'psychological and ethical egoist'. He regards everyone (and perhaps all living creatures) as naturally, first and foremost, seeking their own advantage, and considers that it is right for them to do so; to seek your own life, health and happiness is what virtue is. There are the usual logical problems with basing an ethical system on such a circular definition of what is good (see the brief discussion in Chapter 7). There could also be objections to virtue= selfishness from historical/ethical case-studies in the rise of nineteenth and 20th century *laissez faire* ethics, and the injustices which were allowed (even encouraged) when they were based upon people adopting such an inherently selfish view of what is virtuous behaviour.

Spinoza, however, lived before these theories were enunciated, and hoped for a quite different result from his logically constructed religion. His recommendation that we strive to be free from passions, would, he worked out, liberate us from troublesome emotional ups and downs of this life. We would increase our knowledge, our store of adequate ideas, and eliminate as far as possible our inadequate ideas. Inadequate ideas follow not from the nature of the mind alone but because such ideas are an expression of how our body is affected by other bodies. In other words, we need to free ourselves from a reliance on the senses and the imagination, since a life of the senses and images is a life being affected and led by the objects around us. We should rely (as much as we can) only on our rational faculties. He managed to do this in his own life, and this is why Bertrand Russell praises him.

So his solution to attaining the good life is an ancient one. Since we cannot control what impinges upon us from outside we ought instead to try to control our own evaluations; we would thereby minimize the sway that external objects, and the passions they engender, have over us. We can never eliminate these entirely: we are essentially a part of nature, and can never fully remove ourselves from the vast numbers of causes that link us to external things. But we can counteract the

passions, control them, and achieve a certain degree of relief from their turmoil. Thus Spinoza's pantheism arrives at beliefs close to those of Buddhism, as we will see later. However, *reason*, and not (as in Buddhism) a programme of body and mind control, is Spinoza's route to salvation: since we are thinking beings, endowed with intelligence and reason, our greatest advantage is knowledge. Our virtue, therefore, consists in the pursuit of knowledge and understanding, of adequate ideas. This is to say, in his world view, that, ultimately, we strive for a knowledge of God.

3. THE PROBLEM OF EVIL

Spinoza is as logical about evil as about all other aspects of his system: evil exists and is, therefore a part of God. That there is too much evil is, however, due to people not using their intelligence properly and, instead, giving reign to their passions. This line of argument can be run by atheists as well as theists; even the effects of natural disasters such as earthquakes and infections can be mitigated by science, engineering and medicine, given the political will to have resources provided for the thinking, the legislation, the wealth redistribution mechanisms. However, Spinoza is more interested in the logic of the universe and sees evil as a human way of describing what to God (to the universe as a whole) is only a part of the whole, and not be judged on its own. Russell points out that this doctrine has been held by most mystics and cannot, of course, be reconciled with doctrines of sin and damnation. To Spinoza 'the knowledge of evil is an inadequate knowledge.'

4. THE 'KNOCKDOWN' ARGUMENT AGAINST SPINOZA

The logical argument against Spinoza – and all pantheists – is not new. Earlier critics of Spinoza include Coleridge and Schopenhauer and they use this argument. Coleridge said,

'every thing God, and no God, are identical positions.'⁹

Coleridge's contemporary, Schopenhauer said that

'to call the world 'God' is not to explain it; it is only to enrich our language with a superfluous synonym for the word 'world.'¹⁰

A more modern critic using the same argument is Owen, who says,

'If 'God' (theos) is identical with the Universe ... it is merely another name for the Universe. It is therefore bereft of any distinctive meaning; so that pantheism is equivalent to atheism.'¹¹

The argument depends on our agreeing that if two facts are identical then they are the same fact. This is very hard to express in logical notation because it is assumed by almost every system.

Epp is usually translated as $\langle p \text{ is equivalent to } p \rangle$.

However, the formula

Sp1. *Epq* $\langle p \text{ is equivalent to } q \rangle$

although it can be translated as ' p is identical with q ', and its introduction into a logical proof would get some of the idea Spinoza seems to want, both p and q are by nature *variables* for whole sentences (propositions), not for names or nameable objects. 'The world' and 'God' in pantheism,

may be identical, but the introduction of Epq into a logical system would lead to the collapse of the system. We need the predicate calculus with its capacity to deal with 'everything' and 'something'.

$Sp2. E \Pi x \phi x g \Pi x \phi g x$ < everything is God, is equivalent to, God is everything >

looks like the necessary formula. Unfortunately what it is actually saying is

< every particular thing is God, is equivalent to God is every particular thing >

< (my hat is God, and your feeling of exasperation is God, and the plot of Wuthering heights is God ... and everything else you could name is God) is equivalent to (God is my hat, and your feeling of exasperation, and the plot of Wuthering heights ... and everything else you could name) >

and although this is a valid equivalence (a tree proof will show it) it is not what we are after. We are looking for a way of dealing logically with the idea that if you bundle every individual thing into one great object, then it is identical to God.

There is a logic which has been created especially to deal with classes of objects, even one as large as the whole universe, as a special kind of real object. In the 1950s the Polish logicians Lesniewski and Sobocinski developed a logic called Ontology which deals with the idea that some named object, for example, 'a', exists or does not exist. Ontology uses ε to mean 'The ... is a ...'. Now we can write

$Sp3. \quad \varepsilon ab \quad < \text{the } a \text{ is a } b >$

and lots of laws can be developed, such as

$Sp4. \quad C \varepsilon ab \varepsilon aa \quad < \text{if the } a \text{ is a } b \text{ then the } a \text{ is an } a >.$

An extension of this logic called Mereology introduces the idea of an 'element' of a , written as μa , and classes of objects written as κa . Now we can prove from $Sp4$. two useful formulæ for talking about Spinoza's equivalence of God and the universe.

$Sp5. \quad C \varepsilon \kappa b \varepsilon aa \quad < \text{if the } a \text{ is the class of } b\text{'s, then the } a \text{ is an object} >$
 $< \text{if God is the class made up of every thing (the universe) the God is an object} >.$

and

$Sp6. \quad C \varepsilon \kappa b \Pi C \varepsilon cb \varepsilon \mu a \quad < \text{if the } a \text{ is the class of } b\text{'s, then, if anything is a } b \text{ it is an element or part of the } a >$
 $< \text{if God is the class made up of every thing (the universe) then, if anything is the universe it is an element or part of God} >.$

My instancing of the Mereological laws in 'Spinoza language' may not be doing justice to either Lesniewski's intent nor to Spinoza, but it does show that someone interested in finding a logic for pantheistic ideas may find Ontology and Mereology useful.¹²

Is Spinoza's God the same as the universe? If it is, Coleridge, Schopenhauer, and many since are quite right to say that there is no need to change the meaning of 'God' to mean the universe since we have a perfectly adequate name already (and several synonyms, such as 'the world') and 'God' has a perfectly well understood meaning already. It might be worthwhile to change something if 'universe' or 'God' was unwieldy and time consuming to use, for example, if we had to enumerate

the contents of the universe every time we wanted to use the concept; but we have a handy word; use it. This is the principle of parsimony at work.

There are many people who try to rescue Spinoza from the accusation that he has unwisely appropriated the word 'God' for the universe. Some would-be rescuers think that the universe is worth worshipping and therefore worthy of the name 'God'; these people have a 'hidden definition' of God as a 'worship-worthy being'. More mystically inclined philosophers have tried to be less blunt about how a Spinoza universe differs, as they see it, from the scientists' universe, and say that we are mistaken if we believe that a pantheistic God can be adequately described apart from any notion of deity. Michael Levine (1996) in his entry on Pantheism in the *Stanford Encyclopedia of Philosophy* is of this opinion but does not, to my mind, show how useful it might be, and, therefore, why one should use a notion of deity when explaining Spinoza's 'Unity', or 'Nature' or 'the world' or 'the universe'.

There are other putative rescuers who believe that the universe Spinoza is talking about is not the same as the universe as we generally know it. They must be saying that it is greater (larger, more varied, has more categories) than that which scientists and philosophers are referring to (or possibly smaller!) There is a logical version of the 'larger' notion if you suggest that a universe is somehow 'greater' than the sum of its parts: having added this extra 'greater' part to the sum then one now has a 'new' universe, Universe-2, which is, presumably, also greater than the sum of *its* parts; add that to the Universe-2 and you have Universe-3... and so on ad infinitum. Lewis Carroll (Carroll, 1894) has a logic version of the race between Achilles and the Tortoise which proceeds in this manner¹³, and we can remind ourselves that the effect of Gödel's incompleteness proof is not that simple arithmetic collapses, but that *attempts* to have complete systems are regarded as logically impossible.

Even if we could give some logically consistent definition of the God/universe of Spinoza that brings out a difference from our ordinary usage of the word 'universe', that is, if Spinoza's pantheistic God is *not* the same as the universe, then there is still no need to use the word 'God' for it, except as a rhetorical or propaganda device. In fact it would be a good idea to somehow distinguish the Spinoza God/universe for the ordinary universe, for example by using a different type face for Spinoza's universe; thus:

universe.

But let Spinoza be right about one thing: if the universe is thought of as a huge single unit, there is no place for an interfering creator-sustainer-rewarding-punishing-saving-anthropomorphic god in it. Add such a god to it and the god becomes part of the whole, not a separate being; the god's actions become as bound into the web of cause and effect, as deterministic, as everything else, and the passions of this god are as destructive as any of humankind.

Spinoza and modern Pantheism

With four thousand million people alive in the world today, it would perhaps not be surprising if, for every sort of religion you might like to name, there are at least a dozen people who believe it. However, I still find it hard to accept that there are people who think Spinoza was the key thinker for a modern pantheistic religion which they see as incorporating elements of North American Indian religions and Hindu beliefs. Such people do exist: here is an example of one of the least mystical, Paul Harrison.

SCIENTIFIC PANTHEISM reveres the universe as the only real divinity. It fuses religion and science, and concern for humans with concern for nature. It provides the most realistic concept of life after death, and the most solid basis for environmental ethics. It is a religion that requires no faith other than common sense, no revelation other than open eyes and a mind open to evidence, no guru other than your own self.¹⁴

Teilhard de Chardin

Turning from Spinoza to Teilhard de Chardin is like coming down from the Andes (where the light is clear, the landmarks show up as separate mountain peaks and the routes are clear valleys and ridges) to the Amazonian jungle. Despite being a noted scientist with a well founded reputation, his writings on the nature of the universe are poetic and mystical rather than hardheaded. However, like Spinoza, his ideas were heretical to his co-religionists; no matter how hard Teilhard de Chardin tried to justify to his fellow Jesuits his own version of what Christianity should be, they failed to be converted.

His scientific training shows through: he used (what he saw as) facts as givens. But in the course of a page can move from a fact to a mystical 'deduction' from it. For example, in a paper in 1950, 'From the pre-human to the ultra-human' ¹⁵ he says

Looking back at over the immense extent of geological time we can see that the separate links in the chain [of evolution] have undergone no essential change. It would seem that the principal factor making for progress is still the operation of forces of natural selection, choosing from outside the most successful and adaptable products of a process of expansion that is disorderly in itself.

However, only 80 words later he is saying

So the compression of living matter, due in the first place simply to physical increase, is gradually heightened by its internal psychic expansion. The chain coils in upon itself and the intensity of the phenomenon tends to rise almost vertically. Or to adopt another image one might say that the 'psychic-tint' of the earth ... reaches the peculiarly moving moment of climax when ... a series of sparks begins to glow, foreshadowing the incandescence which is 'hominisation'.

Teilhard de Chardin bases a lot of his thought on what he recognises as a major scientific 'fact'; namely, that there is a trend for organisms in general to become more complex over geological time. This he builds on, making it the basis for a general cosmological theory of ever increasing complexity. He is on shaky ground here, scientifically, since science seldom lets a 'fact' rest, and the idea that there is a trend towards complexity is not proven beyond reasonable doubt. Physical scientists in particular, and also many biologists, find the idea either unfounded, or a hindrance to progress. By its nature, science cannot give absolute certainty to any fact or theory, but must leave all theories open to doubt.

Teilhard de Chardin goes on to draw from the theory of increasing complexity the certainty that consciousness is becoming more complex, complete, and all-pervasive. Leaving aside the general vagueness of the idea of consciousness, there can be no logical connection between increasing complexity in *biology* and increasing complexity in *consciousness* – one does not imply the other. This looks like a classic example of a category mistake: you can see this when you ask what an increase in the complexity of consciousness would look like. A two-celled animal is more complex than a one-celled animal and the brain of a dolphin is more complex than the brain of an ant; but rocks are not conscious of themselves as rocks, and humans *are* conscious of themselves as human; consciousness is something you have or you do not have, it is not more complex or less complex. If it became, with age and more education, more and more *difficult* for a person to understand whether they were a person or an animal or a god or a mere rock, then this confusion might be described as a growing complexity of consciousness. But it is not. Consciousness is not to be deduced from, nor compared with, biology.

It must be agreed that there is a growing complexity in the way in which humans can share thoughts (the internet is more complex than a library) but thinking is not consciousness. If increasing complexity in sharing thoughts was what Teilhard de Chardin was driving at he is undoubtedly right, and we might suspect poor translation (or loose thinking). But the descriptions of the parousia arriving when the complexity (and 'folding in') reaches a certain level do not seem

to be just about Christ's second coming, or about thought, but about some state of shared emotion and moral conscience. Such states of 'spiritual' awareness (quite undefined) may be what Teilhard de Chardin is calling consciousness, but, again, such unusual, almost private, usages of common words, are unhelpful if you want to get your ideas across undistorted.

Assuming for a moment that Teilhard de Chardin means that *sharing* thinking is becoming more complex in the general way that biological form has become more complex, this still does not allow him, scientifically, to say that this is a *good* thing. It could be argued, especially by philosophers and applied logicians, that an increasing complexity in the sharing of thinking is a *bad* thing, unless it is accompanied by an increase in clarity of thinking. The World Wide Web has certainly demonstrated that a thinking tool invented for the exchange of useful ideas can be taken over by commercial interests and give rise to 'misinformation overload'; the Web has not promoted good (clear) thinking over bad (muddled) thinking. Scientists of information technology must surely say that increasing the complexity of sharing thinking is a phenomenon for study, not something to get religiously excited about, not something that makes it possible to predict the fate of humankind. However, this is what Teilhard de Chardin does.

Teilhard de Chardin saw humankind as taking great leaps forward in the future as, increasingly, thinking becomes a shared and co-operative process. His picture for this was of a 'nōosphere' surrounding the planet. Many people who think about the internet and world-wide-web give these electronic tools the status of the technology which makes a nōosphere possible; 'web cartographers' have even produced maps of how the internet has spread around the globe. So far there is a very uneven distribution closely similar to maps of wealth/poverty and of the use of the English language. Teilhard de Chardin died in 1955 when computers were just a few huge, slow, hot, valve machines and the internet was only vague talk and speculation by theorists and science-fiction writers. Whether Teilhard de Chardin would have given the internet his approval as the physical manifestation of his nōosphere, or whether the concept would have remained as a mystical 'insight' to him, is not clear. However, to Teilhard de Chardin the growth of the nōosphere was a sign of the ever upward spiralling of mankind towards Christ ('the irreversible loving centre of all evolution, the Omega Point, the Cosmic Christ'). He is sure that the future of humankind is not that we will be obliterated when the world becomes unable to sustain life, nor will there be further millennia of life for us on other planets when space travel becomes easy. He is lyrical about the day when humans, through the effects of the nōosphere, become better than human. He believes that humankind will be

...unable to acquiesce in its total disappearance without biologically contradicting itself.¹⁶

What it is for something to be 'biologically contradicting itself' is very unclear, possible nonsense. He goes on:

In consequence one is the less disposed to reject as unscientific the idea that the critical point of planetary Reflection, the fruit of socialisation, far from being a mere spark in the darkness, represents our passage, by Transition or dematerialisation, to another sphere of the Universe: not an ending of the ultra-human but its accession to some sort of trans-humanity at the ultimate heart of things.¹⁷

Two years later he puts much the same point this way:

Man... a species which, having entered the realm of Thought, henceforth folds back its branches upon itself instead of spreading them. Man, a species which converges, instead of diverging like every other species on earth: so that we are bound to envisage its ending in terms of some paroxysmal state of maturation...

The end of a 'thinking-species': not disintegration and death, but a new break-through and a re-birth, this time outside Time and Space, through the very excess of unification and co-reflexion.¹⁸

Teilhard de Chardin's strange mixture of mystical language and scientific ideas is of no interest to most scientists; they are quite sure about his basic notion of 'progress': it is at best a distraction and at worst it is simply wrong. About it they are quite likely to use their second swear word: they will call it teleological.

Problems with Teilhard de Chardin's theology

1. TELEOLOGY

The doctrine of final causes, in which changes are 'explained' by giving the purpose or design they fulfil, is called 'Teleology'. The idea has been more used in theology than elsewhere but an important extension of its use was by C.D. Broad (see Broad 1930) who distinguished ethical theories into deontic and teleological. *Deontic* are those which explain right and wrong, or good and bad, by the notion that they follow commands or injunctions. Thus deontic logic, as we have seen, deals with obligatory, permitted, and forbidden actions. *Teleological* moral theories are those which explain right and wrong, good and bad, by the purpose the actions serve. Thus a good action is one which serves a good purpose, such as increasing human happiness. You may have noticed that this distinction is blurred in the *Theologic* where, for example, the deontic schema is used for such concepts as 'actions the god likes'.

As far as science is concerned 'teleological' means any attempted 'explanation' of a phenomenon which refers to the purpose it is seen to fulfil. Thus, to describe the cause of rain as fulfilling the purposes of God to enable crops to grow is the boldest of teleological 'explanations'; to describe the cause of rain as the method which keeps water vapour circulating from oceans to the atmosphere and back is a mildly teleological statement. Neither are useful to scientific method, and therefore rejected as explanations. To suggest that there is some sort of inevitable progression from simple to complex, or from amoral to moral, or from unintelligent to intelligent, from inanimate to animate, and no 'regression' the other way (from complex to simple, animate to inanimate, etc.) is, to the scientific mind, very dangerous. If inevitable progress is taken as a given, then the scientists says we have a clear case of a theological attitude (one that brooks no rebuttal); if inevitable progress is put forward as a cause for any occurrence (whether theological or open to rebuttal by experiment) then the scientist says we have a clear case of a teleological attitude which does not help us understand the occurrence in any useful way. You can build a microwave oven starting only with the understanding that microwaves are caused by radio valves and other devices, called magnetrons, of a certain electronic type; but you cannot build a microwave oven using only your understanding that microwaves are a part of God's plan.

2. PROGRESS

Another major objection to Teilhard de Chardin's cosmology is that he does not take seriously evidence against the theory of 'progress', complexification, and a grand design by some god. This is surprising for a great deal of the counter evidence comes from his own scientific field, palaeontology. Teilhard de Chardin (often) quickly passes on after mentioning that a cataclysmic event (for example, the extinction of many species including the dinosaurs by events such as meteor strikes) could end human life; presumably he does this because he does not believe that God has planned, nor would allow, this. However, the fossil record shows many many examples of increasing specification and complexification cut short. The hunt for reasons why the trilobites became more and more numerous and larger, and more specialised, and then vanished, is a good example: climate change, change in the salinity or other chemical balances in the seas in which they lived,

vulcanism, meteor strike, the upset of prey-to-predator balance, the quick evolution (too quick to leave a fossil trace) of trilobites into something else as conditions changed, and several other theories can be put forward. However, only creationists would suggest that the cause was some necessary inexplicable wrinkle in God's plan. I have not heard it suggested that God changed his/her mind about the direction of evolution after trying out trilobites as a candidate for higher thought and consciousness. Multiply this story by some hundreds of interrupted complexifications and the sudden demise of hundreds of species and it becomes very difficult to see how the world had 'progressed' by the losses. To take modern examples, how has the world 'progressed' because there are no mammoths left, no passenger pigeons, no huia, no tasmanian devils? To think that humans have 'progressed' because they now have computers to do some of their thinking for them is also odd. The scientist, qua scientist, must not speculate about whether there is a plan or a 'purpose' for change – it is enough to describe the change and the way it came about. The logician too must wonder about the propriety of mixing scientific facts with talk of purpose and talk of the 'ultimate heart of things.'

Concluding discussion of Teilhard de Chardin's pantheism

Where does this leave us? Apparently Teilhard de Chardin is trying to get an 'ought' from an 'is' – he is saying that complexification *is* what happens, therefore it *ought* to happen. It is a little unclear whether the hidden axioms (premises) are that

- (1) God has planned all this;
- (2) 'ought to' = 'is according to God's will';
- (3) there is no point in trying to go against God's will.

Or

- (4) this is the way the universe ticks;
- (5) 'ought to' = 'the inevitable';
- (6) there is no point in trying to go against the inevitable.

If we give Teilhard de Chardin the benefit of the doubt and agree with him that

- (a) complexification is the general trend, and
- (b) this will lead to an enlarged nōosphere;

and at the same time

- (c) cut out the poetic language about 'parousia';
- (d) cut out references to God and the Christ;
- (e) cut out the teleological language;

what do we have left? A description of a possible conclusion of trends – people more aware of each other's thoughts, emotions and solutions to problems.

This is a prophetic vision of the future – one among many 'competing' visions. We may judge it as more comforting than other visions, or less so than other visions; we may examine the evidence, and Teilhard de Chardin's analysis of the evidence of the present situation (and of history) and judge it more likely, or less likely, than other predictions, that is: judge its quality. But the ultimate judge is to let time pass and see if the predictions are coming to pass. Teilhard de Chardin and his believers would claim that we can already (perhaps with the internet) see his prediction of the nōosphere's complexification as coming to pass. But, it is early days yet, and the growth of the internet is patchy, its commercial use is at war with its knowledge purpose, and it will be many years before we can definitely say whether it is drawing people together (Teilhard de Chardin's 'infolding')

or ‘convergence’) or helping groups develop very different identities, characteristics and aims (his ‘divergence’). Mary Daly, a feminist theologian we met in Chapter 12, says that any ‘fundamental convergence, or unity ... will mean increasing human potential for participation in society as unique, diverse individuals. It will mean “divergence.” ’¹⁹ An important logical point – the terms are very open to confusion.

As a taste of the weirdness to which a religious/mystical interest in Teilhard de Chardin's ideas may lead I proffer an extract from an internet web-site:

<http://www.innerx.net/personal/tsmith/TShome.html>

Teilhard's view of historical Christ is consistent with the Chinese view of historical Jesus Christ as a Tathagata (like Buddha Sakyamuni and Lao Zi) who wanted to save all people, but was crucified because of conflicts among the different groups of people (and their corresponding different higher-level beings) and Teilhard's view of the God of Evolutionary Convergence is consistent with the Chinese concept of Original God that is unimaginable and beyond the reach of most cultivators.

Â, The plane of Original God is represented by 0 in this mathematical representation of allspaces:

where:

A										R Tao, Simplex Physics
Cl(0)		1								C Tai Ji
Cl(1)		1	1							Q Yin-Yang, I Ching
Cl(2)		1	2	1						O 3 Realms, Tai Hsuan Ching
Cl(3)		1	3	3	1					S 5 Elements
Cl(4)		1	4	6	4	1				M(4,C)
Cl(5)		1	5	10	10	5	1			M(8,R), I Ching
Cl(6)		1	6	15	20	15	6	1		M(8,R)+M(8,R), S7 {x} G2
Cl(7)	1	7	21	35	35	21	7	1		M(16,R), 8 Trigrams, Tarot,
Cl(8)	1	8	28	56	70	56	28	8	1	D4-D5-E6-E7 Physics
									256 128 64 32 16 8 4 2 1 2^8 = 16x16 = 8x8 + 8x8 + 8x8 + 8x8 256+1024+1792+1792+1120+448+112+16+1 = 3^8 Tai Hsuan Ching	

$\{x\}$ = twisted (fibration)
 product,
 (x) = tensor product,
 Cl = Clifford Algebra,
 R = Real Numbers,
 C = Complex Numbers,
 Q = Quaternions,
 O = Octonions,
 S = Sedenions (which are a
 Non-Distributive
 Algebra),
 $M(n,K)$ = $n \times n$ matrix algebra
 over the field K .

Compare 0, the Chinese plane of Original God, to Teilhard de Chardin's God of Evolutionary Convergence, to Ahura Mazda, to the God of Akhenaton, to the God of Moses, and to the unitary/unifying God of Sufi Islam. The Binomial Triangle can represent Mount Meru.
 $Cl(8N) = Cl(8) (x) \dots (N \text{ times}) \dots (x) Cl(8)$ Many-Worlds Quantum Theory. Cellular Automata Wei Qi
 Basins of Attraction interact by Zhen-Shan-Ren.

Lovelock's Gaia

In contrast with the theology of Christianity which spent one thousand years using Aristotelian logic to sort through puzzles which its *beliefs* engendered, Gaia 'religion' (since Lovelock), and the theology of Gaia, is built upon *science* and began with the insights particular scientific theories threw upon life, the universe, and everything. This is even more so than Teilhard de Chardin's amalgam of a teleological attitude to the scientific theory of evolution and a mystical attitude to God. Both Lovelock and his best known collaborator, Lynn Margulis, are scientists and clearly state that *no* mystical interpretation should be put on their way of looking at the phenomena they bring together in a novel way. They insist that there are no teleological causes needed. They insist that no animating force nor spirits are implied, nor are any necessary.

1. SCIENTIFIC GAIA STATEMENTS

Lovelock has most recently shown how, in principle, the intrinsic properties of life lead to active regulation of the Earth's surface temperature. There is nothing mystical in the process at all ... No unknown conscious forces need be invoked.²⁰

Sagan and Margulis see that:

Gi1. Life interacts with and *controls* physical aspects of the Earth on a global scale...²¹

They note that:

Gi2. – all these things *resonate* strongly with the ancient magico-religious sentiment that all is one...²²

And they conclude that:

Gi3. – On a more practical plane, Gaia holds important implications not only for understanding life's past but for *engineering its future*.²³

In the three points we have the key elements of the Gaia religion as made by its founding prophet and two contemporary disciples. Note that *Gi1.* is a scientific fact capable of refinement or even disproof; *Gi2.* is a note about a scientific/religious parallel; *Gi3.* is a theory that purposeful human action can effect the 'physical aspects of the Earth on a global scale.'

This is a rational and reasonable (if not necessarily totally correct) account of the important ideas in the Gaia religion by the inventors of the new idea. Lovelock's first scientific paper to propound the idea that life is a major contributor to the physical state of the earth was a letter to *Nature* in 1965. Soon after, whilst walking in the countryside, the novelist William Golding suggested to him the name *Gaia* for the fledgling theory.

2. RELIGIOUS GAIA STATEMENTS

In contrast, take the following extracts from a recent, 1999, thesis presented to the Victoria University of Wellington. They can stand as representing the way that what began as science can quickly become something pretty close to irrational belief.

Td1. The first chapter [of my thesis], 'The Earth as Mother', presents impressions from the revival of Gaia Consciousness, in which the Earth is viewed as a nurturing Mother or living entity, comprised of interconnecting energy webs.²⁴

- Td2. I continued reading on such topics as ancient and modern nature magic traditions, esoteric architecture, Phenomenology, earth and human energy fields and the new biology and physics ... It appeared that the boundaries between the sciences are dissolving while ancient wisdoms are returning to these conceptual frontiers.²⁵
- Td3. Once informed by trance the individual can search in the areas of the chapter topics for elements with which to customise their most appropriate experience of health.²⁶
- Td4. The 4th Dimension of this century is a perceptual or physiological space, standing in opposition to the Material Plane ... Claude Bragdon explained this as a metaphorical connection ...²⁷. 'The relationship of hyper-dimensionality are subject to determination, though that determination is inherently earth-bound.'²⁷
- Td5. A consensus of sorts suggested a celestial material that bore a strong resemblance to the Chi of Chinese Mysticism. If it has a 'spiritual' atmosphere ... where unuttered thoughts and unexpressed feelings were the elements that constituted it.²⁸

Such semi-mystical statements are common among writers of 'new age' books and articles. Here I have taken them out of context (though they are typical of the whole work). Nevertheless, the author expects us to take them seriously. They will do to flag several logical puzzles - even if they give me doubts about the ability of the author to put ideas together in a rigorous and understandable manner. Here are one or two of her statements from the examples which require careful examination, though I think one might soon lose patience, faced by 800 pages of such material.

Quotation Td1. The earth is viewed as 'interconnecting energy webs': is this a poetic, religious or scientific statement? How can a mother be comprised of energy webs? What is an energy web? Can these concepts be put together sensibly? Do we have multiple category mistakes here?

Quotation Td2. (a) What sort of 'ancient magic traditions' are returning? Is this a good thing? What does she mean by 'Phenomenology' - her meaning seems idiosyncratic? What are 'earth and human energy fields'? (b) What are the 'new biology and physics' - Population Genetics and Transgenic research; the Theory of Strings and Higgs' Bosons?

Quotation Td3. (a) Can one be 'informed' by a trance? Can one rely on any 'information' retained after being in a state of trance? Is trance recommended before reading any thesis? Can Morgan's thesis be read without trance? (b) How do you 'customise an experience'? Why should you want to?

Quotation Td4. (a) What is a 'material plane'? How can a space (perceptual or physiological) stand in opposition to a plane? What sort of metaphor is this? (b) What is 'hyper-dimensionality'?

Quotation Td5. (a) What is a 'celestial material'? How can a material, whether celestial or earthly, be constructed of thoughts and feelings? In what way can a celestial material resemble 'the extreme limit, zenith, the first principle? (Old spelling: Chi. Modern spelling: Ji. Modern character: 及) (b) When is a consensus not a consensus?

3. THE FOUNDER'S VERSION

Lovelock himself, and both Sagan and Margulis are quite clear that the mechanisms by which life (particularly micro-organisms) produce a stabilising effect on planetary gases is not teleological - no plan by a consciousness is involved - nor is it necessary to posit a 'life force', nor any process, mechanical or biological unknown to present-day science. The 'feed-back' effects result in microbiological organisms growing in numbers or decreasing and thus synthesising the gases necessary for their survival, for example, oxygen, sulphur dioxide, methane ... and removing gases inimical to their survival, for example carbon dioxide and nitrogen oxides. Thus is maintained an

atmosphere with a life-sustaining mix of gases which are normally (that is, chemically) unstable in each other's presence.

Despite the clearly stated scientific, and even anti-mystical/spiritual/religious beginning, the enjoyment Lovelock gets out of invoking a poetic metaphor is a way in for the mystically/spiritually/religiously inclined to begin making a religion; Sagan and Margulis also like a poetic or journalistic turn of phrase. For example, Lovelock quotes a Homeric hymn: 'Gaia, Mother of all, Earth Goddess, provider of food for all living creatures... yours is the power to give mortal life and take it away.'³⁰ and Sagan and Margulis quote Xenophon: 'Earth is a Goddess and teaches to those who can learn; for the better she is served the more good things she gives in return.'³¹

Lovelock reports that two thirds of the letters he receives about Gaia 'are about the meaning of Gaia in the context of religious faith.'³² He has a Quaker background, has enjoyed taking part in religious ceremony, had a childhood full of superstition – reporting that in later life it took a positive act of will to stop touching wood or crossing fingers whenever some hazard was to be faced.³³ Here is a quotation of the sort of comment about himself which can lead away from the science into religion.

When I first saw Gaia in my mind I felt as an astronaut must have done as he stood on the moon, gazing back at our home, the Earth. The feeling strengthens as theory and evidence come in to confirm the thought that the Earth may be a living organism. Thinking of the Earth as alive makes it seem, on happy days, in the right places, as if the whole planet were celebrating a sacred ceremony. Being on the Earth brings that same special feeling of comfort that attaches to the celebration of any religion when it is seemly and when one is fit to receive. It need not suspend the critical faculty, nor can it prevent one from singing the wrong hymn or the right one out of tune.'³⁴

He does not, however, see the universe as created with a purpose – 'It might have been; but how the Universe and life began are ineffable questions.'³⁵ He does not tackle the idea that the *whole* universe is a living being. He says that a living Earth is a manageable concept, in somewhat the same way that worship of the Virgin Mary is understandable: 'She is close and can be talked to.'³⁶ However, such thoughts set him going, poetically.

What if Mary is another name for Gaia? Then her capacity for virgin birth is no miracle of parthenogenic aberration, it is a role of Gaia since life began. Immortals do not need to reproduce an image of themselves; it is enough to renew continuously the life that constitutes them. Any living organism a quarter as old as the Universe itself and still full of vigour is as near immortal as we ever need to know. She is of this Universe and, conceivably, a part of God. On earth she is the source of life everlasting and is alive now; she gave birth to humankind and we are a part of her.

This is why, for me, Gaia is a religious as well as a scientific concept and in both spheres manageable. Theology is also a science, but if it is to operate by the same rules as the rest of science, there is no place for creeds and dogmas. By this I mean that theology should not state that God exists and then proceed to investigate his nature and his interactions with the Universe and living organisms. Such an approach is prescriptive, pre-supposes his existence, and closes the mind to such questions as: what would the Universe be like without God? How can we use the concept of Gaia as a way to understanding God? Belief in God is an act of faith and will remain so. In the same way it is otiose to try to prove that Gaia is alive. Instead, Gaia should be a way to view the Earth, ourselves, and our relationship with living things.³⁷

In those paragraphs, particularly the second, are many useful comments for anyone looking for a robust post-modern theology, particularly one that uses 'God-talk', but under strict rules. Lovelock asks for a properly scientific theology. I hope that I have been demonstrating that one of the facets of such a theology must be a dedication to using good logic – logic which reflects *what is the case* and does not accept chaos-inducing illogicalities. Such a logic must be aware of its own limitations (mainly the paradoxes, for example: material implication, Gödel's incompleteness, and the Barcan formula) and look for ways to assist rational discussion of new discoveries, for example 'entanglement' in physics, and new ways of looking at facts, for example using the model of a living organism to describe the ecology of the earth. For these sound logical reasons it is wise, as Lovelock

and Margulis have done, to reject teleological pseudo-explanations in any new-style theology. Another good reason is that teleological explanations are so useless. With the scientists, the logician had best be non-committal on the question of whether there is a god of gods, meanwhile being ready to devise logics capable of dealing with the addition of a god or gods to our Universe should they be detected.

Axioms for a Gaia Theology

The following suggestions are based on the quotations from Sagan and Margulis, *Gi1.* to *Gi3.*, above.

Gi5. God is all physical things; all forces between them; all thoughts, feelings and emotions by all animals, including humans; and all the inter-relations between all of these parts of the universe; all as-yet-unknown objects or aspects of the universe. In fact the universe is God.

Gi6. [All things are inter-dependent, as the parts of a plant or animal are, and as that plant or animal is dependent for survival on the environment.]

Gi7. [Survival of the earth (the planet) depends on people keeping the balance of inter-dependency uninterrupted.]

Gi8. [It is good for the earth to survive.]

These axioms can have their logical form displayed as follows:

Gi5. requires the idea of Identity, as in $Ixy = x$ is identical to y , and the constant $g = \text{God}$.

Gi5. $\Pi x Ixg$ < For all x , x is identical to God >

This axiom will be true in a domain of only one object – that is, if we think of the universe as one great whole, as Spinoza did. However, if we think of the domain as two objects, or any number more than two, (as we usually do) the axiom is false.

Gi6. will need the universal domain, that is the domain which includes everything there is (usually regarded as separate things) ; it also needs $\phi = \text{depends on}$, as in $\phi xy = x$ depends on y . This idea of dependence is not a logical dependence but an empirical one which sums up the idea that if y ceases to exist then x ceases to exist. For example, if water dries up from around the roots of a plant then the plant dies, if hydrogen ceases to exist then water ceases to exist, if a town depends on an aquifer which ceases to exist the town ceases to exist...

Gi6. $\Pi xy EN Ixy \phi xy$ < For all x and y , x depends on y if and only if it is not the case that x and y are identical >

Gi7. will need everything *Gi6.* has got, and also $\xi = \text{survives}$, as in $\xi z = z$ survives.

Gi7. $C \Pi xy K N Ixy \phi xy \Pi z N \xi z$ < If for every x and y , both x depends on y and it is not the case that x and y are identical, then every z does not survive >

Gi8. will need a deontic operator such as *O* for 'obligatory' to bring in the moral imperative. A choice between two different statements with different meanings may be necessary to get the exact flavour of the Gaia religion you want.

Gi8.1	$O\Pi z\xi z$	< It is obligatory that no matter what <i>z</i> may be, it must survive > < Everything as a whole, must survive >
Gi8.2	$\Pi zO\xi z$	< No matter what <i>z</i> may be, it is obligatory that it survive > < Each separate thing must survive >

I commend these eight axioms as a 'starter' for any theologian investigating the Gaia version of pantheism, to see where they lead, what may be deduced from them, and what likely or unlikely wrinkles, paradoxes, infelicities, or helpful conclusions they reveal.

Comments on Gaia

Gaia religion *does* appear to promote feelings of awe and to have liturgies and worship. Feelings of awe and reverence before the 'wonder of the living universe' are often reported by people and help to define them as believers in the Gaia religion. The liturgies and forms of worship are less easy to pin down because they have not yet coalesced into set forms of words; however there is a clear sameness about the writings of Gaia enthusiasts, the articles in magazines devoted to Gaia topics, the postings on websites and e-mail chat; the topics of interest (the 'spiritual' side of ecology is often mentioned) and the constant recurrence of arguments and suggestions about how to 'save our planet'. These last show a great deal of faith in changes in attitude but so few practical details about how the changes in attitude will turn into planet-saving action that the opinions resemble closely the standard God-religions' beliefs that 'faith in God', 'prayer', and so on will bring about salvation of one sort or another.

As argued (twice) above, from a logical point of view, it is quite superfluous to use the word 'God' for a concept we already have, and have a word for, namely, the 'universe'. To prefer a personification rather than a scientific term is also perhaps the sign that we are dealing with a religion rather than just a secular movement here. Gaia religion and God-the-symbol religions have in common that they are happy with a god who is a symbol for some notion created by humankind; the Gaia thinkers using 'God' for something all-encompassing and the others for a smaller, more particular, less physical, less easily named, concept.

Once I get past my Ockhamist scorn for a superfluous Platonist term, the Gaia definition of (and statements about) 'God' appear to be open to scientific enquiry, unlike the theological propositions of the old religions which were by their nature untestable and so immune to scientific verification. For example, is the earth really a self-sustaining self-regulating system as the Gaia adherents believe, or is it running down? This is a scientific question germane to whether the earth is truly a 'whole' system, every part vital to the life and health of the whole, each part affecting every other part, as is believed. Would the Gaia believers accept a scientific proof that the world is not a truly 'whole' or 'living' system? If not they are behaving in a truly religious or 'theological' (as opposed to 'logical') manner.

Similarly, scientists, and popularisers of science such as Stephen J Gould, have pointed out that the earth has suffered major ecological 'disasters' of which the extinction of the dinosaurs is only the most easy extinction to turn into movies. Such extinctions cast doubt, not on the capacity of the planet to recover from such shocks, but on the logicity of trying to *save* any species threatened with extinction – such as whales, the black robin, or photoplankton – since the earth will recover from this. Despite this 'logical' but aeon-spanning argument, Gould and many other scientists have made impassioned pleas for conservation, but usually on the ground that as species

become extinct due to mankind's actions, our lives, and those of our children, become less interesting, and, probably less secure – especially as diversified life includes species with useful clues to better cures for human ailments. The Gaia religionists may have the right instinct but for the wrong reason, he would say. Again, feelings before logic and science are a sign of a religious rather than a scientific, or secular attitude.

The Gaia religion appears at first to have strong affinity with Hinduism and popular Buddhism with their ideas of the 'oneness of all things', the eternal cycle of being, and their view of human life as like a spark that shoots up then falls back into the fire again. However, western culture, and therefore the Gaia theologies which arose in the West, are quite different from Eastern civilisations and the 'theology' that has grown up with Hindu/Buddhist pantheistic ideas; in particular, Gaia theologies have little of the idea that suffering is caused by desire, or the idea that the state of having no desires (and therefore no suffering) is better than that of having desires. Most western pantheists admire people who have a desire, even an overwhelming passion, to protect the earth for future generations; also there are 'Gaia-ists' who desire to alleviate suffering with medical science; such desires are seen as noble. More 'earthy' desires such as sexual satisfaction and creature comforts are not seen as barriers to 'unity with the universe' or 'unity with God' but rather as human rights, legitimate and unharmed pleasures, and worthwhile.

It is probably a good idea to use the word 'Gaia' as a tag for such Western religious ideas. The attempt to move the word 'God' over from its three- or four-thousand year use for an extra-terrestrial being and attach it to a pantheistic attitude to the earth and universe is very confusing, especially in the mouths or writings of Church people. Although using 'God' for the universe has the effect of lending a charm and a humanity to the concept that it would not otherwise have, it might be cynically thought to be no more than a trick either to try to legitimise God-talk religions in a scientific age, or to legitimise caring for the environment to the God-talk religions (who have had a poor track record in this regard). And using the word 'God' in pantheism has logical problems.

It would be nice to find in Gaia the first religion to be based on scientific method and theory rather than on unsubstantiated, even unsubstantiable, beliefs. We can see in the writing of Lovelock, and his best known disciples, both a scientific attitude to everything and a human delight in everything – not awe in the sense of puzzlement with feelings of being overwhelmed and 'of small account', but awe in the sense of enjoying belonging in a fascinating organisation, being lucky to be part of it, able to make a worthwhile contribution.

However, Gaia as a religion, keeping close to the spirit and advice of Lovelock, has, I fear, notable gaps in its formulation. In particular, it does not deal with the problem of evil at all well. Comment on this appears below. There are, of course, many problems which the theologian of Gaia will have to tackle. Only some of these are logical, though the number will no doubt grow as the theology develops. A quick list of those that occur to me may help an understanding of what sort of religion could be developed.

1. SCIENCE AS A BASIS?

Will the Gaia religion collapse, or rather, *should* the religion collapse, if the scientific theories from which it began are proved, scientifically, to be false?

The most likely of such occurrences is of the sort that has overtaken the ideas of Teilhard de Chardin: the theory (of complexification and progress) has been seen to be too anthropomorphic, too human centred, and too teleological, to be good science. We can imagine the situation where the discoveries by Lovelock and Vernadski³⁸ of the major contribution of life to the composition and features of the earth turn out to be wrong.

Religions have faced such crises before. In 1962 I witnessed the effects of such a crisis in a Christian sect in Nigeria who followed a prophet whose creed included the beliefs that the people of the village of Ayetoro were the chosen people, that they were already in heaven, and that there would be no more death for them. They were having to adjust to the fact that members had died,

and since then the prophet has died. The crisis of the failure of the second coming of Christ to eventuate must have thrown the early Church into such theological dilemmas. The 'solutions' are either to collapse people's faith, or to collapse the literalist theological doctrine into a spiritual, metaphorical, poetic understanding of it.

With a scientific theory always open to challenge, disproof, revision or explosion, Gaia looks even more vulnerable to such a crisis. However, Lovelock and the early disciples have already made it quite clear that their poetic flights are ways of looking at the theory and the evidence for it, rather than beliefs or dogma. Therefore, that which collapses, if the scientific theory is exploded, are people's feelings of delight – to be replaced by feelings of despair no doubt – rather than a set of beliefs or any theological structure built upon those beliefs. It would have to be seen if anything was left of the 'religion' after the explosion.

A through-going refutation of the Gaia theories of life as an earth-shaping factor *should* (ought, scientifically and logically) cause the collapse of any dogma raised upon that theory. But, different and further evidence might well restore some scientific confidence in the 'rightness' of the earlier theory or some modification of it. This trait of allowing new facts to bring new knowledge is part of scientific expectation and method and, therefore, it could keep some hope alive that, even after the explosion, the theory, and with it the religion and the poetry, might rise again. Past religions have seldom lived in such an atmosphere of dependence on facts (pointing to a scientific theory); in the past certainty has been a necessary ingredient for most 'faiths'.

At the present time, it is not doubted that life has a huge effect on our planet, and the predictions of global warming are based on that understanding. That the planet can, in time bring itself back to a more stable state, climatically, is only guessed at, and the time scales are so great that to hazard guesses is all one can do, and point to the climatic changes discovered to have occurred in the geological past. Similarly the effects of human-produced CFCs on the ozone layer are drastic and no non-human mechanism to redress the balance has been suggested. Hence the Margulis-Sagan insistence, point Gi.3. above, that humans can *engineer* the future of Earth (for good for humans, or for bad for humans).

2. LIFE

The concept of 'life' (animate as distinct from inanimate) is remarkably vague – as it should be for poetry. Whether a theology can survive with such vagueness is doubtful.

Science distinguishes between the organic and inorganic realms but keeps them apart only by a somewhat arbitrary boundary: (i) the inorganic contain complex carbon molecules linked by covalent bonds, (ii) the inorganic contain only simple compounds of carbon. Thus benzene is studied by organic chemists – but no one would say benzene is 'alive'. 'Life' seems to be reserved for organised groups of organic compounds which can reproduce.³⁹ Non-moving reproducing entities are often called plants, the moving reproducing entities are called animals. But on the fringes, there are the bacteria, and viruses and self replicating compounds such as DNA. Are these alive? Bacteria, yes – they are very like plants. Viruses, perhaps – but they are simpler still. DNA, uncertain – it is possible to make chunks of it from just its basic chemicals.

Now ask if the earth is alive in a non poetic sense. It moves, but not of its own volition (yet!) It does use various methods to give itself an environment for parasitic forms of life to exit on it. It does not reproduce – it does not need to, being, for all intents and purposes, immortal. The dog that carries the flea is alive, but flea-carrying is not one of the markers we use for counting something to be alive – though flea-sustaining is getting closer to the idea. Is the earth like an immobile, immortal dog? Not a happy metaphor for a religion! Perhaps the earth (the Gaia god) is like a plant, which needs a fungus or bacterium in a symbiotic relationship to survive, as the black beech of the New Zealand bush depends on a fungus in the soil to survive; or, a Northern hemisphere example, like a truffle and its oak.

3. ETHICS

Gaia as a religion, if it keeps close to the spirit and advice of Lovelock (as I think it should) has, I fear, notable gaps in its formulation. In particular, it does not deal with the problem of evil at all well. Here is a paragraph in which Lovelock touches on moral matters.

We have, as a species, almost resigned from our membership in Gaia and given our cities and our nations the rights and responsibilities of environmental regulation. We struggle to enjoy the human interactions of city life yet still yearn to possess the natural world as well. We want to be free to drive into the country or the wilderness without polluting it in doing so, to have our cake and eat it. Human and understandable such striving may be, but it is illogical ... when we drive our cars and listen to the radio bringing news of acid rain, we need to remind ourselves that we, personally, are the polluters. We, not some white-coated devil figure, buy the cars, drive them, and foul the air. We are, therefore, accountable, personally, for the destruction of the trees by photochemical smog and rain.⁴⁰

This is useful as far as it goes, but it does not treat many of the many human actions which are not closely connected to ecological matters. Such matters as encouraging virtues and discouraging sinning (however you define it) are important in a fully useful religion - these are the things that have to do with person-to-person morality as well as person-to-planet morality. However, it may be best to mention some logical points before getting prescriptive to the designers of religions.

(a)

There is a problem about why it is *good*, moral, ethical, to do x or y to assist keeping life going on earth. The Gaia theory that life is what keeps a balance of useful gases in the atmosphere is carefully declared to be a form of feedback in which no conscious will, and certainly no morality, is involved; it is just a fact that the micro-organisms and other forms of life maintain an environment favourable to their own continued existence: evolutionary theory would point out that any organisms that do not favour their own continued existence will, naturally, kill themselves off (and this happens to strains of bacteria which kill their hosts). Now, after millennia of un-self-conscious life we do have a self-conscious form of life - namely ourselves - in other words, moral beings now exist. We are quite capable now of killing ourselves off, but also of killing all other life as well. The speed at which we can do this is, by the scale of geological time, extremely fast. I expect we could kill all humans via pollution in a matter of a few hundred years, or all life in a matter of weeks with nuclear weapon induced firestorms, a nuclear winter, and consequences.

Therefore, moral behaviour can be seen (as it is in Gaia) as behaviour which is conducive to assisting all self-conscious and un-self-conscious life preserve the atmospheric balance; conversely immoral behaviour as that which upsets the atmospheric balance. This is a pragmatic, utilitarian morality.

There is a case for saying, in the Gaia analysis, since humans have found ways to avoid the consequences of their anti-balance actions (for example, compressing oxygen and using breathing masks in highly polluted situations such as fire fighting where feedback mechanisms left to run unhindered would kill off the polluters - the fire-setters) that human morality is what replaces feedback, to stop anti-balance actions. This line could be pursued but does seem dependent on some mechanism for bringing about the demise of moralities which do not in fact maintain balance of, for example, the atmosphere. Aztec morality, which saw heart-ripping ceremonies as *good*, has passed away, but historians have not, to my knowledge, suggested that the ineffectiveness of that morality to maintain the level of atmospheric gases had anything to do with its demise - its ineffectiveness in keeping conquistador guns away seems more likely an explanation.

The pragmatic utilitarian Gaia system of ethics is logically simple in that it does not require

the approval of God or gods in its system of morality. In talking about the *Theologic* I did suggest that such ethics could be interpreted to include Gaia but to do so required a bit a stretch in the direction of thinking of the Earth as a god. At that point one can metaphorically refer to that god being pleased if his-her parasites behave wisely; or pleased if he-she was not deprived of his-her parasites. However, the logical difficulty of utilitarian ethical systems remain: if a good action = an action which keeps Gaia as it is (or improves it) then, *it is good to keep Gaia going = keep Gaia going to keep Gaia going*. This is not just a tautology but gives no reason why we should act in a particular manner at all – keeping Gaia going is *no better* than *failing* to keep it going.

Gaia religion will need some moral imperative as an axiom. In the list of Gaia axioms I suggested above there is a moral axiom, *Gi8*. Two alternatives might be

Gi7.1 Every person should do only those actions which keep the earth going.

which combines *Gi7*. and *Gi8*. in a moral rule; or

Gi7.2 Every person should do only those actions which keep God alive.

which is the same combination with theological content, remembering that God = the earth.

(b)

As hinted above, such moral axioms will be useful in general, but not for a morality for actions which are *not* clearly or directly involved in keeping Gaia going. Not torturing children, not overcharging for goods and services, avoiding racism and sexism, cycling round to Granny with a basket of hot scones ... ; a long list could be made of generally morally good actions which have only tenuous links to maintaining the balance of the atmosphere, or other clear Gaia aims. Similarly a list of unethical actions with only tenuous links needs to be condemned.

I could suggest ways that this might be done, but it is not easy to shift out of the moral culture one is raised in. It may be easy to move into the quietism of a sin-less religion; however, it is less easy to see how Gaia religion could remove slavery, ignorance, bigotry, war, genocide, ethnic cleansing, terrorism, improve health and shelter, eliminate hunger, and encourage all the virtues which do go beyond preserving plants, animals, and genetic variety, getting rid of pollution and restoring the ozone layer.

Lovelock hints that he sees ethical situations as subject to 'mechanical', non-ethical, amoral, inevitability of the every-effect-has-a-cause type.

Poverty and suffering are not sent; they are consequences of what we do. Pain and death are normal and natural; we could not long survive without them.⁴¹

I must be careful not to attribute to Lovelock ideas he does not clearly espouse, but the 'mechanical' idea is already found among the religious. For example in Buddhism, and I have heard it suggested by historical-Jesus expert, John Dominic Crossan. Buddhist morality (see Chapter 15) does depend largely on the inevitability of cause and effect and the belief that the effects of good and bad actions live on beyond our narrow circle and beyond our life's end through the working of Karma. Gaia also appears to have a pretty mechanical attitude to the results of actions – at the person-to-planet level anyway. But as in Buddhism, to bring a moral compulsion into daily life becomes very difficult if the only consequences of an action (say throwing a plastic bottle away on the beach) is going to be a hastening, by a minute or two, of the day when all human life is extinguished a thousand million years from now. The chance of some other action cancelling the effect of my littering seem just too great to make my action a great crime against humanity (let alone the earth) even if I have a moral code which says, 'never harm humans now or in the distant future, even up to a billion billion years hence.' A Gaia guru in New Zealand for a conference was

once reprimanded for spending most of his time asleep; he replied, 'You do least harm to the planet when you are asleep.' The answer to him must be, 'But do you do it, or your fellows, any good?'

Gaia thinking has still to look at two major ethical issues. (i) How to condemn evil, for surely there is a lot of it about? (ii) How to manage positive morality such as 'do to others what you would have them do to you'?

Logical Problems

Systems Collapse

As I have been endeavouring to show, it is usually possible to find a set of logical axioms and rules for manipulating them and so build up a logic, for any theological position one cares to hold; however, in general the logics, as they are constructed or refined, show up or demonstrate limits which particular adherents or theologians will be unhappy about. For example, many traditional Protestant and Catholic theologians will be very unhappy to find that it is logically impossible to have a God who is both all-powerful and all-good unless that god is also not all-seeing. Stringent logicians, including the ultra orthodox Aquinas, discovered this at least 1500 years ago, nevertheless a god who is omnipotent, omniscient and all loving is still the sort of god some people are looking for. The logics which seek to *avoid* such conclusions have major problems of their own.

In the case of Gaia religions (and possibly all pantheistic theologies) the problem is of systems collapsing. We have an intuition of why this happens when we consider what sense we can make of sentences about a god who 'interferes' in human life and history – as in our earlier attempted translations of remarks about God parting the Red Sea. Another intuitive doubt arrives when we find our god-of-everything is indeed *of everything*: firstly, he-she-it is all the nasty things as well as the good. Perhaps a case could be made for carefully counting all the good things, and all the bad things, and on that evidence declaring God to be good or bad. Thirdly, if God is everything, you can logically leave him-her-it out of the equation altogether: saying 'This object/feeling/idea/etc., is God (or even part of God)' adds nothing to what you are saying.

The problem is that you cannot say, 'This is not God.' And if you cannot say that (not even once, about one small thing) saying 'This is God' is to say nothing; saying 'This is God' is just a way of saying it *is*. We have already met this objection when discussing Spinoza and Teilhard de Chardin. But it is so basic that despite its enormous power as an argument – is is the 'knock-down' argument par excellence – it is not known or ignored by religionists everywhere, and has to be stated in all its forms, over and over again.

Here is a way the logician might look at the problem. Consider the Gaia axiom that

God is everything.

(1)

This may be no more than to declare a definition that the two words 'everything' and 'God' may be used interchangeably. This would have to be handled with great care so that the readers of the theology did not slip into the habit of thinking that 'God' referred to something somehow 'outside' the meaning of 'everything'.

I can suggest, again, that this meaning of 'God' could be written in a different typeface to make

the distinction clear every time it is used: God and *God* are distinguished in the following theological remarks in an (invented) religious manual:

To love *God* is to love yourself (it is a logical truism because loving everything involves loving yourself);
but to love God (a perfect being) is probably to hate yourself as a sinner (against his-her moral
perfection our behaviour looks dowdy).

Or

(2)

The Gaia axiom *God is everything* may be something more like the following:

Gi9. $\Pi x\phi x$ <all x 's ϕ >
 <everything ϕ 's>
 <whatever x may be, it is God>

This may look like a useful axiom, particularly when 'read' as in the last set of pointed brackets. But it is, unfortunately, a simple expansion of the simple single proposition ' p ' with $p/\phi x$ and the quantification rule *II1* applied. The simple ' p ' is the 'killer axiom', and in its form $\Pi x\phi x$ is often thought of as the standard false proposition. This is because it allows anything and everything to be true; to find it as a thesis in any logical system proves the system invalid (does not work, is useless, does not reflect how things are); to add it as a thesis to any logical system is to destroy the system.

Gaia religion (as logic must) will have to do without such an axiom.

Or

(3)

The Gaia axiom *God is everything* may be something more like the following:

Gi10. $C\phi x\Pi x\phi x$ <If x ϕ 's then everything ϕ 's>
 <If x is pink then everything is pink>
 <If x is God then everything is God>

or

Gi11. $\Sigma xK\phi x\Pi yC\phi yIyx$ < There is some x such that both x ϕ 's, and, for all all y , if y
 ϕ 's, then y and x are identical >
 < There is only one object>

One or other of these looks like an ideal thesis, even an axiom, for Spinoza, and perhaps for Gaia too. Unfortunately adding *Gi10.* to the lower predicate calculus has the effect of making quantification pointless since $\Pi x\phi x$ and $\Sigma x\phi x$, and the simple ϕx will all be equivalent, and that means you may substitute any one of them for the others in all formulae. The predicate calculus thus collapses into the propositional calculus with some superfluous symbols and, the propositional calculus is unable to handle what the pantheists want to say without itself collapsing into chaos.

Logicians will point out that the rules of quantification which we have called *II1* and *II2*, *$\Sigma 1$* and *$\Sigma 2$* , were invented, being both intuitively true and very necessary for correct reasoning, for this very reason. You may not get from

ϕx < x ϕ 's> to $\Pi x\phi x$ <everything ϕ 's>

by any quantification rule. This leaves us as *Gi11.* as the only possible meaning.

Or

(4)

The Gaia axiom *God is everything* may be something more like the following:

Looking at the rules about the allowable content of arguments which contain both theological theses and factual or moral theses, (Chapter 3, §7, subsection 5.3) we can see that an argument of any sort about God and the world is likely to contain both statements about God (be theological) and the world (be factual) and some of these will be allowable and others not. For example,

If	<i>Gi12.</i>	all the world's a stage
then if	<i>Gi13.</i>	God loves a play
then	<i>Gi14.</i>	God loves whatever happens in the world.

This inference is valid ('meaningful' might be a better word) because its logical form is valid and it has a theological statement in its antecedent part and a theological conclusion is drawn. On the other hand

If	<i>Gi12.</i>	all the world's a stage
then if	<i>Gi13.</i>	God loves a play
then	<i>Gi15.</i>	all the men and women are merely players.

is not a valid inference – the factual conclusion does not follow from a mixture of factual and theological statements. (In this case you could safely drop the theological statement *Gi13.* and, with a bit of expansion of *Gi12.* get a true inference, but with *Gi13.* in place the argument it is not valid.)

Now try to produce a useful argument about some pantheistic topic, firstly a valid inference:

If	<i>Gi16.</i>	the world is a living creature
then if	<i>Gi17.</i>	the world is God
then	<i>Gi18.</i>	God is a living creature.

Secondly an invalid inference

If	<i>Gi18.</i>	God is a living creature
then if	<i>Gi17.</i>	the world is God
then	<i>Gi16.</i>	the world is a living creature.

The antecedent theses are theological statements; the conclusion is a factual statement. This will not do.

The introduction of any theological statement into an argument moves that argument from the 'ordinary' realm (where we expect to be able to argue about morals as well as facts) to the restricted and specialised realm of theology, where every conclusion must mention God or gods.

Or

(5)

The Gaia axiom *God is everything* may be something more like the following.

Some people are sure, as Coleridge was of Spinoza, that the pantheists, (and he would no doubt include Gaia-ists) are saying nothing. Is this true? The problem of whether one has said something or said nothing is not actually a problem of logic, except in the case of an inference or

argument being involved. If you have said nothing, logic cannot deal with what you have said (after all you have said nothing) and there is nothing which has been said which can be declared true or false.

There is a sort of parallel with simple mathematics: the symbol '0' (zero) is not a number but is merely a typographic or graphic symbol; it has the job of being a 'place-keeper' which, when used with nine other symbols (1,2,3,4,5,6,7,8,9) makes it possible to write down in a simple manner a way of counting for ever. The addition of '0' (zero) to the list of integers is one of those great counter-intuitive leaps (like gravity being a force) and has enabled mathematics to progress beyond accurate symbolic barter. Making zero a number involves a host of new rules: zero is neither a positive number nor a negative number, neither odd nor even, is not divisible by itself and 1 therefore it is not a prime, will divide every other number and get the *same* (ridiculous) answer, infinity (which itself started out as a non-number). But no one can deny that 0 is an immensely useful number.

In something the same way *saying nothing* can be given a logical symbol and treated as part of an argument. In Russell and Whitehead's pursuit of a logical basis for mathematics the 'null class' became quite important.⁴² However, such an idea is not to be confused with Wajsberg's '0' which stands for a standard false proposition, not a missing or vacuous term or proposition. Ordinary language uses the idea of meaningless or empty; for example, see the second sentence of this section ['If you have said nothing logic cannot deal with what you have said...'] In that sentence 'what you have said' is treated as if it had some reference, pointed to some utterance, words, or sentences with meaning; but it does not – it points only to a gap, using the poetical or metaphorical trick of *pretending* that it refers to something.

Logicians and philosophers have wrestled with the legitimacy or otherwise of trying to talk about, for example, non-existent objects such as Pegasus, the present King of France, the round square cupola on Berkeley College, Sherlock Holmes, and any other imagined object or idea or feeling you like to dream up. Bertrand Russell's solution is to say that names are condensed, handy shorthand for long defining descriptions. Imagined objects have names and are not meaningless.⁴³ Logic can deal with imagined objects, but impossible 'objects' (that cupola) are meaningless and logic cannot countenance the meaningless. Impossible 'objects' include logically impossible ideas – logic is not about what *cannot* be. The introduction of a logically impossible 'object' or concept would lead to chaos. Some logicians are quite sure that gods are logically impossible objects; others think that you might be able to invent logics that can deal with the seemingly impossible.

Possible objects, ideas, worlds, futures, etc., are a half-way house: the rule is that we can do any amount of perfectly valid logical argument using non-existing objects, ideas, feelings, beings, etc.; but the conclusion must always be framed in the form 'If such-and-such *were* to exist, then'

Are gods non-existent beings? If they cannot be shown to exist by *argument* from existent objects, ideas, feelings, beings, etc., nor by scientific proof and experiment, then the wise thinker will insist on the same concluding format as that above: 'If gods do exist then' or, 'If God does exist, then'

Conclusion

An interesting pantheism/Gaia connection to New Zealand is found in the ideas of Samuel Butler (1835–1902) who wrote *Erewhon*. In books, for example, *Life and Habit*, and *Evolution Old and New*, published well after his return to Britain in 1898, he propounds ideas close to pantheism and has a Gaia attitude to the earth and life, but without the particular science of Lovelock and Margulis. Sagan & Margulis (1997) say,

Butler rejects a perfect immovable mathematical God: his deity is imperfect and dispersed. The properties of life for Butler, lie in all life; 'God' and life are one. ⁴⁴.

Logic is unable to endorse what the pantheists want to say. Does this show up a fault in logic (and set us to finding a new logic to enable it to be said) or show up a fault in pantheistic reasoning? It may be possible to find a logic for pantheism, and the *Theologic* hints how it might be done, but there are at least two worries about such a logic:

(i) it would have to reflect a definition of God which, like the utilitarian equivalence of happiness with moral goodness, leaves us gasping at its cheek – 'so God is nothing special, it's just everything; extremely complex but soul-less and mechanical (with perhaps some chance thrown in if quantum physics does not find a way of doing without chance)';

(ii) it would be relatively useless, being restricted to conclusions about a myriad of things when they are regarded as one 'object'.

However, the Gaia idea of Lovelock is a useful one, stimulating the science of ecology, and showing how a worshipful attitude may spring from scientific facts and insights. And it is a change to see a religion which says

... the Universe is neither the dead mausoleum investigated by the Cartesian licence nor an enchanted fairyland of invisible spirits. ⁴⁵

Reference and Notes

1. Xenophanes, who escaped from Ionia under the Persians, was a refugee in southern Italy; he is the author of the famous remark about horses and gods:
 ...and if oxen or horses or lions had hands, and could paint with their hands, and produce works of art as men do, horses would paint the forms of gods like horses, and oxen like oxen ... The Ethiopians make their gods black with stub noses; the Thracians say theirs have blue eyes and red hair.
 I have a fellow feeling for Xenophanes because he believed it is impossible to know the truth of any theological matters:
 ... there is not, nor ever shall be, any man who knows about the gods... even if a man should chance to say something utterly right, still he himself knows it not – there is nowhere in theology anything but guessing.
 These quotations are from Bevan, Edwyn, 1913, *Stoics and Sceptics*, Oxford, OUP, p.121. I have not tracked down Aristotle's remark about Xenophanes, which came to me second hand. Russell (1954) in the *History of Western Philosophy*, p. 59, says
 He believed in one god, unlike men in form and thought, who "without toil swayeth all things by the force of his mind."
2. Marcus Aurelius, c100-180. See his *Meditations*, translated by Maxwell Staniforth, published by Penguin Books, 1964. Here is one of these meditations with a pantheistic view:
 Always think of the universe as one living organism, with a single substance and a single soul; and observe how all things are submitted to the single perceptivity of this one whole, all are moved by its single impulse, and all play their part in the causation of every event that happens. Remark the intricacy of the skein, the skein, the complexity of the web.
 There are echoes of Marcus Aurelius in Spinoza; here is a meditation with a determinist argument which Spinoza later clarified:
 All things come to their fulfilment as the one universal Nature directs; for there is no rival nature, whether containing her from without, or itself contained within her, or even existing apart and detached from her.
 The Reformed (Calvinist) Church asks 'What is the chief end of man?' and answers, 'To love God and enjoy Him for ever.' The writers of the United States Constitution thought that people should pursue happiness. Marcus Aurelius would have none of such stuff:
 Everything – a horse, a vine – is created for some duty. This is nothing to wonder at: even the sun-god himself will tell you, 'There is a work that I am here to do,' and so will all the other sky-dwellers. For what task, then, were you yourself created? For pleasure? Can such a thought be tolerated?
3. MacIntyre, Alisdair, 1967, 'Pantheism' in *Encyclopaedia of Philosophy*, Ed: Paul Edwards, NY, Macmillan and Free Press.
4. Quotations from Spinoza's *Ethics* in this section are from Curley's 1985 translation and from an earlier one by Boyle, A. in the early 1900s, this latter being often in much more readable English by following the Latin and Dutch less meticulously. Occasionally I have substituted a more modern word or phrase, for example, 'substantial' for 'substance', when explaining his drift.
5. Russell, Bertrand, 1954 *History of Western Philosophy*, London, Allen & Unwin, p.592
6. Curley, 1985, p.410
7. Ibid. p. 439
8. In contrast, I appear *destructive* because my intuition is that from basic truths (I would call them scientific truths) and right reason, we find we must abandon talk of gods and abandon talk of any relationship between humankind and gods. In old fashioned language I am analytic rather than synthetic. This does not mean that I am *totally* destructive: we can be filled with awe, we can be worshipful about some things, and we can be strongly influenced by the lives and words of religious people, without being irrational.

9. See, McFarland 1969, p.228.
10. See, Schopenhauer 1951, p.40.
11. See Owen 1971, pp.69-70.
12. A brief introduction to Ontology and Mereology can be found in the closing pages of Prior (1955), *Formal Logic*, pp. 293 - 300. This includes references to the work of Sobocinski, Lesniewski and Lukasiewicz on these topics. Much work has been done in these fields since the 1950s.
13. Carroll has Achilles and the Tortoise, after the race, arguing about what happens if someone refuses to accept the conclusion of a valid argument, the Tortoise's example being from Euclid. Having refused to accept the conclusion the Tortoise then suggests to Achilles that we now have a new argument on our hands: *If the first argument is valid its conclusion is valid*. But the Tortoise denies the conclusion to that argument and pushes Achilles into making a new attempt with: *If the argument in italics is valid then its conclusion is valid – and so on till the Tortoise says, 'Have you got that last step written down? Unless I've lost count, that makes one thousand and one. There are several millions more to come. . . what a lot of instruction this colloquy of ours will provide for the logicians of the Nineteenth Century . . .'* And one might add, for the twenty-first century.
14. Harrison, Paul 2000, *Scientific Pantheism*, <http://members.aol.com/Hereklit1/Spinoza.html>
15. Teilhard de Chardin, 'From the Pre-human to the Ultra-human,' first published in 1951 in the *Almanach des Sciences* and later published in English among the essays in *The Future of Man*, London, Collins, 1964
16. Ibid.
17. Ibid.
18. Teilhard de Chardin, 1953, 'The End of the Species' in *Psyché*.
19. Mary Daly 1973, p.190.
 Mary Daly is by no means a quiet and measured critic, of Teilhard de Chardin, as of any man. On page 192 she says:
 His Omega Point is a static, spatial image, and in using it he spatializes time. He visualizes the Omega as an apex of conic time, as a point, as the closing bulb on the tree of life, as the North Pole.
 In brief, Teilhard's Omega Point inspires claustrophobia. It is the repulsive metaphor of the Mystical Body of Christ revisited. It is "true being" clamping its iron jaws upon "becoming." His Christolatry cuts down his dream of "cosmogogenesis" and closes the door to the future. "All that rises must converge"? Perhaps. But if this is convergence, who would want erection? Teilhard constantly uses the imagery of "rising," but as we float upward with him we notice that we are destined to bump into a reified Something. ...
 Enlivened by a dynamic intuition of being, women now coming alive hardly need or want a paroxysm toward a deadly Omega Point. Participation in Be-ing is the final cause, and because this is "the end," we can look forward to endless divergence. It makes us citizens of the future, where we are already finding it possible to know a new past. In organic Space-Time our movement is not linear. If, as Nietzsche said, God is dead, "Is there any up or down left?" Correction: To the degree that God the Father is dead, swept under by the Living Final Cause, our movement is in all directions: backward, inward, sideward, forward, as is the case with life itself.
20. Sagan, Dorian and Lynn Margulis, 1977, 'Gaia and Philosophy' in *Slanted Truths and Essays on Gaia, Symbiosis, and Evolution*, NY, Springer-Verlag, p.147.

- 21, 22, 23. Ibid. Consecutive text from earlier in the same essay, p.146. Italics mine.
24. Morgan, Patricia, 1999, *At the Temple of the Divine: Material and Metaphysical Aspects of Health*, a thesis presented as part of the requirements for the degree of Master of Arts in Theatre and Film, Wellington, VUW, p. 7. All quotations are from her 'Introduction'.
25. Ibid. p. 6.
26. Ibid. p. 8.
27. Ibid. p. 25.
28. Bragdon, Claude 1928, *The New Image*, London, Knopf, page 176.
29. Morgan 1999, pages 25-26.
30. Lovelock, James, 1988, *The Ages of Gaia*, NY, Norton.
31. Xenophon, *Economics*, quoted in Sagan and Margulis, 1999, page 155.
32. Lovelock, James, 1988, p. 203.
33. Ibid, p. 204.
34. Ibid, p. 205.
35. Ibid, p. 206.
36. Ibid, p. 206.
37. Ibid. p. 206-7.
38. Vladimir Ivanovich Vernadsky (1863-1945) might be a better scientist to use as the founder of a new pantheistic religion centred on the earth: where Lovelock talks about the Earth's biosphere suggesting scientists could use the model of 'living creature' to describe it, and adds his own poetic and religious feelings in his more popular writing, Vernadsky describe living matter as if it is a special case of non-living matter. Here is is an extract from a Sagan, Margulis, and Guerrero essay 'Descartes, Dualism, and Beyond' in Sagan & Margulis, 1997, pp.176-7
 Vladimir Ivanovich Vernadsky (1863-1945) portrayed living matter as a geological force – indeed, the greatest of all geological forces. Life moves and transforms matter across oceans and continents. Life, as flying phosphorus-rich seagulls, racing schools of mackerel, and sediment-churning polychaete worms, traverses the near-Earth environment, chemically transforming our planet's surface...
 Impressed by the movement of machines in the World War I, what struck Vernadsky most was that the material of Earth's crust is packaged into myriad moving beings ... Humans, for example, are accelerators of life's tendency to redistribute and concentrate the chemical elements of the Earth: iron, aluminum, oxygen, hydrogen, nitrogen, carbon, sulphur, phosphorus ... People, he explained, have an amazing propensity to dig into, build up, move around, and in countless other ways alter the chemistry of the Earth's surface... (see Lapo, A.V. 1988 *Traces of Bygone Biospheres*, translated by V.Purto; Oracle, Synergistic Press).
 Vernadsky contrasted gravity, which pulls material vertically toward the center of Earth, with life-growing, running, swimming, and flying against the gravitational force...
 But even a resolute materialist like Vernadsky found a place for mind. In Vernadsky's view a special thinking layer of organized matter, growing and changing the Earth's surface, is associated with humans and technology. To describe it he adopted the term *nöosphere*... The term *nöosphere* itself was introduced by Edouard Le Roy, of the College de France. Vernadsky met Le Roy along with Pierre Teilhard de Chardin... For Teilhard the *nöosphere* was the "human" planetary layer forming "outside and above the biosphere," while for Vernadsky the *nöosphere* referred to humanity and technology as an accelerating, yet integral, part of the planetary biosphere.
 Vernadsky distinguished himself from other theorizers by his staunch refusal to erect a special category for life. Life was far less a thing with properties than a happening, a process. Living beings in Vernadsky's writings are moving, chemically curious, but predictable forms of the common fluid, the liquid mineral H₂O we call water. Animated

water, life in all its wetness, displays a power of movement exceeding that of limestone, silicate, and even air. It shapes Earth's surface. [He emphasises] the continuity of watery life and rocks, such as that evident in coal or fossil limestone reefs.

39. Samuel Butler, in *Erewhon*, and other books ran the line that machines can be regarded as reproducing, having found the unusual, but nevertheless effective, method of getting human beings to do the reproductive tasks for them. Therefore, if the race of machines can keep humans alive (much as humans tend sheep and cattle) then they can keep the race of machines alive, and evolving. It has been suggested that Butler got this idea from his father who believed that the reproductive capacity of plants and animals should not be seen as a defining part of being alive.
40. Lovelock, James, 1988, pp. 210-211.
41. Ibid pp. 210-211.
42. See Whitehead, A.N. and Russell, Bertrand, 1910-13, *Principia Mathematica* (Vols 1-3), Cambridge, CUP.
43. Note that I am not suggesting that a case can be made for any god to exist because he has a name. There are lots of names for non-existent things, from dead people to science fiction inventions. As I use the terms here, *names* are short-hand descriptions of *particular* objects or actions or ideas. In Chapter 11 symbols were very important. I would suggest that *symbols* are shorthand descriptions for *classes* of objects, ideas, actions, connections. Symbols quite often change or are used on different occasions for quite different objects, ideas, etc: x can stand for any number in algebra, it can also stand for a sound, or for multiplication, or for a wrong answer, or for a name in a logical formula such as $\exists x C\phi x\phi x$. Names do not just go with people but anything we think of as a single entity: the tarbuck knot, the fastest animal alive, a drum-roll, gene theory, or your chocolate-induced migraine.
44. Sagan, D., Margulis, L., Guerrero, R., 1997 'Descartes, Dualism, and Beyond' in *Slanted Truths*, NY, Copernicus, p.180.

It is pushing quite hard to connect Samuel Butler with Gaia theory, in *Life and Habit*, at least. This book runs a Lamarckian line against Darwin, mainly arguing that we inherit instinctive and habitual behaviour once *learned* by our protoplasmic ancestors: instinct is unconscious memory. It is most notable for some priceless witty 'upsidedown' opinions; for example, he thinks Marcus Aurelius so waffly and stuffy that it is no wonder the Roman Empire collapsed after a dose of his rule. The Gaia-like passage is quite short:

If, in like manner, we were to allow our imagination to conceive a being as much in need of a microscope for our time and affairs as we for those of our component cells, the years would be to such a being as the winkings or the twinklings of an eye. ... would he not believe ... the whole human race [did] appear to him as a sort of spreading and lichen-like growth over the earth? With the help of a microscope and the intelligent exercise of his reason, he would in time conceive the truth. He would put Covent Garden Market on the field of his microscope, and would perhaps write a great deal of nonsense about the unerring 'instinct' which taught each costermonger to recognise his own basket or donkey-cart; and this, *mutatis mutandis*, is what we are getting to do as regards our own bodies. What I wish is, to make the same sort of step in an upward direction which has already been taken in a downward one, and to show reason for thinking that we are only component atoms of a single compound creature, LIFE ...

Butler, Samuel, 1898, *Life and Habit*, (New Edition, 1910) London, A C Fifield, pp. 218-9
45. Sagan, D., Margulis, L., Guerrero, R., 1997 'Descartes, Dualism, and Beyond' in *Slanted Truths*, NY, Copernicus, p.175

PART 2

Section 4: Religions without a 'Supreme Deity'

An Introduction to the logics of religions without a 'Supreme Deity'

Introduction

Buddhism

Buddhist Logic

Doing Buddhist Logic

Not doing logic (Zen)

Confucianism

Introduction

Looking at the religion in which one was brought up has its advantages – mainly that you are aware of the complexity, the rival schools, the sectarianism, the variety, the liveliness and even profusion of beliefs, all under the one banner. It also has disadvantages – mainly being unable to see the wood for the trees, that is, finding it difficult to generalise. However, there are fundamental Christian beliefs which mark Christianity off from other religions, and these may be summed up in a fundamental set of axioms.

In fact, in looking at Christianity I examined the logic of one theology with some care, and noted towards the end of that section some other versions of Christianity that would choose some of the set of DP axioms and reject others. I have had to leave aside some fascinating variations of Christian theology, for example, those of Life Protestants, the Orthodox, the Nestorian and Coptic churches, the Mormons and the Quakers. These branches have sets of theological axioms which range from large to tiny. The Quakers deny that they have any theology at all; however, many Quakers think long and hard about theological matters and the theological axioms of individuals can be deduced from their writing and ministry.

I examined logically interesting new theologies which have sprung from Christianity, mainly from its encounter with science and feminism. Moving away from the Christian banner I looked at pantheistic religious ideas, and although both Spinoza and Teilhard de Chardin began from theist roots, I suggested that the concept of a deity is superfluous to pantheism. Now I am making a quick expedition to discover the logics of two religions which do have no supreme deity, and whose most fundamental beliefs may be examined first by the discovery of their fundamental axioms, and secondly by the way they logically build upon those axioms.

Buddhism

I chose the Theravada tradition because it is well known in the West as a religion without a supreme deity. This idea is too simple to be much use in explaining the Buddhist world view, but it is true that the Buddha felt that other things were more important than arguing about the existence of gods. Though popular Buddhism appears to have many deities Buddhist thinkers have been insistent that the word 'God' not be used, especially in prayers.¹ Though Hindu thinkers may sometimes allow or encourage the use of 'God' as a translation for 'Brahmin', Buddhists do not, on

the whole, wish to use such ideas, which can cause misconceptions about the beliefs of Buddhists, among Westerners at least.

Buddhism has perhaps as many major divisions and incompatible sects as Christianity but I know none of these at first hand and have only a few Buddhist acquaintances to call upon to help me. However, I have

- (a) read introductory books and articles², studied papers and texts recommended by academics, and read some of the Pali Sutras,
- (b) spent time with a friend studying religion at the University of Veranasi, including a visit to Sanath, and
- (c) had religious discussions with Buddhists (mainly Chinese).

This has led me to conclude that there are enough correspondences between my understanding of Buddhism and the beliefs of many Theravada Buddhists for me to consider my selection of basic beliefs to be acceptable. Of course, as with Christianity and other religions earlier in this thesis, my selection of axioms to carry those beliefs and my logical deductions from them, and my selection of logics to fit, are my own best attempts. I have picked out, from what I have learnt, those parts which make the most sense to me, and I look at their logic as well as I am able. As with Christianity, some Buddhist ideas and their logic fascinate me more than others; this section will be again a personal choice based on scriptural texts, the words of the founder, or of commentators close to the Buddha's life. I rely mostly on westerners' translations and interpretations.

I am very interested in religions which have no god or gods and interested in the logics of their 'theologies', that is, in the way a systematic explanation of the beliefs of the religion can be built up. Despite the oddness to those with classical Greek I will go on using the word 'theology' with this extended meaning, rather than the neologism 'Buddhology'.

A short selection of Pali texts makes up Appendix 2. As well as giving the words of the Buddha on key beliefs, there are also some snatches of commentaries which, I hope, give an idea of the intense theological debate which has been as much a part of Buddhism as theological discussion and controversy has been a part of Christianity.

Buddhist Logic

Buddhism has a well developed formal logic of its own. The first texts about logic date from the first century of the Christian era and obviously much work had been done before then. I had to examine Buddhist logic to see if there is any likelihood that the following argument has validity: Buddhism does not need to be examined using modern symbolic logic because it has a logic of its own.

Buddhist logic has a particular way of constructing argument - a unique form. It has a long and varied history which follows the spread of Buddhism over the East. The topics covered and the illustrations which logic-teaching texts use, give very useful insights into the development of Buddhist thinking. However, if you are not steeped in Buddhist thinking, if you are looking at Buddhism from the outside rather than from inside, Buddhist logic does not, in fact, assist study of basic Buddhist beliefs. Buddhist logic was developed for theological debate among Buddhists and for proselytising. Buddhist logic was most useful in detecting illogicalities and fallacies; and was developed when monks had time to learn its innumerable examples and rules by rote and were trained in arguing the case for their beliefs. But has been superseded. The mathematical logics of modern times are more efficient, flexible, and further reaching. The short description of Buddhist logic given here will show why this is the case. This is why my examination of Buddhist logic is placed here in this introductory chapter, not in the next chapter.

Buddhism has two traditions which take logic seriously and texts about logic are considered to be part of the Buddhist scriptures. In this way it is quite unlike Christianity which takes no notice of logic in any of its scriptures or early teaching material. The rediscovery of the logical work of pagan Aristotle by the schoolmen 1,500 years after his death, meant that it was thereafter used as a tool in

theology but not in worship nor the practice of the faith, though it was used in proselytising among the pagan intelligentsia no doubt. It is not seriously held that Christianity has a logic of its own, namely the logic of Aristotle, dissimilar to 'natural' or symbolic logic, and therefore Christianity is immune to, or excused, ordinary logical analysis. Similarly, Buddhism has a logic which it developed, but Buddhist thought cannot be fully examined using Buddhist logic alone.

*Doing Buddhist logic*³

In Buddhism logical arguments of a distinctive five-line form are found as a teaching device in the scripture called the *Nyaaya Sutra* (1st Century CE) and several standard texts up to modern times, but also in books full of commentaries, sub-commentaries and glosses on these. In China one of these commentaries, the *Nyaayapravesa*⁴ (a 6th Century CE manual on logic) became very popular and many further commentaries upon it were written. It opens thus:

Demonstration and refutation together with their fallacies are useful for arguing with others; and Perception and Inference together with their fallacies are useful for self understanding: seeing these I compile this teaching.

Here is an example of the sort of argument such commentaries discuss; in fact it is one of the earliest written examples:

N1. Sound is impermanent	< <i>pak sa</i> (thesis) >
N2. Because it is produced	< <i>hetu</i> (reason) >
N3. Whatever is produced is impermanent	< <i>d.r.s. taanta</i> (example) >
N4. As with a pot, and so forth	< <i>sapak sa</i> (similar case) >
N5. As is not with the case of space, etc.	< <i>vipak sa</i> (dissimilar case) >

Clearly, if the examples N4. and N5. are dropped and the order reversed we have a valid deduction in Modus Ponens

CKCαβαβ < If both, being created implies impermanence, and, sound is created,
then sound is impermanent > ⁵

A quick look at the *Nyaayapravesa* reveals that more than two thirds of this logic manual covers the identification and classification of fallacies. A scholar of the early texts (Factor 1988) points out that

... none bear any resemblance to the schoolmen's formal fallacies of deduction such as affirming the consequent or denying the antecedent, nor does the system resemble Western notions of an informal fallacy. Fallacies of irrelevance such as the *ad hominem* or *post hoc propter hoc* call attention to the lack of support between premises and putative conclusion. In Buddhist logic the classification of fallacies does not attempt to circumscribe the ways premises can be irrelevant; on the contrary it gives criteria for grading the strength or weakness of the explanatory hypotheses. For example, it can fail as a teaching device by failing to make the listener or speaker aware of the connection between the assertion statement and the reason for it. Thus, when hypotheses fail to be understood, they produce fallacies of recognition; but when they fail to give evidence in support they produce fallacies of contradiction or inconclusiveness.⁶

Factor thinks this classification of fallacies

reflects a sophisticated, but also a commonsensical, means of evaluating hypotheses. It is open textured, as the "retroductive" reasoning must be, and more importantly it does not attempt, as Western logic does, to classify fallacious reasoning as a kind of deductive argument gone awry.⁷

There have been great arguments about whether the Buddhist logical form is the same as the Aristotelian and these arguments continue amongst both Eastern and Western scholars; one suggestion which would have been interesting to Prior who was a great fan of the 19th Century American logician Charles Sanders Peirce is that the Buddhist form is best understood as a 'retroductive' inference,⁸ as described by Peirce (1933); Bochenski, the Dominican scholar who I have mentioned earlier as producing a work on the (Catholic) logic of religion (Bochenski 1965) has also studied Buddhist logic using symbolic logic and his investigations are in his *Formale Logik* (Bochenski 1956); significant symbolic work has been done by Richard Chi (Chi 1969); but these discussions are of no interest to my thesis. Theologians may be interested in Karl Potter's introduction to *Buddhist Formal Logic* by Richard Chi in which, after studying Buddhist logic, Potter sums up its influence, as he sees it, and compares it with the influence of Aristotelian logic on theology and the advancement of science.

Most scholars of Indian logic ... regularly praise Dignaga for making a remarkable breakthrough to a deductive, syllogistic logic. They apparently assume that recognition of the BARBARA-like relations in argument meant that Dignaga was somehow now on the right track. But the right track to what? Remember that the Buddhists were atomists in ontology, associationists in psychology, empiricists in methodology. In the history of Western philosophy concentration on deduction and the celebration of the syllogism as the paradigm of reasoning tended to spawn absolutism in ontology, innate ideas in psychology, rationalism in methodology. What happened in Buddhism as a result of its discovery of deductive logic was, I believe, a schizoid tendency which led to Dignaga's school's accepting the mysticism of the Madhyamika. The realm of universals, where deduction holds sway, is unreal for these Buddhist logicians; the world of particular things, beyond the scope of reasoning considered as essentially deductive and general, though admittedly real became uninvestigatable. It was rather the Nya-ya logicians, who held on to the inductive method characteristic of the earliest of our [Popper's proposed] three stages, who maintained an interest in nature and suppose it possible for human beings to study nature's ways successfully. In the West as well, scientific progress was impeded by the ancients' passion for formal logic, and only spurted ahead when the value of providing concrete evidence for one's claims was clearly recognized and accepted.⁹

Not doing logic (Zen)

The second interest in logic by Buddhists comes from the Zen school who have no time for logic at all and preach against it, strongly recommending that if you want to understand life the universe and everything you must put logic to one side and seek a quite different path to enlightenment and knowledge. There is a large literature on Zen (Zhan in China) and all of it pours scorn on logic and even the most philosophical and analytic has remarks in it such as the following – selected almost at random from the *Japanese Journal of Religious Studies*.

Only a logic of absolute paradox can grasp the contradictory nature of reality as expressed by the Zen Buddhist koans.¹⁰

As you will have gathered there are good reasons why the pursuit of a logic of 'absolute paradox', (meaning chaos) will be counter-productive. However, there are logics on the fringes of paradox, for example (i) those which computing calls 'fuzzy' logics – those which arrive at conclusions without what a detective would call a 'water-tight' case, usually when controlling machines where the occasional inexactitude does not matter, or to give results which need only 'ball-park' figures; (ii) logics which incorporate doubts about the logical soundness of using *ApNp* as a logical law – these are usually branches of Relevance Logic, (iii) nonmonotonic logics which are ever ready to shift the truth and falsity of lines of reasoning when new evidence of the acceptability of the premises arrives.

There have been some attempts to give a systematic account of the types and style of different koan, and these have resulted in further academic attempts at refinement, but to systematically examine anything is a very non-Zen way of behaving.

Buddhist logic in theology

The result of this short digression into Buddhist logic has not revealed any suggestions that Buddhist logic is attempting to find a logic which will apply to Buddhism alone, but that Buddhist logic is attempting to do the same sort of thing as western logic is achieving. There is a considerable academic interest in Buddhist logic but as a phenomenon, not as a tool. The few recent attempts to put Buddhist logic into symbolic form have been successful and may suffice for any theologian who wishes to put logic to use in his or her studies. However, it will be best to use whichever logic is the most flexible and capable of extension. As for the idea that logic is the enemy of religion, that looks like a major misunderstanding of logic. No doubt logics of poetry, intuition, metaphor, insights, oxymoron, paradox (in the poetic sense), and so on, will be developed and I commend those projects to Zhan Buddhists.

Confucianism

Introduction

China has had a fascinating religious history and although it has seen the rise of at least four strikingly different religions (the Chinese themselves prefer a word best translated as 'teachings') it has not seen the fall of any of them.

- 1 *Animism*¹¹ The early animist religions of the pre-Han were adapted by the Han people, and particularly by their rulers, who saw it as part of their job to keep the world in harmony with heaven by using rites, such as worship, sacrifice, prayers, and ceremony.
- 2 *Confucianism* Among the bureaucrats, Confucius, and others of the same opinion, produced a set of rules which would help the rulers and the ruled produce the best of all possible worlds for all.
- 3 *Buddhism* From India came Mahayana Buddhism which, with its emphasis on personal salvation and detachment from the problems of administration seemed a very unlikely religion for China; it almost sank without trace, but gradually took on a Chinese character and thrived.
- 4 *Dao* From the magic and practical healing of the folk-religious, scornful of rulers and foreign ideas, came Dao (old spelling 'Tao') which was developed by adepts into a religion of emotions and feelings in contrast to the rationalism of Confucius and the dogma of Buddha.

All these religions are still to be found in the world-views of all Chinese, even the most doctrinaire Maoist communists.¹²

I want to look at the logical foundations of the religion which has built up, following on the ideas of Kong Fuzi, (Venerable Master Kong) Confucius, a minor bureaucrat in the 6th Century BCE Chou Dynasty. He lived between the birth of Buddha and the birth of Socrates. The chief work

said to be written by him is *Lun Yu*, (Ethical Dialogues) which in English we call *The Analects*; it was probably compiled two hundred years after his death. It is made up of about 500 short paragraphs, (called 'chapters') most with a topic, perhaps raised by a disciple, and Master Kong's comment. Nowadays it is divided up into twenty short books and the paragraphs numbered; it is very like the FAQ (Frequently Asked Questions) section in a computer manual.

The Analects contain many references to two books written before Confucius: *Li Ji*, *Records of the Rituals*, and *Shi Jing*, *The Book of Songs*, both surviving in reasonable form and both containing a lot of information about the way in which the religion of the 6th Century BCE upper classes was conducted. Other surviving books from before Confucius are two books of history, the *Book of Documents* and *Annals of Spring and Autumn*, the latter, a subtle criticism of the recently dead Emperor's government, is praised by Confucius. Also not out-of-print is the *I Jing*, *The Book of Changes*, a book of magical divination by diagrams, mentioned only once in passing by Confucius (*Analects* 13:22), but often of cult status among contemporary superstitious westerners. These early books are known as the 'Five Classics', and, along with *The Analects* and three others, known together as the 'Four Classics', they were the set texts for the famous public service examinations of later Imperial China.

Confucius was deeply attached to the feudal system of government which was not doing very well in his day, and he looked back to a mythical time in the past when it had worked well. He tried to teach, and see put into practice, those virtues which he believed the five 'sage emperors' had shown. He said, 'I believe in the past and love it.' *Analects* 7:1. Although poor, patrons got him a good education, but they failed to secure him good appointments, so his career as an official was brief and unsuccessful. How much of this was because of his unwillingness to compromise his principles, with no time for flattery and intrigue, is unclear but we have several passages in *The Analects* which make it clear that he preferred having no job (except occasional teaching) and the ensuing poverty, when his advice was scorned.

Confucius said the natural and correct attitude and duties towards people in general was on a scale something like this:

- 1st parents most important,
- 2nd close family,
- 3rd wider family relations,
- 4th village,
- 5th town,
- 6th county,
- 7th state, and
- 8th the emperor (and all this tempered by good sense).

After Confucius, Meng Zi, Mencius, who lived a century later, carried his ideas further; he emphasized particular ideas and introduced new ideas. Mencius, however, was more compassionate than Confucius and held that we should be kind to all people and treat them all equally, all people being inherently good; we all have innate feelings of respect, shame, sympathy, right and wrong; and from practising such virtues will flow good government. He advocated free trade, the deposing of bad rulers, division of labour, inspection of work by the government, the maintenance of good roads and bridges, laws to protect and help the poor, education, and the abolition of war.¹³ His ideas are, in the main, incorporated into what we think of as Confucianism today.

Another important disciple was Xun Zi. Rational and unsentimental, he thought people were basically evil and only through the rigors of a Confucian based education and moral training, especially of the ruling classes, could peace prevail. For him the spiritual realm was a polite fiction and he poked fun at ceremonies to bring rain, and so on:

They are done merely for ornaments. Hence the Gentleman regards them as ornaments but the people regard them as supernatural.¹⁴

Although a disbeliever, he hated the reliance of the rulers of his day on force and terror and saw, like Confucius, that rites and ceremonies had a humanising influence, were a way a hierarchical feudal state could express the idea of order, create authority, and practising the rites would bring peace, achievement and fame.

Stout armour and sharp weapons are not enough to ensure victory; high walls and deep moats are not enough to assure defence; stern commands and manifold penalties are not enough to ensure authority. What proceeds by way of ritual will advance; what proceeds by any other way will fail.¹⁵

Confucius and the gods

Like the Buddha, Confucius refused to talk about the gods – they were not what was most important. For both men the way in which the nastiness of life for everybody could be overcome was most important. Buddha found the way in overcoming one's own attachment to life, Confucius found the way in getting everyone to behave. But, if against their advice, we are interested in gods, what can we adduce about Confucius's beliefs about them?

It is usual for the Chinese to refer to the gods *en mass* as 'heaven', using the same figure of speech as we do when we say 'America may declare war on Iraq'. Confucius believed in ghosts and spirits and he believed that the rituals which were to keep heaven and earth in balance, that is to keep the gods and people from interfering each other's affairs, were important. Certain rituals by humans would ensure that the gods allowed spring to come at the right time, and others would keep diseases at bay. But the duties of people were to maintain the rituals, not to look for personal divine interference in private lives. Such private petitions as are made everyday in China, to various gods and ancestors, are part of other traditions, and are not the Confucian way. His most famous saying about this is '... At fifty, I realised that Heaven has its own will. I blamed neither Heaven nor man.' *Analects* 2:4.

With the gods in heaven getting on with their own affairs, and humans on earth getting on with their own affairs and both kept in balance (a favourite Chinese concept) by the rituals, one can almost count the gods out of Confucianism altogether. In a modern world with scientific explanations for the regular arrival of spring and explanations for disease, explanations that lead to cures, the gods and heaven can be pushed right away. What then of Confucius's emphasis on the rituals, the balancing mechanism, if there is nothing at one end of the scales? Do we have a Confucian religion if heaven has been destroyed, the gods have evaporated? Much of Chapter 16 looks at the rituals and what we can now see them as having accomplished in the past, and what we can judge as modern rituals, and what they can do. Confucianism was a religion which did not bother about gods except on set occasions. With those occasions gone, so have gone the gods. Confucianism is now a religion without any gods.

Notes and References

1. See for example, the prayers collected each year and published for the 'World Day of Prayer' in New Zealand.
2. My first reading about Buddhism was Christmas Humphrey's *Buddhism*, a Pelican, published in 1951, which I read soon after it came out. After going back to it again I looked at more recent texts, mainly looking for clear accounts of the Buddha's beliefs and teaching, and including:

Bahm, A.J., 1958, *Philosophy of the Buddha*, London, Rider & Co.

Bush, Richard C., 1982a, 'Buddhism' in Weir, Robert. F. (Ed.), 1982, *The Religious World: Communities of Faith*, New York, Macmillan.

Jayatilake, K.N., 1963 *Early Buddhist Theory of Knowledge*.

Kulananda, 1996, *Principles of Buddhism*, London, Thorsons (HarperCollins)

Lester, Robert C., 1973, *Theravada Buddhism in Southeast Asia*, Ann Arbor, University of Michigan Press.

Phillips, S. H, 1995, *Classical Indian Metaphysics*, Chicago, Open Court.

Skilton, Andrew, 1994, *A Concise History of Buddhism*, Birmingham, Windhorse Publications.
3. The most comprehensive text on Buddhist logic in the West is Stcherbatsky (1958). His 2 volume work, *Buddhist Logic*, in Russian, was originally published 1932 in Leningrad, by the Academy of Sciences of the USSR, as Vol.26, Part 1 of the Biblioteca Buddhica. Its translation into English was published in 1958 in the Hague by Mouton & Co. It contains not only explanation and commentary but also the translated texts of important works by Indian and Chinese logicians, for example: Dharmakiri, 1958, 'A Short Treatise of Logic (Nyaya-bindu) and its commentary by Dharmottara, (Nyaya-bindu-tika)'

My own investigation into Buddhist logic began with

Factor, R. Lance, 1988 'What is the "logic" in Buddhist logic?' in *Philosophy East and West*, Vol 33, No.2, pp.183-188. From there I was led to reading Stcherbatsky.

There are very few studies of Buddhist logic using symbolic logic, the main one being:

Chi, Richard S.Y., 1969, *Buddhist Formal Logic: A study of Dignaga's Hetucakra and K'uei-Chi's Great Commentary on Nyayapreavea*, London, Royal Asiatic Society of Great Britain and Ireland, BC25, C532, Vol.1. There is also:

Nakamura, Hajime, 1958, "Buddhist Logic Expounded by Means of Symbolic Logic," *Indogaku Bukkyogaku Kenkyu* 7, pp. 375-395.

Introductory texts I have looked at (though they do not contain symbolic logic) are

Barlingay, S. S., 1965, *A Modern Introduction to Indian Logic*, Delhi, National Publishing House.

Vindyabhusana, S.C. ,1971, *A History of Indian Logic*, Delhi, Motolal Banarsidass

More technical topics, including commentaries on particular early Indian writings on logic which I found useful are in:

Kitagawa, H, 1960, 'A Note on the Methodology in the Study of Indian Logic', *Indogaku Bukkyogaku Kenkyu* 8 : pp. 380-390;

McDermott, Charlene S., 1970, *An Eleventh-Century Buddhist Logic of "Exists,"* Foundations of Language, Supplementary Series, vol. 2 Dordrecht, Holland, Reidel

Matilal, B. K., 1968, *The Navya-Nyaaya Doctrine of Negation*, Harvard Oriental Series, vol. 46, Cambridge, Harvard University Press.

Matilal, B. K., 1971 'Epistemology, Logic and Grammar in Indian Philosophical Analysis', *Janua Linguarum*, Series Minor, 111, The Hague, Mouton & Co.

Staal, J. F. , 1958, "Means of Formalization of Indian and Western Thought," *Logic, Methodology and Philosophy of Science*, Proceedings of the XIIth International Congress of Philosophy, Venice.

Tachikawa, Musashi, 1971, trans., "A Sixth Century Manual of Indian Logic (the Nyayaprave'sa," *Journal of Indian Philosophy*, 1, No. 2.
4. The spellings are various and the diacritical marks even more so, and of course the Tibetan and Chinese names of the works, when translated, are different again. Most English translations use a mixture of Sanskrit and English for the technical terms, perhaps the most confusing being the use of the term 'syllogism' for the 5-part Buddhist argument.

5. This example is not properly worked through and the argument should strictly be set out in the predicate calculus. However, the rough parallel between the Buddhist example and a fully symbolised mathematical logic use of *Modus Ponens* can be seen.
6. Edited from R. Lance Factor, 1988, 'What is the "logic" in Buddhist logic?' in *Philosophy East and West*, Vol 33, No.2, pp186.
7. Ibid.
8. C. S. Peirce, 1933, *Collected Works*, Vol. 1, Cambridge: Harvard University Press, p. 188. Also vol. 6, pp. 522-28.
9. Potter, K. H., 1969, in Chi, Richard S.Y., 1969, *Buddhist Formal Logic: A study of Dignaga's Hetucakra and K'uei-Chi's Great Commentary on Nyayapreavea*, London, Royal Asiatic Society of Great Britain and Ireland, BC25, C532, Vol.1, page xivii.
10. *The Japanese Journal of Religious Studies*, No. 14, page 4.
11. I understand that the term 'animist' is out of favour as a general description for all 'tribal' or 'primal' religions. However, I am using the term 'animist' with care. I mean to pick out from amongst all the pre-historic religions of the East-Asian region all those which had as part of their beliefs the idea that most objects, and certainly all plants, animals and human beings have a spirit animating them. I would certainly steer clear of such a term as 'tribal' having had experience of living among the Yoruba where the word 'tribe' refers to approximately 20 million people, and the Maori where 'tribe' may refer to as few as 500 people. Not only that, I remember hearing at the UN in New York the stinging rebuke of the Ambassador from Papua New Guinea to the rest of the world, 'You are wrong when you think, as you do, that nothing good can come from a tribal society.'
 I do not mean to imply any comment on Chinese thought and religious beliefs in calling some of these beliefs animist. Indeed my impression is that nearly 100 percent of the people in the world believe that human beings have animating spirits, including all those people who cannot discern between their left hand and their right hand; to say nothing of all the animals.
12. I have several Chinese friends from the People's Republic, from Taiwan, from Malaysia, and second and third generation Chinese New Zealanders, and have discussed religion and Communism with tour guides and train passengers in China. Comments without references are mainly the opinions of these friends and acquaintances.
 That the Chinese keep the four strands of their beliefs as part of their world view is also academically respectable and discussed, for example, in Lopez, D S, (1996), *Religions of China in Practice*. More 'popular' accounts are found in, for example, Bush. R C, (1982), 'Religion in China and Japan', in Weir, R.F. (Ed) (1982) *The Religious World: Communities of Faith*, NY, Macmillan, pp. 171 - 209.
13. See Bush (1982) pp.179 - 180
14. Quoted in Cotterell, Arthur, 1981, *The First Emperor of China*, London, Macmillan.p.124, see also Dubbs, H. H., 1927, *Hsun Tzu, the Moulder of Ancient Confucianism*, London, Probsthain's Oriental Series 15.
15. Ibid.

Chapter 15

Buddhist Thought

Hinayana/Theravada

The Axioms of Buddhist Belief

Three uncollected truths

The Four Noble Truths

Ethical Axioms

Buddhism and the Basis of Ethics

The Buddhist understanding of free-will

The Buddhist understanding of justice

The Workings of Karma

Revised Buddhist Axioms

Conclusion

Hinayana/Theravada

The reason for discussing the smaller vehicle¹ or elder's doctrine rather than the *mahayana* (greater vehicle) branch of Buddhism is simply that it has no god or gods in its theology. That does not mean that there are no gods in the popular practice of Buddhism in South East Asia where the hinayana school holds sway; folk beliefs in SE Asia include improbable stories about Gautama's life, spirits in everything, shrines to a multitude of 'deities', the transmigration of souls, rewards in the next life for you for good deeds here, prayers to Buddha as if he is a god and can avert evils, and so on. Belief in such matters are an integral part of the theology of Mahayana Buddhism of Tibet, China and Japan, and the popular Buddhism of these countries is even more florid.

As with early Christianity the early centuries of Buddhism were full of vigorous debate; it is reported that in the third century BCE there were seventeen or eighteen 'schools' of Buddhist belief and practice, and that the two main schools of today had begun to develop in the fourth century BCE. In the West both main streams of Buddhism have adherents and the internet is alive with academic papers, theological debate, proselytising, and startling eccentricities, the latter mostly originating from westerners. The mahayana stream, despite its multitude of doctrines and forms of worship verging on magical, is not averse to science and logic in many ways but has also developed the austere Zhan (Zen) school which declares itself *for* insight and *against* logic. However, early scriptures and the continuing hinayana school do also use logic consciously.

The axioms of Buddhist belief

Gautama (the Buddha) himself seems to have laid down the numbered sets of beliefs which distinguish Buddhist thought today, notably the Four Noble Truths, the Eight-fold Path, the Five Attributes of a Person (often expanded into twelve) and other handy lists. These he explained, other teachers added more sets of beliefs, and the comments upon them all make up a goodly part of the oldest scriptures and modern theological works. Most of the Four Noble Truths and the paths of the Eight-fold Path look like axioms and can be treated as such.

The Four Noble Truths are the usual starting point for explanations of what Buddhism is all

about but it is clear as you proceed that three less clearly stated beliefs about the nature of the universe should, in an axiomatic system, come first. These can be found in the Buddha's teaching, but have not been put into a numbered set. Here they are in their 'preaching' form:

Three uncollected truths

- B1. Everything is transitory, impermanent, changing (*an-icca*).
- B2. There is no ego – no soul – no permanent continuing anything (*an-atta*).
- B3. There is a causal relationship between what happens now (particularly what we cause to happen) and what happens in the future (*karma*).

It is important to note, concerning B2, that historians of early Buddhism,² are quite clear that the idea of *an-atta* was preached by Gautama. The more diligent trace earlier references in Hindu and Jain scriptures to various ideas and controversies about the soul and an after-life. However, all of them fudge the issue when it comes to explaining why, soon after Gautama's death, main line Buddhism reverted to a theology with souls which survive death. In fact popular Buddhism links karma and reincarnated souls of individuals and preaches that individual people's souls go through cycles of birth, death and rebirth, each reincarnation deeply affected by the karma, good or bad, built up in the previous life. Strictly speaking, following the most orthodox reasoning, the deeds of one person in his or her life, cause a quite separate new person to be; through the power of karma there is a causal relation between the first person and the second, but they are in no way identical. One person's deeds cause another person to come alive, bearing the weight of the earlier person's deeds, but nothing like a permanent self or soul passes over. The Buddhist metaphor is that as one burning stick ignites another nothing passes from one to the other.

In this chapter I am, therefore, considering a rather artificially pure Buddhism, a primitive, possibly hardly existing version in today's practice, based on Gautama's preaching, not on later (to my mind perhaps improper) reinventions of the Buddha's faith.

From a logical point of view we can see that B2 follows from B1 but that B3 is a separate idea. All three might be combined into one axiom:

- B4. Everything is changing but what happens now causes what happens later.

This looks like a description of the nature of the universe with which every scientist would agree (except perhaps the most sceptical of quantum physicists – those who believe electrons change their energy levels at random). Note: no god is involved.

The idea that everything is changing reminds philosophers immediately of Heraclitus who flourished around 500 BCE. He is remembered as a rather bad tempered mystic but is logically important since he suggested that everything is in a state of flux: 'You cannot step into the same river twice' is his most famous saying. I have not been able to find any logicians who have looked for a logic of constant change, but those who study 'fuzzy logic' and build it into computers do acknowledge Heraclitus as their precursor. Fuzzy logic, usually by taking over three-valued (and many-valued) logics to manage vagueness and grades of probability, does nibble up close to a logic where improbability is the rule, but a real improbability logic would be self-defeating since logic and chaos are incompatible. A logic which takes time into account and allows logical certainty over past and present but refuses to allow rules about the future, except possibilities and probabilities, need not actually incorporate dates but just the notion, already discussed in Chapter 8, of a third value, usually given the symbol ' $\frac{1}{2}$ ' <not yet true or false>, between '1' <true> and '0' <false>.

The Four Noble Truths ³

- Nt1.* The key fact in all human life is that we all suffer, all the time (*dukkha*).
Nt2. The cause of suffering is desire, craving, attachment (*tanha*).
Nt3. Get rid of the cause and you get rid of the effect.
Nt4. Take the Eight-fold Path and you will get rid of the cause (and stop suffering).

These Noble Truths depend on *B1*, *B2*, *B3*, (or *B4*). There is still no god involved.

At first *Nt3*. appears very tautological, very obviously true, but it contrasts with Western thought which expects one effect to have several causes. Some tidying up may be necessary; it might be thought *Nt3*. is just a definition about how to use the words *cause* and *effect* but, with Prior, we will be wary of reducing logic to statements about words or even sentences. Therefore, it is better to think of *Nt3*. as a comment upon the nature of the world, being an addition to *B3*, the axiom about karma. Modern scientists avoid the notion of cause and effect, mainly because the trail from putative cause to putative effect has often proved hard to elucidate; also the idea of *constant conjunction* does just as well in scientific theories.

We all know of many occasions when getting rid of the cause does not get rid of the effect; for example, getting rid of the axe will not put the head back on the chicken; stopping smoking almost certainly will not get rid of the cancer it has caused, once the cancer has got a hold. The idea in *Nt3*. has to be refined, for its use in Buddhist theology, to the sort of cause which does not bring about irreversible effects. Therefore *Nt3* may have to be rewritten or have a rider attached and become something like:

Nt3.1 Getting rid of the desire-to-do-something will stop it happening

This rule will stop the chicken being killed if the cause is my hunger, rather than the axe. However, if the cause of my cancer is *passive* smoking, the rule has to be universally acknowledged before it works, that is, everyone must stop smoking.

Another rewording might work:

Nt3.2 In the case of suffering caused by desire, getting rid of the cause gets rid of the effect.

This is a much less universal rule, but it does fit in with the idea that harm that Westerners might think stops at the end of a person's life, in the Buddhist understanding of karma, is passed on into the future where it continues to have an effect, until someone builds up a counterbalance of good. Thus, this revised truth may be acceptable.

What about causes (even desires) suppressed by the rule of law? Imagine that there was a religious law that you may not try to beat karma, for example, by banning some desires. An actual example of such an attempt was spotted in a Wellington restaurant: it read, 'Do not even think about smoking.' If such laws (precepts, advice for attaining nirvana, etc.) are to be credible there needs to be some mechanism by which the desire (banned from expression in actions) nevertheless causes suffering, now or later. We do not want a religious dogma which results in such remarks as, 'His youthful peccadillos resulted in his untimely death at the age of ninety nine.' One route is to 'spiritualise' the bad-karma result and say, 'His youthful peccadillos resulted in a life of spiritual torment which you would never have guessed from his outward joviality.' or 'His youthful peccadillos resulted in cutting off his progress to nirvana,' or 'His youthful peccadillos resulted in some bad karma for someone else.' Doctrinaire religious thinking does have a distressing habit of embracing the 'spiritual' option when experience appears to deny a dogma.

Nt1, *Nt2*, *Nt4*, appear to be empirical statements which might be proved true or false by some judicious surveys:

Nt1 might be decided by examining a goodly number of cases of suffering to discover how universal misery is.

Nt2 might be decided by examining a goodly number of cases of suffering to find how many are caused by desire, craving, attachment, etc.

Nt4 might be decided by examining a goodly number of cases of where the eight-fold path has been followed to see if it removes firstly desire, etc., and secondly, suffering.

If no such examination is allowable (as I suspect) then these are definitely 'theological' axioms, in the pejorative sense of 'theological'.

At this point we should note that Gautama was not interested in arguing about the matters in the Four Truths, let alone more abstruse metaphysical or cosmological matters such as: Is the universe finite or infinite? Eternal or temporary? Are the soul and body identical? Do we exist after death or not? Or both exist and not exist? Or none of these? In a famous reply to a monk who wanted such questions answered he said,

What have I explained? Misery? Yes. The origin of misery? Yes. Why do I do this? Because it is profitable; it has to do with the fundamentals of religion; it leads to aversion, to absence of passion, cessation, quiescence, knowledge, supreme wisdom and nirvana. Therefore I have explained these things [only].⁴

In other words he eschews speculation and sticks to the bedrock human problem as he sees it – that we suffer, and how we may suffer no more. In my experience, in conversation, a practising Buddhist will often halt a theological speculation with an indirect reference to this teaching. In passing we may note that there is an unstated moral imperative needed: that it is right to do spiritually profitable actions.

Ethical Axioms

So far we have Theological axioms (all but *Nt3*), and one definition of how to use the ideas of cause and effect in Buddhist theology (*Nt3.1*), but no moral axioms and no commands, and no scientific (factual) statements. Thus the logic is, so far, extremely simple. However, it will be necessary to have at least two moral axioms. These are usually commented on when Buddhists are asked why the Buddha, having obtained enlightenment – the end of suffering – he did not just remain in that state, but in fact returned to teaching others about how to get themselves to nirvana. The answer by Buddhists is rather complicated and I will return to it below, but Westerners can see that in the axioms so far there seems to be no ethical statement, and we need the concepts that suffering is bad and the end of suffering is good.

In order to see how the axioms might be part of Buddhist theological reasoning before ethical ideas are introduced we could lay out more theses in symbolic form to help display the reasoning in them, or the bare-bones of what it is necessary to believe, using ϕx for *x suffers*; ψx for *x desires*; θx for *x lives*; as follows:

B5.1	$\Pi x C \psi x \phi x$	< for all, if <i>x</i> desires <i>x</i> suffers >
B5.2	$\Sigma x C \theta x \psi x$	< for some <i>x</i> , if <i>x</i> lives <i>x</i> desires > (the majority of us)
B5.3	$\Sigma x K \theta x N \psi x$	< for some <i>x</i> , both <i>x</i> lives and <i>x</i> does not desire (has reached nirvana) >

- B5.4 $\Pi xCK\theta x\psi x\phi x$ < for all, if x lives and x desires then x suffers >
 B6. $\Pi xCN\psi xN\phi x$ < for all, if x does not desire, x does not suffer >
 B7. Me < it is possible to escape suffering > from *Escapism*.

There is some redundancy in B5.2, B5.3 and B5.4 if we restrict our 'domain of discourse' to living humans. If Buddhism restricts the inevitability of suffering to humans only and does not extend it to animals, plants, demons and deities then these axioms can be written:

- B5.2.1 $\Sigma x\psi x$ < for some x , x desires > (the majority of us)
 B5.3.1 $\Sigma xN\psi x$ < for some x , x does not desire > (has reached nirvana)
 B5.4.1 $\Pi xC\psi x\phi x$ < for all, if x desires then x suffers > which is B5.1.

However, if Buddhism does extend suffering to all living things, including non-humans, then the earlier forms will be useful, allowing the domain of discourse to be extended to the whole universe. Some forms of Buddhism do have a heaven and a hell where the souls of the dead are invested with the results of good and bad deeds, and souls might be considered, in theory, as living non-humans. Buddhists monks traditionally carry a sieve to strain out any living creatures from the food they are going to eat.

A logical point:

- B5.1 $\Pi xC\psi x\phi x$ < for all, if x desires, then x suffers >

may well be universally the case, but its converse,

- B8. $\Pi xC\phi x\psi x$ < for all, if x suffers, then x desires >

is not. A Buddhist nun who has reached nirvana and then has a tree blown down on her suffers from the injuries she sustains and in no way (to a Westerner anyway) can she be said to have had desires which have caused the suffering. It may be suggested that the suffering is caused (that is, that the tree was brought down on that particular person) by the workings of karma accumulated in the past by someone else. This is stretching the notion of karma beyond the usual limits of intentions and motives, and stretching the meaning of 'caused by'. To suggest that the crushed nun must have had some otherwise unnoticed desires, and that the fall of the tree is proof of that, is to argue circularly. Such a deduction is akin to fundamentalists arguing that their prosperity proves they are in God's favour.

The Buddhist theologian may desperately want B8. but I consider it is denied to him or her if we are to consider the religion seriously. The nun may be able to put aside a desire to have the tree lifted off her, put aside the desire to be healed, put aside the pain by some trance-like state, but still the cause of her suffering was a tree, not her desires, nor anyone else's for that matter – notoriously the wind bloweth where it listeth.

The Buddhist theologian may save B8. if he or she is willing to say that all suffering brings with it the desire that the suffering be lifted. But this upsets the uni-directional nature of the Buddhist teaching that suffering arises from desire, and not the other way round. However the stout-hearted logician may then want to know, as he or she tries to design a logic for Buddhism, why that uni-directional symmetry must be preserved in the light of the whole Buddhist plan, to end suffering; the individual seeks to end his/her suffering in nirvana (a desire for nirvana?) and the Buddha seeks (desires?) to show everyone the way. Perhaps one quotes Brecht: 'Oh the terrible temptation to do good!'

Here is an attempt to do some of the logic in symbols where it may be more easily seen:

A new B5.1, using E (equivalence) rather than C (implication)

B5.1.1. *Paṭisambodhi* < for all people, if and only if x desires, does x suffer >

Paṭisambodhi 1.1.1. *Paṭisambodhi* < for all people, if and only if x desires, does x suffer >

we can be handed no rewards or punishments; if we have complete free-will then no mitigating factors can be found for our actions, for all of which we are absolutely responsible, and rewards and punishments are rightfully ours. Attempts have been made, and continue to be made to find a 'middle way' between these two extremes: Kant, Hume and Mill, and Ryle have three different ways of tackling this problem.

(a) Kant makes a distinction between actions which we do out of habit or a desire for pleasure, which he declares are not free, and actions which we do from following our reasoning from the 'Categorical Imperative', which he says we do freely.

(b) Hume and Mill suggest that, if a (a person) ϕ 's, the action is free if and only if a is not compelled to ϕ . 'Compelled' refers usually to some external compulsion or restraint, not to some internal reasoning or emotion, but in modern times would include madness such as kleptomania. The Hume and Mill attempt is sometimes called 'soft determinism'.

(c) Ryle looks at how language constructs words such as 'vanity', 'jealousy', 'intelligence', out of people's observed actions. Here is an example: John is jealous of his reputation = John snaps back at people who say he is a sham, a plagiarist, a liar, writes letters to the paper defending himself, etc. Ryle then discounts *feelings* of jealousy in talk about determinism/free-will and says when we talk of a person having free-will we are talking about his or her manner of doing things, not talking about motives or desires.

Jay Shaw (2000a, 2000b) discusses how karma, said to be in conflict with the freedom of individual people, may fit into Western descriptions of a 'middle way' for the determinism/free-will clash.

The law of karma has been interpreted in various ways. The usual formulation is: 'As you sow, so you reap', or 'You reap what you sow'. It is claimed that it is an application of the law of causation at the moral level.⁶

In *Indian* theology the soul survives death. Seldom do all good and all bad results of a person's actions even-out before death. Therefore, the residue of karma which remains for that soul at death is passed on to the re-incarnated person who now has that soul. Free-will is generally held to hold. However, in Buddhism everything is momentary and how anyone, or their momentary soul, can 'reap' his or her karmic residue is not clear to a Westerner like me. Furthermore, how can we have free-will if every action and desire is caused by something prior?

The usual Buddhist account of this last problem is via the Buddhist description of each person being a collection of twelve characteristic items: five motor organs, five senses, the intellect, and spiritual awareness. Typically in a moral decision leading to an action, the Buddhist sees the contributing causes from the senses (and experience perhaps suggesting pain from one action and happiness from the opposite) being worked on by the intellect (which knows the moral dicta of the 8-fold path) and the spiritual awareness the person has. The result is a pull one way and a pull the other, but the final action is freely chosen. Thus the Buddhist is clearly a 'soft determinist'. Because it is not just internal constraints but, as well, mental restraints from desires, that have to be overcome. Shaw uses the term 'soft-soft-determinism' to describe it.

Bush comes to much the same conclusion as Shaw.

- (i) Karma carries on, past my death, a 'residue' of good or evil.
- (ii) There is no permanent self or soul surviving death to 'inherit' this moral worth or unworthiness.
- (iii) Therefore, I do not suffer the consequences of my actions after death.
- (iv) However, other people will suffer or benefit from what I have done.
- (v) This is how karma works – in a continuity of action.
- (vi) Therefore, I am morally obliged to consider how my actions may help or hurt other people, not only now (though some are geographically distant) but also after my death.
- (vii) Thus altruism, action for the sake of others, is introduced, resulting in a wide-ranging sense of compassion (*karuna*) for all living creatures, including those yet to be born.⁷

This analysis makes it clear that there are moral imperatives (laws or axioms) in Buddhism which do not feature in the Four Noble Truths, though they will appear in the Eight-fold Path (Numbers 3, 4, 5) to be discussed soon.

The Buddhist understanding of justice

We may all agree that suffering is unpleasant and the end of suffering is pleasant; but Westerners are used to the idea that suffering may be good for you, or justly deserved; and, in such a sense suffering is built into DP theology as something efficacious, especially Jesus's suffering. Westerners, on the whole, find the idea that any one person should pursue, before all else, an end to their own suffering, to be selfish and ignoble. However, a generalised Western version of the four truths might be more acceptable:

- Wb1.* Everyone suffers.
- Wb2.* Everyone desires, craves, is attached.
- Wb3.* Individual suffering is caused by the combined effects of everyone's desires.
- Wb4.* If everyone followed the eight-fold path all suffering would cease

This is, of course, not what Buddhism teaches (the accent being much more on your own path to nirvana) and *Wb3* can give rise to the same objections as appeared in the nun under the tree story. However, most religions have a version of *Wb4*, recommending some course of action, from following rituals and liturgies to universal changes in 'human nature', to bring about a better world.

Because Buddhism has axiom *B1*, and its example *B2*, we have certainly made sure that Buddhism does not have the idea of morality based on rewards after death for good behaviour: in Hinayana Buddhism, as here interpreted, there is no after-life for any person. There are also no gods, nor any God, to command good behaviour, to punish bad behaviour, or reward good. There are no commands from authority figures since the Buddha did not say 'do this because I say so.'⁸ This leaves only some form of utilitarianism or some moral imperatives, origin unknown, (that is, moral axioms) as the basis of Buddhist ethics. This is, of course, not unusual: most systems of morals are not based on religious grounds, and their basic rules such as the golden rule are axiomatic, not based on authority, the threat of punishment, nor the selfish utility of keeping them.

There is a hint of utilitarianism in the fuller explanation of karma as follows: although no person survives as a soul or a body after death – and this is true of all objects, thoughts, and emotions – there is the survival of constituent parts, and the survival of *merit* (and *demerit*). Although Morgan Richards, my grandfather, no longer survives as a whole, or as a soul, his constituent atoms are being re-cycled as soil, worms, gases, grass, rabbits, and possibly become, temporarily, part of a human rabbit-eater. More importantly in Buddhism, his ideas and the good he did in the world had an effect in the world in his day and were passed on to the present-day world. Thus his Welsh love of hymn singing was passed on to his son, Alun, my father, and from him on to me. Thus the rule of karma sees that the effect of good works does not vanish but is passed on. However, no direct line of flow is necessary (nor even expected); for example, the good moral education Morgan gave many people from the pulpit and by his actions might not have appeared in my father's actions, or in anyone's actions in his generation but may have appeared in, say the present New Zealand Prime Minister or a farmer in Otan Ayegbaju. Karma will similarly, inevitably, result in 'wicked' actions done now also affecting the future.

It appears that there may be a definition of good and bad here: good actions are those which produce good results in the future; bad actions produce bad results in the future. The need for a

meaning for *good* and *bad* (in the future, at least) is still necessary and here two problems arise. The first is how to avoid the circularity or infinite progression in the argument. The second is that Buddhism has developed a clear preference for finding the roots of moral judgement in the motives or intentions of people, not in the results of actions. Is it wise to do so?

This problem was discussed in Chapter 8 when looking at how the interference of a god might affect free-will. Hinayana Buddhism has no god, but the interference of karma has to be taken into account. We needed to distinguish between *intent* and *results* in judging the goodness or evil of an action. Pharaoh commanded his troops to hunt down the Israelites: his intent (from the Israelite point of view) was wicked. In Buddhist terms: Pharaoh's vindictive emotional desires took over, and were sure to cause both Pharaoh, and others (for example the drowned soldiers) and later generations via the law of karma, considerable suffering. What actually happened was that Pharaoh did not get what he desired, he escaped going down in history as 'the butcher of the Israelites' and the Israelites, chastened in, as well as chased into, the wilderness, gave us the Jewish religion, its great stories and its insights. This can be seen as a good *result* from an evil action, the evil action arising from evil *intent*. Other stories will give other mixtures of good and evil intentions and results.

The Buddhist emphasis on intentions over results may come from the impossibility of judging the results of actions done now which will have unknown effects in the future, or from the emphasis of Buddhism on the quest by individuals for their own salvation along a path that leads to less and less outward action (as desires for results are put aside) and more and more mental – some would say 'spiritual' – activity.

The Buddhist version of utilitarianism would have to define 'good' as 'leading to the greatest number of people getting rid of desires, thus getting rid of suffering and reaching nirvana.' The hard headed anti-utilitarian now asks, as before, 'why is the end of suffering and getting to nirvana good?' and the Buddhist reply must surely be, 'everyone knows *that*, by intuition, or from their own experience (extrapolated if necessary); suffering bad, nirvana good.'

This appeal to an intuitive justification of the Buddhist *good* and *bad* leads us back to the necessity to add an unproved ethical axiom, to Buddhist theology. Such an axiom is missing from formal Buddhist theology, as it is from most Christian theology. This is not by design, but by a lack of rigour. We might like to add to Buddhism (as to Christianity)

B10. It is bad for anyone to suffer

and

B11. Seek to bring about good and reduce bad.

The *Theologic* (which began as an investigation into the basis of ethics) found that its key axiom was a version of Escapism's

KD2.3 *Me* < It is possible to escape the sanction >

and the Christian interpretation of this might be

< It is possible to escape gehenna where there is punishment for moral infringements >

and the system best able to bring this about was the process of not being 'worthy' of such punishments, that is, to be good. This fits well with a Buddhist philosophy in which '*Me*' will be read as:

KD2.3 *Me* < It is possible to escape the desires-lead-to-suffering inevitability >.

The Buddhist means of escape is by the system of removing the desires. Thus we have in the theologic the parallel law

Th9. *Mh* < It is possible to attain nirvana >.

As a Westerner I am still unconvinced that all suffering is bad ('a burnt child fears the fire'). Also, certain forms of suffering are not caused by any personal desires (earthquakes and typhoons are not controllable). We have the word 'accident' to cover bad events which are not controllable by human intervention: a broken leg may be the result of desiring to run and jump and play – and it would be a very 'Calvinistic' Buddhism that denied these pleasures to children. But the accidental broken leg may also be the result of whatever brought down the tree in the squashed nun story, or it may be the result of old age and failing eyesight. Christian apologists wrestle to fit such accidental events into their theologies and Buddhists must do so too.

We can also note that westerners with their strong sense of justice invert the Buddhist view of suffering; thus we often enough in the West hear the remark, 'I was wrong to do it; now I must suffer for it.' The Buddhist, when carefully following Buddhist teaching, would, I suspect, be more likely to say, 'I was wrong. Someone must suffer for it in the future.' Here we suddenly come across the interesting fact that Buddhism also has a form of transferred 'punishment'. It is a form without the mythical or pictorial superstructure of Christian or Jewish scapegoats or pure and costly gifts to a king, and also without the notion of punishments justly deserved. Indeed, it is difficult to call this pure form of the karma doctrine as describing a form of punishment at all – we do not think of something that is inevitable as punishment, just as we do not think of an accident as punishment. But the inevitable later unpleasantness is part of a strongly moral system and if the Buddhist is also convinced that it is wrong to make life worse for people yet unborn, then B5 and B6 will be adequate to do this. However, taking the Gautama's case as the paradigm, the Buddhist may be happier with a reformulation

B.12 Causing suffering in others causes suffering in yourself

and a knowledge of this particular aspect of karma will be an added inducement (though a somewhat cold reasoned self-interest) to do no harm to others. Again we see that karma is almost mechanical in its workings, (and has to be since it is without a God to intervene or to copy) and in this resembles the explanation of good and evil which has to be espoused by those who wish for a Gaia or symbolist theology. It seems that Buddhism has a rather unfeeling morality; certainly almost all the behaviour enjoined, not only by B.12 but also in the *Eight-fold path* and in the many many moral rules that are based upon it, can be seen as enlightened self interest – a charge that can also be laid at the door of any religious morality that has the promise of paradise at the end for the good.

THE EIGHT-FOLD PATH

The eight paths⁹ are:

1. Right views or beliefs
2. Right aspirations and intentions
3. Right speech
4. Right actions
5. Right livelihood
6. Right effort
7. Right mindfulness
8. Right concentration

There seems to be considerable latitude in Buddhist beliefs but you cannot believe just anything and once you understand the right way you must be serious and determined to be faithful to the end. The first two are strictly religious, enjoining the Buddhist to believe the 'theology' and get on with the behaviour which it says will get rid of desires and suffering. Three, Four and Five are applicable to everyone and it is easy to see that lying, spitefulness, obfuscation, and so on are forbidden; that deceit, stealing, murder, adultery, abandoning dependants, and so on are forbidden; that working at jobs which bring about misery and death are forbidden. Some believers will see

these rules as much more invasive than other believers will; some will become pacifists, be vegetarians, will never work for multi-nationals, will give alms, will join amnesty international, and so on. The last three paths are usually interpreted as applying to the seriously religious, intent on nirvana now, and so to giving time to paths (6) study, (7) meditation and (8) trance.

Western adaptations of the law of karma

My analysis of the workings of karma has been very one-sided so far (due to my concentrating on the desire/suffering path); in fact karma also works for good, and the good works you do make things better for yourself, for others, and the future world. Those who follow the eight-fold path, particularly the rules for everyday living, are undoubtedly adding to the amount of good in the world and karma will see that this good is passed along. Only the western moralist will be worried about the lack of spontaneity, of 'natural' good will, of unselfishness, of the chance for 'random acts of kindness', of a suggestion that a tendency to do good is born with us and is a part of being human, that some desires are noble. Noble desires include the desires to help others, cure the sick, clothe the naked, teach the ignorant, feed the hungry, love your enemies, visit the prisoners. Westerners feel that with more of these spread about by the law of karma the world will be a better place. The Buddhist may well smile and point to Gautama, who came back from the brink of nirvana to save us.

On the next page I have laid out a diagram of how a Westerner might well wish to adapt the law of karma to make more sense to himself or herself through Western understanding of (1) causation, and (2) the flow of the influence of deeds, good and bad, on into the future. The Buddhism explained to me does not allow that any individual person is born with the karma of any one individual preceding them (except by accident?); also there are no souls to give and receive such characteristics via karma, and no transmigration of souls. Christmas Humphrey explains it like this:

The body dies at death, but the individual's karma, the result of all the causes generated by him in the past, lives on. This complex 'soul', the product of ten thousand lives ... digests the lessons of the previous life until such causes as can take effect subjectively have been transmuted into faculty and innate tendency. That which remains to incarnate afresh may be regarded as a ... nameless complex residuum of karma.¹⁰

Causation is used in the diagram in a Western way also. There are great debates within Buddhist thinking about whether any one result has just one cause, or has multiple causes. On the whole they maintain that each effect has only one cause. The reason for this is that all events (and causes are events) must be momentary – constant change must prevail. The result is that what in the West used to be called the 'efficient' cause (after Aristotle's terminology) is called in Buddhist theology the *real* cause and all other contributing causes are named as 'benefactors' to the real cause, not to the effect.¹¹

Another Western quirk of the diagram is that it talks of 'positive' and 'negative' karma. These are more or less synonyms for the results of good and bad deeds. This does not reflect actual Buddhist terminology. The idea of 'negative' is used in Buddhist language to indicate a general lack of, or absence of, something, rather than (as in mathematical thought) a definite amount of something 'owing' or necessary to bring back an equilibrium. 'Negative' Karma in this diagram is a Western way of talking and thinking.

The first figure shows how many different causes may come together to produce one single result – in the case shown, a butterfly clapping its wings in a particular time and place, has, as contributing causes, three occasions when light enabled the flower (which attracted the butterfly) to

grow. Conversely, in the second figure, the butterfly's wing-clap is shown to have been a contributing cause to three results. The next two show how causes and results flow on from positive and negative karma, through a person to later positive or negative results.

The diagram does not show how the person who has reached nirvana may react to the arrival of negative karma. Presumably Gautama himself was tempted, in a parallel to Jesus's temptations in the wilderness, but the positive karma he had generated in his quest for nirvana 'was too powerful' for the negative karma. There is no suggestion in early Buddhist teaching that acts of negative karma can be offset by equivalent acts of positive karma, in a parallel to our Western idea that crimes have just punishments which, when suffered, cancel the crime; nor of the medieval idea that indulgences can be bought by good actions (even by paying money to the Church) which exactly equal years and days off punishment in purgatory. There is, of course, no need to think of karma as some sort of magical, spiritual, invisible force; it is just another way of saying that good comes of good, bad comes of bad.

A Westerner's Reinterpretation of Karma

The Workings of Karma

Those of us who have felt that the Asian attitude to justice is somehow different from that of our Western view may have seen in this quick summary of Buddhist ethics some of the reason for this. Of course I am dealing with a pared-down Buddhist theology; and day-to-day religion in Asia, just as in the West, is like a costume of many layers, materials and colours, and may bear little hint of the shape of the skeleton beneath. Nevertheless, in conversation among my Western friends I hear less of a 'fatalistic' attitude to events than I hear among my Asian Buddhist friends. The latter say that the necessary results of karma are being played out despite our wishes, or efforts, or even the facts of the case, one way or the other.¹² We can also note that no current legal system anywhere is based strictly on religious grounds, even states such as Afghanistan under the Taliban and Kano (part of Nigeria which has Sharia law) modified their Sharia religious law to take account of international or federal law. Closer to home, British (and so New Zealand) law never revolved around the commands of God but instead first invoked the principle that 'might is right', then gradually worked round to depending on legislation or customary precedents or 'natural justice' and, more recently, 'universal human rights'.

No legal system is based on the 'highest ethical grounds' either. No laws enforce the 'moral high ground' of such ethical principles as the 'Positive Golden Rule', *Do as you would be done by*; for example, no one is prosecuted for buying cheap and selling dear. However, the 'lower' ethical principle of the 'Negative Golden Rule', *Do not do as you would not be done by*, does have a great deal of law hanging on it, for example, the laws of contracts, against stealing, of common assault.

In any Buddhist country the workings of karma are understood as universal and pervasive, therefore the need of human intervention to bring about a more peaceful, prosperous, healthful, state of affairs is hardly necessary – even flying in the face of the natural order. With desires and suffering so closely linked, unfortunate events (such as assault, loss of property, incarceration...) are regarded as caused by previous but unrelated wicked acts or intentions (by people now dead), or are suffering which can be overcome by personal mind control over desires, cravings and attachments. If your car is stolen, your suffering is lessened not by the thief being caught and imprisoned but by your putting aside your emotional attachment to the car, travel and money.

Westerners call many actions such as car-stealing 'injustices' and look for restitution, punishment, and expect the police and justice system to enforce a rebalancing of the relationships between the owner, car, and thief – the direct participants. Such attitudes are not part of the Buddhist world view: karma will adjust the harm, you can adjust your attitude, that is the best way to react to the situation. No wonder Asians find the Christian religion, in the form which places so much importance on Jesus's death as an act of retributive justice, so difficult to understand.

The Buddhist justice paradigm has people responsible for their own actions, and more particularly responsible for their own desires and intentions, the springs of their actions. But unworthy actions are those which cut the actor off from his or her own personal salvation rather than those which cut other people off from possible immediate pleasures – these immediate pleasures being sure to bring suffering to the others. Should your actions cut other people off from opportunities to seek and gain their own salvations, those actions would be unworthy. Giving Patricia wealth gives her the chance to give away the wealth; it is sure to cause her suffering if she gets to like it, anyway. Taking money away from Patricia gives her a chance to stop wishing she lived in simple poverty with no more beggars at the gate. It is very difficult to find any experience in life which does not bring the Buddhist a chance to shun it as a cause of suffering.

The Buddhist on the way to nirvana must be careful, however, never to kill a person: death cuts a person off from the chance to get to nirvana, therefore the good Buddhist will never kill a person. (I am not sure if that rule applies to not killing someone who has attained nirvana.) Inflicting pain is a more difficult case. Pain is both suffering (and therefore is the *consequence* of desires); and the cause of suffering. The Buddhist may be willing to 'spiritualise' suffering, that is to

keep D-suffering (suffering which is the result of desires) separate from A-suffering (that is suffering which is the result of an accident or torture). Then the Buddhist could inflict D-suffering on someone else by enticing them to desire (one has a picture of a malicious Buddhist employing a troop of dancing girls to dance around the temple); and the Buddhist could inflict A-suffering by giving someone a beating. The man-in-the-street Buddhist no doubt sees his religion as forbidding inflicting A-suffering; the Buddhist monk must also realise that he is forbidden to inflict D-suffering also. How the masochist Buddhist gets on, enjoying and desiring suffering, I cannot imagine – perhaps masochism applies to A-suffering only. I suspect that Buddhist thinkers would shun the invention of two different sorts of suffering, and say that A-suffering is a result of karma ensuring that wicked acts of desire, though in time and geographically removed from the present, take their toll in the here and now.

In making a symbolic system for karma morality, karma requires that the deontic operators O = obligatory, P = permissible, F = forbidden, have their 'strong' sense, O being close to L = necessary, with translations something like

Op	< karma will see to it that p happens >
$Fp = ONp$	< karma will see to it that p does not happen >
$Pp = NONp$	< karma will not see to it that p does not happen >
$Bp = NOP$	< karma will not see to it that p happens >
$KPpBp$	< in the case of p karma does not apply >.

It is a little difficult to see that Pp , and Bp (the other form of 'possibly p '), have a place in Buddhist deontic logic. Thus is brought out clearly the predestination/determinism bias of Buddhism. At its most thorough-going a determinist theology (such as that of a Gaia religion) must undermine all hope of anyone acting of their own choice, freely. There could one or other of the following results.

- (i) Every believer gives reign to a passive acceptance of whatever happens.
- (ii) The theology makes some distinction between (a) the acts of non-living entities, for example, the wind blows down the tree, the lotto numbers give me a million dollars ... (these being determined), and (b) the acts of living creatures, humans mainly. The former are determined, the latter are not determined and available to be directed by moral choice.

In Buddhism such a distinction into two types of action, determined and undetermined, seems to be made – see the analysis of Shaw and Bush above. The moral choices are mainly intentions, regarded as mental/rational acts, and they automatically produce effects through the workings of karma. The effects may be quite mechanical and deterministic when they produce changes in non-living entities – a disregard for 'right employment' may lead to deforestation and floods. The effects will be less obviously mechanical and deterministic when people's good or bad intentions and acts, through karma, carry merit or de-merit forward – my choosing to disregard 'right employment' may predispose my fellow workers to desires or attachments which slow their progress towards the end of suffering.

The introduction of a '2-tier' moral universe, with some parts determined and other parts not determined brings complications for the logic which has to deal with both tiers – as it must if the notion of karma is basic in such a Buddhist theology. In Chapter 8 I looked at some of the ways a monotheistic theology has to accommodate the idea of indeterminism and free-will, particularly when people behave in ways that the god does not like. Similar problems arise in Buddhism, despite there being no god, and similar solutions must be essayed by Buddhists.

It might be proposed that scientific descriptions of thought and emotional states as the result of electro/chemical changes in the brain make arguments for determinism easy to understand and thus forceful, especially against any religion which wishes to treat humans as working differently from so called 'inanimate' nature, that is, working to different rules in distinctly different sections of a 2-tier universe (or in the case of theists, a 3-tier universe). However, it is clear that humans *do* apply different rules to themselves and to inanimate objects – no one is censored for whacking a

golf ball with a club. Nor do we nowadays swear at a tree root that trips us up in the dark; that is, few of us think of the tree root acting malignantly and might, if taxed, alter our description of the incident to saying we swore at our own clumsiness for tripping over a tree root. Some people may think of the tree root as acting under orders from Satan (or growing there as a result of some karma, in some sort of way) but on the whole we do not attribute actions, let alone moral or ethical motives, to inanimate objects or to the 'lower' animals. I understand the chimpanzee's grabbing of my banana as self-interest, but not as a morally reprehensible act ('stealing'); 'moral' and 'amoral' help make a major distinction between what is 'human' and 'non-human'.

We can, therefore, think of the invention of deontic logic as a clear indication that the universe may be divided up into 2 spheres – those objects and events to which deontic logic applies, and those to which it does not. This avoids all 'reductionist' talk about the neurons and networks of the brain. Deontic logic need not be felt as unique in this respect; if there is a logic of aesthetics it also defines a set of objects (or 'worlds') which is pretty co-extensive with that of deontic logic users. The logics of human biology, and possibly all other sciences since they are 'man-made', may well do the same.

Buddhism, nevertheless, does appear to need only a very truncated modal logic. A logically adept theologian should look how this might work, or not work. Although I suggested that

Me <nirvana is possible>

appears to be the basic Buddhist moral axiom, a closer look at the workings of karma suggests that a better translation might be

Me <it is possible to escape the workings of karma>.

If we take the present levels of positive karma (merit) and 'negative' karma (de-merit) as a base-line and suggest that they are equally balanced, then, because the idea of karma is that the good actions and bad actions are passed on with their 'karma-ratings' unchanged, the number of people obtaining nirvana will be the same tomorrow as it is today (and was in the past). The same argument would apply if positive and 'negative' karma are in unequal balance. However, it appears that the Buddha taught that 'negative' karma can be overcome by effort, that is by following the eight-fold path. The simple summing of those people obtaining nirvana yesterday and today, and a comparison of the results will show us a trend towards 'negative' karma increasing and positive karma decreasing, or the other way round. Does karma increase automatically as the number of people grows? A more complex statistical survey with percentages and the growing number of people in the world taken into account, should allow rates of acceleration/deceleration in nirvana-attainment to be calculated. Thus Buddhism could become, in the old-fashioned words, a deteriorationist religion or a ameliorationist religion.

To avoid such an interference (by logic and mathematics) in the faith, you can declare that such questions cannot be asked – that is, make some statement about karma a 'theological' axiom; one that cannot be doubted since it is vital to the total theology. A way to do this would be to change *B3* so that it declares that karma is not as fixed as it appears and that by will power and following the eight-fold path it can be subverted. This seems to have been the Buddha's message. Our new *B3* might be:

B3.1 There is a causal relationship between what happened in the past and what happens now and what happens in the future, but what we cause to happen now is not entirely out of our control (*karma plus Nt4*).

Conclusion

Theravada Buddhism has a highly developed theology based on its axioms, the well known Four Noble Truths, the Eight-fold Path. There are other axioms; these are discussed in Buddhist texts but are not directly mentioned by the Buddha in the most ancient texts. These 'assumed' axioms are essential for the development of a modern logical systems for Buddhism; they deal with

- (i) impermanence and constant change;
- (ii) causality; and
- (iii) ethical matters, including karma.

Theravada Buddhism has no god, no supreme being. It thus avoids the innumerable logical conundrums which we have seen plague rational argument in religions which do have a god. This makes it the most logically simple of all the religions we have so far studied. Nevertheless, it does have conflicting ideas which are tied up with the three notions above, constant change, causality, and karma. Buddhists, for as far back as their writings go, have understood that these notions give problems, especially since the Buddha said that there is no such thing as a soul but most Buddhists feel strongly that reincarnation is usual.

The greatest of these problems for a logician is how to make a system which can manage an ethical world that is highly mechanistic (due to Buddhist strict 1 to 1 causal chains). Buddhists, like theists, want to explain how good results from a good life always occur, against the evidence that the good do not prosper, and the wicked do. Even if 'prospering' is interpreted as individual spiritual prospering, death must not wipe out that good karma, or being good is in vain.

I have not worked out a logic which can deal with the workings of karma. Deontic logics look like the most likely to help a present-day Buddhist theologian. *Escapism* and the *Theologic* may help, but, as for Christianity, the need is for several logics, each fitted to the particular theological solution suggested to the problem, in the Buddhist case the problem of karma.

Notes and References

1. *Hinayana* means 'the lesser vehicle', in contrast to *Mahayana*, the 'greater vehicle', Theravada means 'the elders' doctrine'. I do not use the word *Hinayana* in a pejorative sense – I am not part of that ideological battle.
2. This topic is taken up by commentators on early Buddhist beliefs. For example, in Jayatilleke (1963) is an examination of the Hindu and Jain theories on the soul (atman) at the time of Buddha's life (pages 369 – 378). Jayatilleke suggests that there are several sects which would have been known to the Buddha who preached that there was no soul (anatta) as Buddha did. These sectarian ideas were against the usual Hindu and Jain theology. Humphrey (1951) has a short section, pages 20 – 21 on this topic alone, from which this is a quotation of part:

The Atman of the Upanishads is the absolute SELF, and is the property of no man. But this by the Buddha's day had become debased into an immortal entity within each mind of which it was even possible to give the size. Against this view of the Atman (Pali: Atta) the Buddha taught the doctrine of non-Atman (Pali: an-atta) in which he analysed the thing called man and proved it to contain not a single permanent factor, nor anything resembling a changeless or immortal 'soul'.

Bush (1982a), page 122, points out that this idea (that there are no continuing individual souls) is where Hindu and Buddhist doctrines diverge. The commentators agree that early Buddhists developed the description of people having five basic elements (skandhas): rupa, vedana, sanna, sankharas, vinnana. The translations of the Sanskrit or Pali words are very varied but roughly are: body; sensations or feelings; the mind; predispositions; consciousness. These five are usually nowadays expanded to twelve. Bush says that it is consciousness that popular belief suggests survives after death, however other commentators make it a much more mysterious metaphysical idea.
3. Any teaching / preaching material from all Buddhist sects will give you this list of essential truths. My version is from Humphrey (1951), page 72, with a fuller commentary on them in Chapter 8, pp.108 – 118. There are, of course, slight differences in translation, as the Sanskrit and Pali words do not translate smoothly into English. The usual source quoted is the Dhammacakkapavattana Sutta.

However, Karl E. Potter in the Introduction to the 8th volume of the *Encyclopedia of Indian Philosophies* (Potter 1999), pages 3 and 4, makes a huge difference by his 'translation' of the First Noble Truth as: *Everything is frustrating*.

Here we are in a world with others – people, animals, demons and deities. We eat, sleep, dream, work, play, laugh, cry, calculate, argue. If you were an Indian in the middle of the second century A.D. you probably grew up accepting the fundamental beliefs of your parents and teachers. ... Each life, whatever fleeting joys it may provide, is on balance frustrating. Life is frustrating because one is ever in danger of, if not actually experiencing, unhappiness, sorrow, torment and pain; life is frustrating because it is, to a greater or less degree, brutish and short. And the sources of this frustration, unhappiness and pain are in large part of our own making. It is our own deeds that breed the karmic traces which, stored up and activated later – perhaps much later – determine our place in the hierarchy of being and the frustrations we constantly experience there. ... As long as we remain ignorant of and misunderstand our karmic situation we have no hope of being able to bring an end to the frustrations of the actions that karmic residue influence. And precisely this was the message Gautama delivered in his first sermon: that everything is frustrating.
4. Bush (1982a) gives the source of this quotation as H C Warren, 1947, *Buddhism in Translation*, Cambridge USA, Harvard University Press, page 22.
5. This insight on the usage of 'freedom' is from Jay Shaw of the Philosophy Department at VUW. Much of the first part of the discussion under my section *Buddhism and the Basis of Ethics* is based on Shaw (2000a, b), p.356.

6. Shaw (2000a) p.359.
7. See Bush (1982a) p. 124, for a discussion of karma and morality, on which this summary is largely based. Also my thanks to Karuna Palita (Chris Trewick) for discussion of his Buddhist name.
8. There are academic discussions about whether Buddhism on the whole uses commands from the Buddha as truths (axioms) and so regards the Buddha as omniscient. For example, in K.N. Jayatilleke (1963), particularly the second part of his chapter on 'Authority and Reason Within Buddhism', pp. 375 ff. 'Popular' descriptions of Buddhism appear to stress the idea that the Buddha was not in favour of his words being taken as authoritative, for example Humphrey (1951) page 14:

In fact the search for Buddhist authority is always vain. 'Do not go by hearsay,' said the Buddha in his famous advice to the Kalamas, 'nor by what is handed down by others, nor by what is stated on the authority of your traditional teachings. Do not go by reason, nor by inference, nor by argument as to method, nor by reflection on and approval of an opinion, nor out of respect, thinking a recluse must be deferred to...' What then is the test? The Sutta quoted, like most of the Pali Canon, gives the answer negatively, 'When these teachings, followed out and put into practice, conduce to loss and suffering – then reject them.' Or in modern parlance, see if they work; if so, accept them.
9. Any teaching / preaching material from all Buddhist sects will give you this list. My version came first from Humphrey (1951), page 92, with small changes suggested by Bush (1982a) page 123.
10. Humphrey (1951), pages 106 - 107.
11. I was introduced to the problems of causation as discussed by Buddhists by Jay L Shaw, of the VUW Philosophy Department. He has an interesting discussion of ideas old and new on this topic in his forthcoming book *Causality: Sāmkhya, Bauddha, and Nyāya*, Section II, pages 11 - 20.
12. Conversations with Jenny Foo, and On Li Ong, 2002.

Chapter 16

Confucianism

Introduction

The Rites

Early Confucianism

Modern Interpretations

Confucian Virtues

Confucius's Theological Ideas

Logic Problems

Axioms for the Confucian Religion

Conclusion

Also see Appendix 3: Selections from *Li Ji* (the Confucian *Book of Rites*)

All quotations followed by numbers in square brackets, for example, [2:4], are from *The Analects*, in Raymond Dawson's (1993) translation, except where noted.

Introduction

Kong Fuzi, Confucius, living in the 6th Century BCE under the Chou emperors, was for most of his life an unemployed minor bureaucrat and a teacher. He could not keep his positions in provincial courts for long and many tales tell of his good advice and plain speaking being unacceptable to the local governors. After his death his disciples collected his sayings (and others added apocryphal sayings) in the *Lun Yu*, (*Ethical Dialogues*) which in English we call *The Analects*. Almost all of the quotations I give in this chapter are from *The Analects* but there are two from the *Li Ji*, *Records of the Rituals*, a proper taste of which I give in Appendix 3. This is because the rites were so important to Confucius and are important to us for understanding the society he lived in and its world view. As a beginning to an examination of what sort of religion Confucianism is, and what sort of logics will fit it well, I start immediately with a consideration of the rites, having had a general look at the life and times of Confucius in Chapter 14.

The Rites

Early Confucianism

Confucius, and his followers, constantly refer to the rites which the Emperor and his officials were supposed to keep up, in order to keep a harmony between heaven and earth, and so a good life for everyone. *The Analects* Book 3 concentrates on rites and rituals and has 17 out of its 26 'chapters'

devoted to them; Book 10 is entirely about a small group of rituals. There are many more comments about and descriptions of rites scattered through the 500 or so chapters and many of these refer back to the actions of the sage kings or to the *Li Ji*, the *Book of Rites*. In the form which the *Li Ji* has come to us it is a hotch-potch of comments about mourning rites (by far the greatest number are on this topic), comment on courtly behaviour, timetables for when, how and where certain rites are to be performed by the Emperor and lesser officials, the dress to be worn, the demeanour, the behaviour of young aristocrats before and after marriage, and so on. Some typical extracts are given in Appendix 3.

However, though both *The Analects* and the *Li Ji*, constantly stress the importance of the rites, and of doing them properly, the actual rites are very seldom described, and then not clearly enough for them to be exactly revived. There are hints, such as

The son of Heaven uses [for the sacrifice] an ox of one colour, pure and unmixed; a feudal prince, a fattened ox; a Great officer, an ox selected for the occasion; an (ordinary) officer, a sheep or a pig.¹

and

Orders are given for the ceremonies against pestilence throughout the city; at the nine gates (also) animals are torn in pieces in deprecation (of the danger): to secure the full development of the (healthy) airs of the spring.²

Nevertheless, the actual procedures and the words of the prayers and blessings have been lost.

Our understanding of the forms of proper dress and the 'order of going' of the time is more complete because we also have pictures. The result is that when the *Ji Li* mentions, as it does in the beginning of Book 11, the twelve pendants of jade beads hanging from the royal cap worn by the Emperor on great occasions, we have pictures of such a cap and ones like it. The catafalque for a dead emperor is described in detail and we also have pictures of it. The ceremony of arranging the monuments to past family members is not only described but we have pictures of the ceremony taking place. That the continuation of the rites was so strongly stressed by Confucius and his followers, and that they were kept up by the imperial rulers, in peaceful periods at least, for hundreds of years, means pictures surviving from the first millennium and later copies of them show us, reasonably accurately we can assume, the dress and order of ritual occasions. We also have first-hand accounts and even photographs of some of the ceremonies which, although much changed from Confucius's day, were still carried out by recent emperors, until the last was deposed in 1911.

However, in 2003 no one carries out animal sacrifices; no one dresses in the manner described and pictured. The rites have not been kept alive, certainly not in their Confucian form. Modern 'sacrifices', seen every day in China, Malaysia and Taiwan, in hundreds of temples, grave-sides, and at shrines in people's houses, consist of lighting one or two incense sticks (costing a dollar a dozen) and planting them in bowls of sand; burning imitation paper money (at two cents for a 'million dollar' note); silent prayers; a respectful stance and bow; and small contributions to temple funds. And the reason for these oblations are as much a mix of animist, Buddhist, and Dao ideas as any admonition from Confucius or the classics. There are, in Taiwan at least, Confucian temples and shrines, much visited just before exams, but no Confucian priesthood.³

Modern Interpretations

We must look firstly at what Confucius said himself about what the rites were supposed to be doing, not just at his commendation of them for pragmatic reasons of stability of the state. Secondly we must ask what is left of what Confucius advocated when the teaching about the rites of his own day, and courtly behaviour, is extracted.

The word *li* which we translate as 'ritual' or 'rites' originally referred to religious practice and in general does so in *The Analects*. For example in 2:5, talking about one's parents he said,

When you serve them while they are alive do so in accordance with the rites; and after they are dead, when you bury them, do so in accordance with the rites and, when you sacrifice to them, do so in accordance with the rites. [2:5]

However, in almost all of the references to the rites in *The Analects*, even those in Book 10 which are mainly details of dress and posture, it is the attitude to what you are doing that is being stressed rather than the magical efficacy of the actions. Some examples:

The Master said: 'Intolerance when occupying a high position, irreverence when performing ritual, and being unsorrowful in the conduct of mourning – how am I to contemplate these things?' [3:26]

... 'In the practice of the rites harmony is regarded as the most valuable thing, and in the ways of the ancient kings this is regarded as the most beautiful thing. It is adopted in all matters, both great and small. But sometimes it does not work. If you behave harmoniously because you understand harmony, but do not regulate your conduct with ritual, surely that cannot be made to work.' [1:12]

... 'When good faith is close to righteousness, one's words may be fulfilled. When courtesy is close to the rites, one keeps shame and dishonour at a distance.' [1:13]

Can one easily modernise Confucian precepts? A way of doing this which is easy to understand would be to say that although the particular rites about which Confucius was so insistent have vanished, other rites have taken their place, and, if these new rites are worthy of performance, then Confucian admonitions about rites can be taken to mean the new rites instead. There are two possibilities.

(1) A simple substitution of one set of rites expected to bring about 'magical' results, by another. For example, to bring rain in spring the Emperor killed a plain coloured bull at the city's Eastern Gate whilst dressed in green accompanied by recorders tuned to E-flat. A modern substitution could be everyone gathering in Civic Square and swinging a crystal on a string whilst singing 'Rain Drops Keep Falling on my Head'.

(2) New rites, not magical but clearly an important part of keeping human relations well ordered in ways which help towards a 'civilised', peaceful, prosperous, well governed society.

The idea of substituting new magical rites for old is not worth countenancing. However, if rites were reconstituted as in (2) they might well be a good substitution for the old rites which were (naturally enough) based on an animist, pre-scientific, reading of the universe.

This is the basic idea of Herbert Fingarette (1972) in *Confucius - The Secular as Sacred*. He looks at the simplest sort of everyday rituals which we have. For example, men (and some women) in the West shake hands on meeting.⁴ The shake must be done properly, right not left hand, firm grip, co-operatively, not one moving the other. Done properly handshakes can express many emotions and be causative events in themselves. Some of these are very important such as the peace-making shake of old enemies, the welcoming shake of old friends, the shake that clinches a deal. Some shakes go with emotions felt mainly by the shakers, such as the tight grip of the hearty and the wet-fish grip of the shy. Some are obvious to onlookers such as the over vigorous shake of the probably insincere, the quick touch of the busy, the slap of the trendy; and so on. The handshake has been ritualised, and helps us know what to expect in the future, and so makes life safer. Confucius's comments about the importance of the rites (of his governing and religious class) to the smooth running of early Han society can be clearly seen to carry over to the importance of such secular and classless rites in our egalitarian societies today.

Confucius says we should show reverence to the spirits and ghosts, which he and everyone believed existed, 'to keep them at a distance.' [6:22] but also

'Sacrifice as if present' means 'Sacrifice to the spirits as if the spirits were in one's presence'; but the Master said: 'if I myself do not take part in a sacrifice, it is as if no sacrifice is made.' [3:12]

A modern scientific atheist can clearly say, in parallel, 'The spirit of friendship is shown in a handshake; if I do not shake hands I am not friendly.'

This is a very important insight for the modern Confucian apologist, seeking to show why Confucius is important in the present day, why we can regard his teachings as worth following, for the little actions, which used to be called 'manners' in Renaissance Europe, do help us get on together ('manners maketh the man'⁵) and every religion seeks peace and salvation for every person. Fingarette does this very well, commenting on the 'performative utterances' found in both formal and informal language and analysed by the English linguistic philosopher J. L. Austin, and others⁶. For example: promises, contracts, commitments, excuses, pleas, compliments, pacts, wishes, preferences, are where the words, tone of voice, gestures, signatures, the place in which the saying takes place, sometimes the dress worn (when saying 'I crown you king') can all count towards the use to which the utterance is put, that is, to its meaning. All these occasions are rituals, some minor, some major, some vitally important to society (such as contracts) others important only to our own culture. If Fingarette is right, Confucius realised that other ways of regulating society such as using commands, policing, punishments, fear, or trying distractions such as bread and circuses or wars abroad, were not only morally repugnant but ineffectual. It was and is much better to appeal to the better nature of people, educate them in nobility, and what better way than to see that the large rituals, and the small, were all done with the right attitude? Here is an extract from Fingarette's argument in his chapter 'Traditionalist or Visionary?'

Although Confucius did speak of Heaven, its role is not too clear and is unelaborated in *The Analects*. At this point we come to the decisive insights of Confucius into man rather than his insights into politics. He was not impressed with the possibilities of metaphysical speculation and 'theology', as we know. But he was deeply concerned with man's life on earth. ... He saw that it is well-learned conventional practice that distinguishes man from the beasts and from the inanimate. He saw how miraculous a power, how humane a power was inherent in well-learned conventional practices as distinguished from force, threats and commands. Finally he saw that the dignity peculiar to man and the power associated with this dignity could be characterised in terms of holy rite, of ceremony. For ceremony is a conventionalized practice in which are emphasised intrinsic harmony, beauty and sacredness.⁷

Although it is possible to divide human behaviour into emotional, animal (necessary to physical survival) and scientific (the accumulation of 'facts'), there are also lists to be made of behaviour that makes living together successful, so avoiding lives that are 'nasty, brutish and short'. These actions are largely ethical and aesthetic, and possibly religious. In such a list, along with other actions, will be all the words and actions and occasions to which people give a formalism, that is, behave in a somewhat ritualistic manner, from saying 'thank you', to a coronation. Fingarette is quite good at seeing Confucius's intention as more than just a pragmatic or conservative praise for the splendid state-sponsored and state-upholding rites of his day. He sees Confucius's view as a religious one, and uses, as the key, one of the most commented-upon chapters.⁸

Zigong asked: 'What sort of person am I?' The master said: 'You are a vessel.' He said: 'What sort of vessel?' The reply was, 'A jade sacrificial vessel.' [5:4]

Fingarette sees this not merely as a way of bringing a worldly disciple to a new insight; the vessel is holy and sacred as well as beautiful and finely made, that is, it is a fit vessel for a ceremony – in the actual case for holding grain at a ritual to ensure a bountiful harvest – but the holiness and sacredness lies not in its beauty or craftsmanship but in its use in the ceremony. The suggestion is that any old rough and ready vessel would do (some ceremonial vessels were made with holes in

them to emphasise their ceremonial rather than practical purpose) but being part of the rite made the vessel holy and useful for the particular religious symbolic purpose. Chapter 5:4 makes the point that Zigong (and by implication, all people) are holy in as much as they participate in the rite. If the rites of everyday are the basic way we conduct our lives together, to participate in them is to be holy and sacred.

Confucian Virtues

The Analects have been examined and commented upon and explained in their context, and quoted so often, firstly by two thousand years of Chinese scholarship and secondly by western scholars since the first translation by Jesuit missionaries in the 17th Century, that it is not necessary to go into the detail of their authenticity, reliability, additions and editings, nor even into the actual admonitions and helpful comments in the 500 chapters themselves. The earlier books are a rather pleasant jumble of pithy sayings, comments on actual occurrences, opinions on the ideas, attitudes and even character of actual people (disciples and rulers mainly), questions and answers; but these, taken together, express the most important ideas in Chinese civilisation. The idea of humaneness (or human-ness), of being the best sort of person we can be, which Confucius was the first person to talk about, is still fresh and relevant, and is often taken up in Western religious thought, including in descriptions of one part of the Christ's nature. Confucius is one of the first people to talk about people's inclination to act from ethical motives rather than for simple personal advantage. He was like major religious figures in that his primary purpose was to assist people in self-cultivation, Buddha showing the way for any person to attain nirvana, Jesus showing people how to live in God's already-present kingdom...

The most important virtues⁹ to Confucius were

Humaneness (ren): In Chinese calligraphy the character is made up of two elements, 'man' and '2', summarising how human beings should behave towards each other: with perfect virtue, kindness, goodness, human-heartedness, benevolence, charity (in the old sense). It is depicted as within easy reach if only one would make the effort.

Virtue (de): It had meant something like charisma or spiritual power but Confucius uses it as a quality of character which is heaven-sent, it has no opposite as in English 'vice' but is rather like the 'virtu' of the middle ages.

Doing one's best (zhong): Usually translated as 'loyalty' but without the notion of blind obedience; perhaps conscientiousness is close to the idea.

Filial piety (xiao): In a society without social security or reliable banks or insurance firms, this virtue was naturally important for security and was a part of family-centred ethics. In *The Analects* it is seldom mentioned (nor its parallel virtue of dutifulness to elder brothers, ti), but it is definitely connected with the rites towards ancestors so 'piety' is better than 'duty'.

Good faith (xin): This is the virtue that is most appropriate between friends (rather than family members or from subject to rulers).

Rightness (yi): This moral idea is not discussed in *The Analects*, but it is assumed that everyone knows what it is, when it is mentioned. Gentlemen are concerned to do what is right; small men, by contrast, are just interested in making a profit. Yi is usually used to describe actions, rather than the

people who do them. Raymond Dawson points out that right acts are not judged by exterior absolute standards which everyone must learn, but that the rightness of an action depends on what a person has learnt and must be judged against his or her accumulated experience.

Reciprocity (shu) occurs only twice but was much commented upon, perhaps because it resembles both the negative Golden Rule (do not do what you do not want others to do to you) and Buddhist karma.

Goodness (shan) occurs often but is not an ethical term on the whole: it is more like saying the music of Buxtehude is good, and the workmanship of a chair is good, or the prisoner in the dock is a good burglar. Although it is often asked if a certain person is humane (ren) the question of whether a person is good (shan) is never asked. Shan is an idea reasonably close to the New Testament idea of righteous, that is, fit for the job it is to do.

Education (xue): Confucius was a great believer in education and the (moral) understanding to which it led; he makes it plain that the accumulation of facts and bookishness is not important but knowledge which guides one's conduct is. He saw everyone, high and low, as capable of obtaining such knowledge, partly from the imitation of good models and partly from within oneself.

'In the presence of a worthy man, think of equalling him. In the presence of a worthless man, turn your gaze within. [4:17]

Rationality: Confucius was a great believer in rational, well thought out behaviour, and his followers continued in this, in contrast to the Dao-ists who believed in the superiority of heart over head, of emotions and feelings over logical argument. The Chinese, with their love of balance between opposites, see both 'ways' as important and say they would feel that life was out of balance if either rationality or mysticism came to dominate. Thus Chinese thought makes much of the balance of yin and yang; Chinese religion, as carried on from before Confucius, makes much of the need for a harmony between heaven and earth; Chinese poetry almost insists on each line containing words of contrasting import; literary criticism thinks of their two greatest poets, the contemporaries Tu Fu and Li Bai, as one a Confucianist and the other a Daoist. An example from *The Analects* has Confucius preferring a rational approach: Zilu asks who the Master would choose to have as army commanders. Confucius says, 'not the very brave.'

'... [not] anyone who had no regrets if he died tackling a tiger with his bare hands or crossing the Yellow River without a boat. What would be necessary would be someone who was apprehensive when approaching a task and liked achieving success through planning.' [7:11]

Confucius's theological ideas

I have discussed, in the main, the place of rites and ritual in Confucius's teaching and said little about the place of theological ideas. Some people may think I am missing what is the properly 'religious' part of Confucianism. However, Confucius is insistent he will not discuss theological ideas. It is in fact, very hard to find what theological views Confucius had; there is even a chapter in *The Analects* complaining of this very fact:

Zigong said: 'The Master's accomplishments one can get to hear about, but what he has to say about human nature and the way of Heaven one cannot get to hear about.' [5:13]

We have but one occasion when Confucius 'calls on Heaven': he was accused of improper behaviour and exclaims in exasperation rather than in prayer,

'What I have failed to do may Heaven reject, may Heaven reject.' [6:28]

However, his attitude to the gods (Heaven) can be seen in one part of the well known list of proper behaviour at different ages:

'... At fifty, I realised that Heaven has its own will. I blamed neither Heaven nor man. ...' [2:4]¹⁰

This can be read as a shrug of the shoulders when asked about earthquakes, good and bad harvests, droughts and floods, and perhaps the rise and fall of kings; it can also be read as a fatalistic attitude to life; or as the indifference of the old to what goes on around them; or as a refusal to try to make sense of things over which people have no control. Certainly it is on a par with his attitude to spirits and ghosts and also suggests that he considered the rites should not be thought of as a method of controlling the gods of heaven, perhaps since the rites most obviously did not, a long life having shown him that. That is not to say that the rites should be abandoned, since abandoning rites even more obviously went hand in hand with abandoning good government, with tyranny, neglect of the dykes, wars and poverty.

Confucius also refused to discuss spirits or ghosts, which he seems to agree are experienced and are real. There is no need to think of him as a twenty-first century scientific rationalist; he was a man of his time but with a particularly clear idea of what is important in life and what is not. When he was very ill Zilu wanted to pray for him, quoting the prayer for the dead, 'We pray thus to the spirits above and below.' Confucius jokingly replied that he was an old man so lots of prayers had been said for him already. [7:35] Confucius may have believed that 'Heaven created the virtue in me' [7:23] but Heaven, although it controlled the overall general direction of things (wise actions lead to peace and prosperity), does not interfere from day to day. In *The Analects* he suggests such an idea in

'When King Wen died, did culture die with him? If Heaven had intended to put an end to the culture [Wen established], later mortals would not have been able to share in it.' [9:5]

The idea of 'the mandate of heaven' for emperors is not part of early Confucian thought. Therefore, in *The Analects* no attempt is made to base morality on commands or exemplars from Heaven. Morality is pretty pragmatic or utilitarian, and the springs of innate virtue (or, for example, the gradation of duty from parents, to state, to emperor) are not traced to a source, or seen as givens, that is as unproved axioms. Morality is innate but improved by imitating models and by education.

We can assume, therefore, that Confucius accepted that spirits were real and that there was some all-powerful extra-terrestrial power or order, possibly the creator of 'all under Heaven' (a common phrase) but less anthropomorphically conceived than in some other religions. There was a strong feeling that the spirits of Heaven and Earth needed to be kept in balance and rituals of sacrifice were developed to ensure this was so. Many of the spirits were ancestors, some now in heaven and some in the earth, and rituals and sacrifices made to them would make sure that they were happy and would bring blessings to the family and would stave off the harm unhappy spirits could bring. Although the idea of sacrifices to keep the balance between Heaven and Earth has lapsed the idea that balance in general is necessary has not vanished, and much Chinese worship today is concerned with ancestral (and animist) spirits.

Logic problems

Like Confucius, I am not interested in spirits or animist descriptions of what there is. I see no need for twenty-first century theology to use the old myths of China (ancestral spirits and the rule of Heaven) any more than protestant Christianity should use the old myths (God in Heaven sending his Son) or Buddhism should use old myths (karma and desire ruling all human life). Science has put paid to spirits, except as poetic metaphors. I have tried to show that Confucianist thinking may abandon the old rites (as has been done) without loss of consistency, putting in their place, for our more egalitarian world, the rituals of everyday life – following Fingarette – and treating these as sacred, holy and spiritual in the way that Buddhism, the Gaia religions and some Christian offshoots, such as the Quakers, treat all things. This means reading *The Analects* in a more general, less particular way; its references to the rites and rituals of the sixth century BCE can be mined for their general import and for their universal lessons about the place of the rituals of everyday twenty-first century CE societies.

The new readings of the chapters about rites, (their de-mything, de-magicking, and generalising) may require a considerable shift in thinking. However, we will find it much less of a problem to take into our own century Confucius's words about humaneness, virtue, doing-one's-best, filial and sibling responsibilities, good faith, and reciprocity. A good deal of historical and cross-cultural imagination (and straight learning) will be needed to understand many a particular response Confucius makes and to tease out the lessons to be learned; but this is no more the case than in trying to make sense of Jesus or Gautama or Mahomet.

I suggest that this Confucianism I have been describing – shorn of its magic and myths – already exists in the minds of scientific Chinese who find Kong Fuzi's general moral directions very appropriate in the modern world. Such Chinese, if they feel the need to burn paper money for the spirits of their ancestors, or wish to work on the extinction of their desires, may perform such religious actions within the other traditions which go to make up Chinese culture. If they prefer to still use the old Confucian language of 'sacrifice', 'holy', 'sacred vessels' and so on, when thinking about how to carry out the Confucian ideals, this can still be done, though it is likely to cause confusion when you are talking to other people about what you believe there is – or in the jargon of some philosophers – cause confusion about the ontological status or assumptions of such words as 'sacrifice', 'holy', 'sacred', when you are using them.

Axioms of the Confucian Religion

Looking for some axioms to base the new Confucianism upon, perhaps we can sum up what Confucius has to say for the present day by looking at one of his chapters.

... 'In the practice of the rites harmony is regarded as the most valuable thing, and in the ways of the ancient kings this is regarded as the most beautiful thing. It is adopted in all matters, both great and small. But sometimes it does not work. If you behave harmoniously because you understand harmony, but do not regulate your conduct with ritual, surely that cannot be made to work.' [1:12]

A modern paraphrase might be:

Behave in all things great and small in ways that promote harmony between people, between people and their environment, and between people and their posterity. The behaviour that best promotes these harmonies is ritualised.

This will give us axioms for Confucianism

- C1. [All actions by people that affect other people are moral actions]
- C2. [Act to promote harmony]
- C3. [Make each action into a ritual]

It is notable, though not unexpected, that no god or gods appear in this list, therefore, as in my earlier theological axiom sets, the axioms that do not mention a god or gods are inclosed in square brackets. There is no mention of 'feelings', including none of awe, no mention of any 'spiritual' intuitions, and no mention of Confucius himself as worthy of veneration, nor as a mentor. The most notable lack to a Chinese may well be the lack of any mention of family and ancestors and duties towards them; however, harmonious behaviour might well include such duties. There is also no mention of causes and consequences, no mention of justice or mercy, no mention of punishments.

C1. [All actions are moral actions] is the most difficult axiom to justify intuitively or from experience, but some form of it is needed to put handshakes and saving someone from drowning in the same category. Some actions by individual people seemingly do not affect others, such as scratching an itch, musing on the taste of brandy, counting sheep in order to get to sleep, but even those, at a long stretch may affect someone else, Scratching itches is impolite in some societies on some occasions; an alcoholic may have been warned off thinking about the taste of brandy by his AA group, especially if it weakens his resolve and his family are in dire need of cash; perhaps you should be staying awake to comfort a sick child.

Confucius did not deal in Western concepts such as right and wrong, good and bad, but he certainly believed actions that brought about peace and prosperity through the 'right' attitude to family and state government by the family members and the governors were what *should* be done. If he saw (described) this as bringing about a harmonious balance between heaven and earth, so be it – he had his metaphors and myths and favourite ways of describing what is going on, just as we have. We get along without examining what we mean by 'good', and use the concept as a 'given' in ethics; Confucius accepted the concept of harmony as a given in ethics.

C2. Harmony is a difficult concept for Westerners. It is basic to Chinese thinking about the nature of the world. It is not the Zoroastrian/Manichean idea that there are two powers of good and evil balanced against each other; rather, that good results flow from a balance between Heaven and Earth, male and female, rationality and intuition, light and dark, growth and decay, planting and harvest, the sun and the moon, head and heart ... and so on, summed up as yin and yang. What we call 'bad' results (Confucius would have said, improper behaviour, poorly maintained dykes, war, etc., and left it to us to realise what he was talking about) flow from getting these aspects out of balance. There is a Maori parallel in the concepts of tapu and noa, associated as they are with the sky and the earth, male and female, the head and the feet, but both necessary for life, and ritually important – no man enters a marae on a formal occasion without an accompanying woman.¹¹

Although the later Confucian, Xun Zi, and certainly a group of political advisors known as the Legalists, thought of the Confucian programme as a utilitarian way of achieving good government, my reading of Confucius is that the aim of teaching and pursuing humaneness, virtue, doing one's best, filial piety, rightness, education, and so on, (which he constantly recommends) is not just because they will bring about peace and material prosperity for all (through good government) but because these virtues just *ought to be*. He is sure that because they promote harmony at every level ('between Earth and Heaven' is the way of talking) good government, with its peace and prosperity, will follow. Many of his comments on the understanding and personality of individual disciples show him to be scornful of attempts to put on a show of virtue rather than to have the real thing.

Someone said: 'Though Yong is humane, he is not eloquent.' The Master said: 'What is the point of eloquence? Those who confront others with a ready tongue are often hated by them...' [5:5]

... 'What about Chi?' The Master said: 'Chi, if he puts on his sash and takes his place at court, may be employed to converse with the guests, but I do not know if he is humane.' [5:8]

Because Confucius was one of the first people, to make humaneness into an important virtue I might have picked on this concept, instead of harmony, for an axiom. Humanity might have been less difficult for Westerners to understand since the idea of there being a basic humanity shared by all people is well known in the West, and is the basis of the 'rationalist' or 'humanist' view of what human life is all about. However, I think we gain by trying to use different cultures' somewhat strange concepts, to see if they work. Western thought has recently acquired the idea that our future generations' lives are dependent on a carefully maintained balance between human need and the ecology of the earth. Since the introduction of this idea the concept of harmony is better understood. However, I hope I showed, in Chapter 13, that personifying or deifying nature is logically not on.

C3. Can you make one-off actions (saving someone from drowning, pulling a prickle out of your dog's paw, arresting a criminal, making a parachute jump, putting your finger in a hole in a dyke...) into a ritual? The usual meaning of 'rite' or 'ritual' is something repeated and it is easy to see how making a cup of tea can become a ritual, and even be further ritualised into a ceremony. Some one-off actions can be ritualised, in a rather trivial and amusing sense, by being accompanied by gestures or words which are unnecessary and 'over-the-top': the fop's over-grand bow and sweeping gesture with his hat is a comedy turn, as is the play with fans and self-deprecating politeness in mock oriental operetta and story-telling. To add 'ritual' movements or words to any one-off action would be either funny, ridiculous, ironic, satiric or insulting. This is not the way to go.

However, the believer who mutters a prayer for help whilst doing a difficult task is performing a ritual, and Confucius would commend any action, no matter how unseen or unlikely to affect other people, done with a humane motive. As he constantly makes the point, it is the motive for carrying out the ritual and the attitude of mind you have whilst carrying it out that is most important; in fact the ritual (for example, a sacrifice) is not worth doing if not done this way; the outward actions must be the signs of an inward and spiritual grace; if not, the outward actions are useless and the harmony they are supposed to bring about, being missing from the start, will not appear later – people's actions will not be harmonious, (Westerners would usually say, 'morally good') no matter how correctly, in form, the ritual was performed.

Nevertheless, I do not intend my axiom C3. [Make each action into a ritual] to be merely another way of saying, 'Do each action for the right motive.' Confucianism is unique in its accent on the place of ritual in the way we behave. We might add a let-out clause to C3. making it 'Make each action with other people (whenever possible) into a ritual,' but that does seem to be open to all sorts of hair-splitting and legalism, the banes of the application of theology to ordinary everyday life.

Another catch with the original, simple, C3. is that 'every action' includes the wicked, the illegal, the unjust, the inharmonious, the inhumane, the bad and the evil as well as the good. This interpretation means we should kill people ritualistically, steal in the correct rite-ous manner, beat our children whilst muttering the proper prayers, and so on. We can imagine a society where such actions are done, we may even think that to a small extent they are done already – a New Zealander may legally kill a person after undergoing the rituals of becoming a policeman and the ritual of obtaining a gun from a commanding official (as well as being attacked). However, it must be clear that the ritual does not make the action harmonious, or good, or even right. The moral worth of the action lies in itself, not in the ritual which accompanies it, nor the ritualistic manner in which it is done. If it was decided that all New Zealanders could legally kill others as long as they went through some ritual or did the killing in a prescribed way, that would have no effect on the moral rule, clearly advocated by many religions as well as humanists, that killing other people is wrong.

Confucius seems to have believed that the moral worth of an action lies in the moral stage the person who does the action has reached. Thus a small child who snatches a toy from another child,

having not learnt that other people feel hurts and have 'rights' just as he/she has, will not be judged by the same moral standards as an official who steals from a labourer working for him or her. The official will have long since learnt that other people feel hurts and have 'rights'. This theory of morals is a step more logically simple than the theory that all moral worth is to be judged on motive alone, and avoids some of the problems, mentioned briefly earlier, of the action from pure motive which brings about thousands of deaths, or the action from evil motives which brings about great happiness.

I will leave the axioms as they are at the moment, and have a brief look at whether putting them into a symbolic form will reveal any other strangenesses.

The Axioms in Symbols

As before, putting the axioms in logical symbols will display their underlying logical shape or form. It is worth remembering that logic is the science of displaying the shape of what there *is* in a form (and a very abstract one at that) which will bring out fundamental likenesses and make it possible to move from one idea to another in a rational (reliable, correct, valid ...) manner. Absolutely vital, therefore, are variables, the p 's and q 's, the x 's and y 's, the ϕ 's and ψ 's. When necessary we have to pin these variables down and restrict their 'domains', firstly with the quantifiers, Π and Σ , 'all' and 'at least one', and then actually naming specific people or other things as we do with such symbols a and b , and g and h . But we can always pick these 'constants' up, give them a shake, and use them for different things – provided it is not in the middle of a piece of reasoning. In the following attempt to show how a set of logical formulæ might be used to show the logical form of Confucian axioms, I have kept to one symbol-set and used only that set in all three axioms, and so made (I hope) it easier to use these axioms in any reasoning which might involve any two or all three.

The axioms for Confucianism

- C.1. [All actions by people that affect other people are moral actions]
- C.2. [Act to promote harmony]
- C.3. [Make each action into a ritual]

The symbols

- C.1. Domain: People and actions; O = obligation
 $\theta x = x$ is a person; $\xi x = x$ is an action; $\epsilon x = x$ is a moral action
 $\phi xyz = x$ is an action done by y affecting z
- C.2 add $\gamma x = x$ promotes harmony
- C.3 add $\beta x = x$ is a ritual action

- C.1.1 $\Pi xyz C K\xi x K\theta y \theta z C \phi xyz \epsilon x$ < For all x, y and z , if x is an action and y and z are people, then if y does x to z , then x is a moral action >
 < Everything that is done to one person by another is a moral action >.
- C.2.1 $\Pi x C \theta x O \gamma x$ < For all x it is obligatory that x promotes harmony >.
- C.3.1 $\Pi x C \xi x O \beta x$ < For all x , if x is an action it is obligatory that x be a ritual action >.

Conclusion

Confucianism, as described here, in an 'up-to-date' form possibly peculiar only to myself, is by far the simplest religion examined. It restricts itself almost entirely to an admonition to promote harmony, it does not pause to give an explanation of what moral actions are or whence comes our predilection to praise some actions and condemn others. Only one piece of guidance is given on how to behave to attain the harmony which is the religious goal – make the secular sacred. Other matters commonly considered religious are eschewed in Confucianist theology. For example:

- (a) awe at whatever you find awesome, from nature to poetry, from the works of man to mathematical precision;
- (b) methods of alleviating the thousand natural and unnatural shocks that flesh and imagination is heir to, from magic to technology;
- (c) explanations of everything, from the universe, to intuition, to our feelings;
- (d) concerns, ultimate or otherwise;
- (e) the after life, if any;
- (f) the problem of evil;
- (g) the existence of God, or gods, or spirits.

It may be objected that Confucius *was* deeply concerned about the state of the nation. That is so. He hit upon a programme to attain a better life for everyone. His programme was, basically, to improve the behaviour of the ruling class, and consequently the whole state. In our egalitarian 'democratic' societies, improving the behaviour of everyone is the equivalent. Confucius and most of his immediate followers believed that people could, when properly instructed, see the error of their ways, and, for one reason or another, turn to do those things that brought about better government and thus a better life for all.

Is a desire for a better life for everyone, and actions for people to do to attain that, enough to call a religion? In the West it gets called 'humanism', or perhaps, 'principled rationalism', and historical examples may be recognised in the lives and moral principles of such people as the kynic Diogiones, Spinoza, Voltaire, Ghandi, Albert Schweitzer, or Einstein.

Notes and References

1. *Li Ji (The Book of Rituals)* Book 1, Sections 2, Part 3, Par.4.8
2. *Ibid*, Book 4, Section 1, Part 3, Par.16. [This section is also in Appendix 3 of this thesis].
3. From discussion with Chinese Taiwanese friends.
4. Raymond Dawson in his 1982 *Confucius* uses the same example.
5. 'Manners maketh man', is attributed to Bishop William of Wykeham (1324 – 1404) and is the motto of Winchester College and New College, Oxford.
6. For a collection of J L Austin's work see Austin (1979).
7. Fingarette, Herbert, 1972, *Confucius – the Secular as Sacred*, page 63.
8. *Ibid.*, pp.73 - 74
9. These summaries follow, on the whole, Dawson's 'Note on the Translation of Key Terms', in Dawson (1993) pp. xxi – xxiv
10. Tsai Chih Chung's reading. See Tsai Chih Chung, (1994).
11. Taught to me as part of marae protocol by Roka Paora, then Vice-Principal, Te Whanau a Apanui District High School, 1960s ; and experience on marae. See also Schwimmer, Eric, (1969), *The World of the Maori*.

PART 3

CONCLUSION

Conclusion

Summary of the defence

Summary of the structure of the defence

Theory, Application

Conclusions beyond the thesis topic.

I found that I could defend my thesis, but that the consequences of my thesis being proven are very interesting also. This conclusion will look firstly at the way I defended my thesis, and secondly look beyond that at some interesting further consequences.

Summary of the defence

My thesis is that modern symbolic mathematical logics have a lot to contribute to the rational discussion of all religions. I use the term 'theology' in an 'expanded' sense, to mean all rational discussion of religions, old and new.

I demonstrated this firstly in a 'theoretical section'

- (i) by showing what logics are and why they can be trusted;
- (ii) by showing how all theologies may be correctly treated as axiomatic systems;
- (iii) by outlining some modern logics which can assist theological thinking, including a logic I construct for this purpose called the *Theologic*.

I demonstrated this, secondly, in an 'applied logic' section,

- (iv) by looking at the theology of one current branch of Christianity in detail, outlining its logical problems and the consequences of trying to avoid them;
- (v) by looking at 'post-modern' Christian theologies, firstly those that suggest that the word 'God' is a symbol rather than a name, and secondly at three feminist theologies, two of which are logically quite radical;
- (vi) by looking at pantheism, in particular that of Spinoza, Teilhard de Chardin, and Lovelock's Gaia;
- (vii) by looking at two religions, Buddhism and Confucianism, which, in their basic religious thinking, can be said to have no gods.

I find that all religions I have studied except Confucianism – and they are representatives of religions actual, proposed and imagined – have serious logical flaws in their theologies, some flaws known of old, others brought to light by the modern logics. Theological thinking must take account of what modern logics have revealed, and use the logics to its benefit as a rational discipline.¹ Finding that modern logical analysis has a lot to contribute to theological thinking has proved my thesis.

These investigations I carried out in the spirit of A N Prior, who came to logic through a Christian upbringing which gave him an interest in theology, a desire to make that theology more consistent and, as Professor of Philosophy at Canterbury College in the 1950s, taught me. Time having passed, I have been able to examine the logic of other, and newer, theologies. We both, in the end, found conventional Christianity as we knew and loved it, too illogical to believe.

There are major implications for religious thinking in my discovery of so many flaws. Making the religions more logically sound is generally difficult and involves either abandoning tenets of the faith, or patching holes which examination of the logic in use has revealed. The suggestion that the gods use a different sort of logic to us is generally logically unacceptable. These discoveries, the unexpected result of my investigations, I leave to the end of this exposition of my conclusions.

Details of the structure of the defence

Theory

- (i) Showing what logics are and why they can be trusted

Chapters 1 and 2

Many religious people do not trust logic. This is understandable but wrong. Logic is a way of handling discussion of all actual things and all possible things, so that reliable conclusions may be reached on all matters. We use logic every day, all the time, and we trust it to give us the right answers. We use and trust computers whose every part and every software program is a piece of complex logic in use. With most logicians, I make one rule paramount: if the logic leads to *everything* being true, that is, if the logic leads to chaos, then the basic laws of that logic are useless and the world (the state of affairs) it is trying to describe is impossible.

After my introduction of the topic, my second chapter attempts the task of explaining in layman's terms what logic can do, and cannot do, and why. There are lots of logics nowadays, and I discuss only a small number, in general those which have in the last century been found most useful, those most likely to be useful for theologies, and in particular those to which I was introduced by Arthur Prior, who was deeply interested in both logic and theology. New and sophisticated logics to deal with topics common in theologies, such as ethical behaviour and authority, were described and examples given of their use.

Theologies have to rely heavily on logic because they cannot use scientific method to justify their tenets. Religions are sophisticated systems of belief about people's actions as well as cosmological theories and beliefs in divine beings. Therefore, to be credible, religions need the logics they use to be sophisticated and the logics must be used rigorously. An example of how logic is misused by a religion can be found in Appendix 1. Sidestepping logical conclusions is just as common in religious thinking. Both misusing and sidestepping do religion no service.

- (ii) Showing how all theologies may be correctly treated as axiomatic systems

Chapter 3

Theologies, particularly those for religions with a god or gods, can be clearly stated in axiomatic form. This form is their normal or natural state since all theological expansion must be through argument, or more axioms. The expansion may contain factual as well as moral premises, even commands, but there must be theological premises among the antecedent parts of the arguments. These antecedent statements must in turn be theological axioms or derived from theological axioms by good logic. The axioms are the basic beliefs of the religion, held with neither natural nor empirical evidence.

- (iii) Showing some modern logics which can assist theological thinking, including a logic I construct for this purpose called the *Theologic*.

Chapters 5 and 6

The details of how one may proceed beyond the axioms, and the types of logic necessary, are explained. The logics necessary for finding and checking the logical moves made in theologies are few: *propositional* logic; *predicate* logic, which is an extension of propositional logic; *modal* logic, which is an extension of propositional and predicate logic; and *deontic* logic which is a branch of modal logic. As an example, in Appendix 1, there is a logical examination of an evangelical Christian tract, handed to me on a Wellington street. I found that the tract is full of theological arguments and that it uses (and misuses) propositional and predicate logic almost exclusively.

In Chapter 6 I explain two logics which can assist theological thinking. The first, *Escapism*, was developed by Arthur Prior and from that the second, the *Theologic*, was developed by myself. *Escapism* is a Deontic logic. It brings out the characteristics of the moralities of many religions, even when no deity or gods are involved. This is even the case when morality is seen as personal to each individual human. Interestingly it also looks like an ideal logic for any god's own morality. The *Theologic*, although based on *Escapism*, does not deal with moral precepts except when 'moral' or 'ethical' is defined as strongly dependent on a god's wishes or rights. Nevertheless it can handle a great number of theologies including not just Christian and those springing from Christian roots, but even religious thinking where there is no supreme being. It also gives a basis for right reasoning about personal beliefs.

Applied

Having shown the reasons why logic can be trusted, how theologies can be seen as axiomatic systems, and having shown the types of logic needed, I then demonstrated that modern symbolic mathematical logics have an important contribution to make to theologies, in an 'applied logic' section.

- (iv) Examining the theology of one current branch of Christianity in detail, outlining its logical problems and the consequences of trying to avoid them. This was a long examination and took, after an introduction, three main chapters.

Chapter 6

A 'snapshot' of present-day Christianity, the selection of a particular branch of Christianity that lays great emphasis on the death of Jesus to study in detail, and then a set of axioms, *DPI*. to 6., for that theology stated and symbolised.

Chapter 7

A study of the logical problems of *DPI*. *God created the universe*. The main topic studied was how we can (or cannot) have a logic for God before he-she-it created everything (the universe). One logic proposed would give rise to multiple, unending, regressions and must be rejected on that ground. Another is very restricted since saying God is identical to God is about all that can be said before creation. The theologian who wishes to keep this axiom may have to embrace the notion that God existed in a 'minus-1-time' before the big bang, in a universe which consisted of God and nothing else at all, and God was not able to do anything until the big bang occurred. This is a tough

recommendation for any theologian to swallow because it leaves God, for as long as minus-1-time lasts, helpless.

Should the theologian decide to abandon any literal meaning for *DP1* and regard it as a poetic or metaphorical or mythical or symbolic way of talking, possibly expressing a feeling of awe, then this has major consequences for DP Theology. The main consequence is you cancel any theological conclusions based upon it, for example: 'If we are pleased to be alive we should thank God for making it possible.' The theologies whose logic is discussed in Chapters 10, 11, 12, and 13 have, in the main, taken this route.

In the second half of this chapter I looked at the sort of moral logic that will be necessary once we have decided on the sort of morality DP theology commits us to. The axiom I chose (*DP2*.) with God allowing humans to choose, that is, to make ethical decisions, gives us an ethics which denies determinism or predestination, that is, it allows free will. I found logics that can handle free will, in particular, those deontic logics which do not admit *T. CLpp* < if *p* is necessary *p* happens > in its deontic form *DT. COpp* < if *p* is obligatory then *p* is done >. Such logics allow some iteration, but not the reduction of mixed iteration allowed by *S5*, and I do not allow the Barcan formula.

However, it is not necessary to have such logics until people do make free will decisions which God does not like – if we are good all the time there would be little use for logics countenancing free will. The 'fact' that people did 'disobey God' is introduced in *DP3*.

Chapter 8

In this long chapter the logical problems which arise from having a single god and finding that there is evil in the world were discussed. Some of these problems spring from the insistence by most versions of Christianity that the single god is characteristically all-powerful, all-knowing, and all-good. Short examples showed how these three attributes of the god are logically incompatible with each other whilst evil exists, even if one of the three characteristics is temporarily in abeyance. The temporary measures do not relieve the god of moral responsibility if he-she is also (as is usual) the creator of the world.

Trying to find a logic for a monotheistic religion which allows the god to be less than perfect was essayed using a three-valued logic and this resulted in such statements as, 'God is all-powerful' being neither true nor false. This is not a totally unhelpful situation: we are used to, 'It will rain tomorrow' as neither true nor false, and the logics which deal this way with possibilities are well developed.

A different way has been suggested out of the dilemmas that go with perfection for God. It is to abandon the attributes of perfection and substitute others, namely all-mighty, all-wisdom and all-compassion. However this leads to a new, similar, set of conclusions. They are are probably unacceptable to most Christians.

Chapter 9

In this chapter are two non-theological axioms. These two axioms are necessary to allow that the final theological axiom makes sense. The moral axiom *DP4*. makes punishment morally correct, and in particular allows for sin (disobeying God) to be a punishable offence. In Christian theology, it is, of course, God who does the punishing. The logic of commands had to be further examined, and the nature of authority. The second non-theological axiom *DP5*. is needed to allow Jesus (God) to be justly punished for the sins of everyone else. There are modern doubts about the justice and morality of transferring punishments, even for minor misdemeanours; however, it certainly looks unjust if the axiom allows transference in general. An axiom which allows God alone to sanction particular cases of the transference of punishment to him-herself (that is, to Jesus) but making no mention of a general rule allowing transference in all cases, may be all that is necessary.

The last axiom *DP6*. now makes sense, but is an enormous leap of faith. To a sin-oppressed believer, it can be a hugely liberating realisation, it engenders great thankfulness to God, and releases great creative power in the talented.

Conclusions from Chapters 6 to 9

In making an examination of the logic of Christianity, following my thesis that theologies are best dealt with axiomatically, I had to select a version of Christianity to analyse. Other versions of Christianity would require some of the axioms I used, and some would be changed. For example, Catholic Christianity would keep all of the DP set and add one or more axioms about the place of the Church in God's plan; Protestants who lay most emphasis on the life of Jesus rather than his death would keep at least DP1., 2. and 3., and all the logical problem these axioms involve. They would drop DP4. as non-essential to their theology, thus avoiding all the problems of transferable punishment. Also, they avoid the conundrums of sacrifice and scapegoats since they would want DP5. and 6. changed. Many of the illogicalities apply to all branches of Christianity, in fact to theism in general, except the most modern (which have problems of their own). Suggestions of several kinds were made about how specific illogicalities can be tackled. These include, (a) extra new axioms, or (b) drastic modifications to the beliefs, particularly those about the nature of God.

- (v) Examining 'post-modern' Christian theologies, firstly those that suggest that the word 'God' is a symbol rather than a name, and secondly, three feminist theologies two of which are logically quite radical.

Chapter 10

I introduced Post-Modern Christian Theologies with examples and made a selection of theologians to study. The springboard for their proposed changes to Christianity is the influence of science in general, of scientific method in biblical studies, notably de-mything, and the feminist movement. These religious academics usually remain theists but struggle to find new meanings for old words.

Chapter 11

Post-modern theologians, Tillich, Kaufman, Cupitt, and Geering for example, talk about God as a symbol and this leads to logical problems. I quoted Alisdair MacIntyre's excellent summary of why it is so hard to make any sense of God-talk at all. Mainly using the insights of Wittgenstein, I looked at the popular idea that religious truth is to be found in Popper's *World2*, our personal feelings, dreams, emotions, and in mystical or spiritual revelations to us. The idea was not found to be substantial, for both logical and scientific reasons. Nor does expanding Popper's classification to encompass a *World4* just for God or gods, lead to better thinking.

Tillich, unfortunately, falls into several logical traps. But a look at how a more nominalist (rather than idealist) view of how biblical and scientific talk can be brought together, following on ideas from Geering, shows that a 'godless' religion could be invented. It has no theological axioms; nevertheless, for its study the *Theologic* could still be a useful tool.

Chapter 12

After giving a taste of the writing of four feminist theologians I looked first at the very logically interesting suggestion by Mary Daly, that 'God' should not be a noun, but a verb. This is a mind-bending conception. Two approaches, a language approach and a logical approach, were made to finding the consequences of such a move. The language-change approach leaves us with such a different religion that Christianity and God-the-verb religion seem to have no shared theological ground at all. A possible logical approach using a very Priorian logic called *Egocentric* logic, would lend a verbal slant to Christian thinking but is so eccentric that very few thinkers would find it helpful.

Daphne Hampson has a more conventional feminist approach to Christianity but is led to

deny its truth and to advocate a new religion. This religion is 'explained' in a welter of suggestions, some contradicting others, but the main suggestion is that it is in ourselves, and in our actions towards others, that we see that which should be labelled 'God'. Jantzen, following Irigaray, has something of the same concept in her idea that 'becoming divine' is what our lives are all about. These feminists create a new abstraction (call it 'God' if you must) out of very disparate objects, thoughts and emotions, but do not suggest that this class is just a symbol for something else.

The Theologic would have to be modified but it then could be useful in both God-the-verb and God-is-me theology.

- (vi) Examining pantheism, in particular that of Spinoza, Teilhard de Chardin, and Lovelock's Gaia.

Chapter 13

Logic is unable to endorse what the pantheists want to say. It may be possible to find a logic for pantheism, and the *Theologic* hints how it might be done, but there are at least two worries about such a logic. (A) It would have to reflect a definition of God which, like the utilitarian equivalence of happiness with moral goodness, leaves us gasping at its cheek. It would make God nothing special, just everything, extremely complex but soul-less and mechanical. (B) It would be relatively useless, being restricted to conclusions about a myriad of things when they are regarded as one 'object'. A logic called *Mereology* might be useful.

The work of Spinoza is ground-breaking in many ways, not the least for its meticulous use of logic. However, he was working with concepts such as 'substance' which are no longer found helpful. Teilhard de Chardin redefines many Christian and *New Testament* ideas, particularly that of a climax in history when Christ comes again. Unfortunately he bases his description of what will be on an illegitimate use of scientific concepts.

However, the Gaia idea of Lovelock is a useful pantheistic base. It begins with good science and proceeds logically. Lovelock, who enjoys poetry, shows how a worshipful attitude may spring from scientific facts and insights. And it is a change to see a religion which says '... the Universe is neither the dead mausoleum investigated by the Cartesian licence nor an enchanted fairyland of invisible spirits.'

- (vii) Examining two religions, Buddhism and Confucianism, which, in their basic religious thinking, can be said to have no gods.

Chapter 14

This chapter introduces the two religions and has a section on Buddhist logic.

Chapter 15

Theravada Buddhism has a highly developed theology based on its axioms, the well known Four Noble Truths, and the Eight-fold Path. There are other axioms, not in a named list, that are essential for Buddhism and for the development of modern logical systems for Buddhism. They deal with (a) impermanence and constant change; (b) causality; and (c) ethical matters, including karma.

Theravada Buddhism has no god, no supreme being. It thus avoids the innumerable logical conundrums which we have seen plague rational argument in religions which do have a god. This makes it the most logically simple of all the religions we have so far studied. Nevertheless, it does

have conflicting ideas which are tied up with the the three extra notions above, especially since the Buddha said that there is no such thing as a soul but most Buddhists feel strongly that reincarnation is usual. Also, how is a logician to make a system which can manage an ethical world that, due to the law of karma, is highly mechanistic? Buddhists, like theists, want to explain that good results flow from good actions, always. The evidence is that the good do not prosper, and the wicked do. Even if 'prospering' is interpreted as individual spiritual prospering, death must not wipe out that good karma, or being good is in vain.

I have not worked out a logic which can deal with the workings of karma. Deontic logics look like the most likely to help a present-day Buddhist theologian. *Escapism* and the *Theologic* may help, but, the need is for several logics, each fitted to the particular theological solution suggested to the problem of karma.

Chapter 16

Confucianism, as described, is by far the simplest religion examined. It restricts itself almost entirely to an admonition to promote harmony. It does not pause to give an explanation of what moral actions are or whence comes our predilection to praise some actions and condemn others. Only one piece of guidance is given on how to behave to attain the harmony which is the religious goal – make the secular sacred. Other matters commonly considered religious are eschewed in Confucianist's theology, for example: (a) awe, (b) methods of alleviating suffering, (c) explanations of the universe, intuition, our feelings, (d) concerns, ultimate or otherwise, (e) the after life, if any, (f) the problem of evil, (g) the existence of God, or gods, or spirits.

Confucius was deeply concerned about the state of the nation. To improve the lot of everyone he developed a programme to improve the behaviour of the ruling class. In our egalitarian 'democratic' societies improving the behaviour of everyone is the equivalent. Confucius and most of his immediate followers believed that people could, when properly instructed, see the error of their ways, and, for one reason or another, turn to do those things that brought about better government and thus a better life for all.

Summarising the proof

Old and new logics are trustworthy and useful, and new logics can handle religious thinking. Theologies can be laid out as axiomatic systems. New logics can be invented to assist moral and theological thinking. Old and new religions use a lot of logic, and they must, because they start from beliefs, not empirical facts. Theological thinking has been demonstrated by looking at examples of theological thinking in nine religions. All these religions, except perhaps Confucianism, would benefit from better use of logic, and this can be begun with the use of new logics.

Conclusions beyond the thesis topic

It is one of the hall-marks of all religions that each has beliefs that cannot, or may not be tested. Ordinary, non religious, beliefs may be tested. Ms Skimbleshanks believes that the train departs at ten. She arrives at the station at five to ten, and waits till five past before inquiring of the station master if the train is late. She *believed* that the train left at ten all right. But she should not have believed it at all – the train went at 9.30. If she is rational she changes her belief, curses her fickle memory as she waits for the next train, and will be on time tomorrow. Her belief was truly a belief but, tested against the facts it was found to be a foolish or unwarranted belief.

A belief that Allah is merciful, or Buddha attained nirvana, or Ogun likes a dog as a sacrifice, or Tangaroa was Bill Tawhai's ancestor, or Jesus rose again on the third day, or that Ahura Mazda will come to your aid... these are untestable. We cannot know if they fit the facts, and in some religions we are actually forbidden to try. They have to remain, forever, as beliefs. It is not surprising that members of a religion are called 'believers'. For the safety of our reasoning everything which involves a belief must, therefore, have, as it were, a gentleman in front carrying a red flag saying 'If this belief fits the facts then ...'

Because testing against facts is not allowed the logic needs to be impeccable if any of the statements which depend on the beliefs are to be given credence at all. My investigations suggest that only Confucianism shorn of its rather useless gods, comes near to logical clarity. Most religions have to resort to adding new beliefs that cannot be substantiated whenever a logical impasse arrives. For example, if God is just, he must punish wrongdoers. (This requires a new belief, in the existence of some sort of hell.) But if God is merciful, he must let them off. As there is no scientifically credible evidence either of God being just, or of his-her being merciful, one branch of Christianity invented a post-death state called purgatory where the wicked are punished for an appropriate length of time then released. A new belief (the existence of purgatory) was added to patch the logical hole. Another branch invented the idea of God punishing his son who took upon himself the sins of everyone past, present and future. Thus God was just to Jesus punishing him (for our sins), but merciful to everyone else. Note that this also required a new belief, this time that transferring punishment from one person to another is legitimate, to patch the logical hole. Another branch made God more merciful than just and denied the existence of hell, and this is not so much a patch as inventing a new God.

The Dilemma

Religious thinking depends on axiomatic beliefs and then on logical deductions from those beliefs. But the axioms are shaky because they may not be tested. And the logical deductions from them are shaky because they are poorly done and often can be propped-up only by adding more shaky axiomatic beliefs. In scientific thinking it is quite legitimate to start with axioms or beliefs (they are usually called theories) but these are then tested to destruction, or tested till they show that they are reliable. This route is prohibited by religions. What then can be done to give religious thinking some credibility? Set out as a dilemma we have the situation: Are science and logic to be abandoned because they are anti-religious? Or, is religion to be abandoned because it is unscientific and illogical?

Grasping the first horn

Logic may be set aside only if you are willing to accept chaos.² Logic is about what there *is* — it is a systematic way of reasoning about what there is. It is 'hard-wired' into us to help us survive. To choose chaos is to choose a situation where absolutely everything and anything is true. And we

know that NOT everything is true. In chaos we can prove God exists and just as easily prove that he does not exist. We can prove we do not exist just as easily as prove that we do. We can prove that up is down and left is right, that dogs are cats and black is white. Chaos is chaos. If chaos is accepted, science goes out the window and with it my life-extending hypertension pills, my wife's radiotherapy, my child's eye surgery, my computer, the internet, my trips to Europe and Africa, the calculations that this room is earthquake-proof... You can fill out your own list.

Grasping the first horn is not a good idea.

Grasping the second horn

Religion can be set aside without disturbing logic, or scientific discovery, or moral rectitude, or mental health.

Squeezing between the horns

Perhaps religions work to a logic of their own, as rational as ours, but as yet not discovered. There are, after all, hundreds of logics now. Find some field in which you wish to carry out right reasoning and new logics are available or can be tailor-made. But they do not guarantee that any world exists in which they operate. The man with the red flag still walks in front saying something like, 'If a universe with three gods who decide humans' fate with the toss of a coin exists, then it will run like this...' Invent, or patch up, a religion and give a logic doctoral student the task of working out a logic for it, and the task can be done. But do not be surprised if you do not like what you get!

Prodding and Patching

Logics have to be logical, and there is a separate jargon, and people who spent their whole lives working out the rules and moves that are legitimate when creating new logics. A logic describes what *is*, or in the case of alternative theologies, describe what *could be*. It thereby also describes what cannot be. Does your God have to know everything, past present and future? There is a logic for that, but as a consequence people cannot have free will. Choosing omniscience for your God will, in any logic, require some sort of predestination. It cannot be avoided. Omniscience and determinism are logically bound together, even for God. Please choose your logic and you will be choosing your God; please choose your God and you will be choosing your logic, or no logic and no God at all, just chaos.

Therefore patching up the logic of a religion as we find illogicalities in the religion's theological reasoning can go only so far. It quickly reveals whether a full repair job is possible. The introduction of new axioms of belief has, so far in my investigations, only made matters worse.

Perhaps God has a logic we do not have, which works for him though it does not work for us. In the omniscience/determinism example God would have to both *know* what is going to happen and *not know* what is going to happen (because we are able to make up our own minds about what we do). We cannot manage a logic for such a contradiction without introducing a third truth value between true and false. So, even if God can manage the contradiction, we cannot. We must use a three-valued logic which allows indeterminacy. Such a logic is not for the omniscient.

But perhaps God lives at the end of time and sees everything as past, doesn't think about 'might' and 'could' or 'ought' but just intuitively everything.³ He doesn't need logic (right reasoning) at all. But he cannot interfere NOW, because no one, not even God, can interfere in the past⁴, and NOW is the past to God. Choose your God and you choose your logic; choose your logic and you choose your God.

The future of ILLOGICAL religions

It is part of our nature that we quite often believe and act on contradictory, or at least incompatible, ideas. This is particularly true in the moral sphere. For example, researchers⁵ found church

attenders among American and British military men who said they believed that killing people was wrong, morally reprehensible, and against God's teaching. These same people were also willing to prepare, make and use atomic weapons. We seem to be able, without turning a hair, to compartmentalise our actions into watertight boxes: strangling your neighbour's budgerigar is wrong but pressing the 'bombs away' button on the *Enola Gay* over Hiroshima is OK. ' "I send 'em up, but where they come down, that's not my department." says Werner von Braun.'"⁶

It would be nice if the purpose of religion was to give people a chance to hold contradictory and illogical ideas without hurting anyone. Unfortunately the many noble religious ideas in religious thinking are not always translated into noble, or even pleasant, deeds and as often, via ignoble and illogical reasoning, religious dicta become the excuse for downright evil deeds, and plenty of harmful ignorance, obscurantism, suppression of useful ideas and herbicide on flowerings of the human spirit.

The future of LOGICAL religions

Should, by some fluke, good reasoning flourish inside religions as well as outside, is there any hope of patching up the old, or redesigning the old, or creating new religions? Attempts to patch up the old have a long history in Christianity: and Luther and Calvin spring to mind, though Pelagius in 400 CE and other 'heretics' had a good try. I think I have indicated why it is a rather forlorn hope – the patches make dramatic changes to the owner as well as the garment. A complete re-design, as modern Christian theologians such as Tillich, Geering and the feminists want, results in religions that need new names or they will run up against the Fair Trading and Description of Goods Act. Creating a new religion altogether, following the tradition of Zoroaster, the Buddha, Jesus, Mani, Spinoza and the French Revolutionaries might be best, but such religions need the testing ground of history to see if they appeal, are useful, and fit the times. Nowadays the makers of new religions may also have the scientists, such as academics who work in Religious Studies Departments⁷, and the logicians, such as me, running alongside pointing out their strange and contradictory beliefs.

Conclusion

Most religions start with a guru or prophet or seer. The actions of this founder are more important than his or her theology. In fact, historically, the theology was added by later followers, and is the world view the founder grew up in, plus modifications. It may be possible to start a new religion which eschews theology. It could have the actions of already well known religious founders as the inspiration and template for the behaviour of the new religionists. Unfortunately this looks like a very intellectual religion since it involves trying to understand the milieu in which the founders and prophets lived so that their actions can be seen for what they were, and their motivations understood so that situations unknown to the guru, such as contraception to Confucius, can be morally weighed. Say you are impressed and interested in the actions of Ghandi; to understand him properly you will need to know a lot of Indian history, find out about Hinduism, understand the history of the Raj and South Africa, racial tensions in India in the 1900s, partition, peaceful protest, the salt tax, and so on. However, in general, his attitude to non-violence can be extended to guide rational thinking and action about, for example, President Bush's attitude to Iraq in early 2003.

I know of two religious movements which are moving in this direction. One is the 'unprogrammed' Quakers of Europe and North America. Unfortunately for rationality they are still cursed with a legacy of mysticism and animism; unfortunately for the religion's popularity, Western Quakers are, embarrassingly, upper middle class people with degrees. The other is based on the scientific work done on sorting out the historical Jesus from later accretions, by John Dominic Crossan and other scholars. It is based on Jesus's actions and the ninety or so of his reported sayings on which one can with confidence rely. This religion has at least one preacher, to be heard at Speakers' Corner in Hyde Park each Sunday.

Notes and References

1. Although some few thinkers from among the schoolmen in the middle ages and such as Spinoza and Descartes of the ‘Enlightenment’ attempted to make Christianity logical it has not been a popular nor successful endeavour. This is in contrast with the academic study of religions which is aware of the irrationality of religions and is very eager not to be tarred with the same brush. A set of essays on the scientific methods and theory of religious studies is Jensen, Jeppe S., & Martin, Luther H, (eds.) (1997) *Rationality and the Study of Religion*, Aarhus, Aarhus University Press. It followed upon a conference called for by graduate students unhappy with the lack of consideration given to how a rational discipline may or should study irrational religions.
2. This is real chaos we are talking about, not the ‘we-give-up’ chaos of Chaos Theory. In Chaos Theory a butterfly’s wing-clap in Vienna causes a tornado in Virginia with enormous wind damage, tidal waves, and lives lost. The same butterfly might have clapped its wings a fraction of a second later causing no more than an idea for a cold-cream advertisement. Chaos Theory looks at how the slightest alteration in minute matters, such as a six or a seven at the end of a 100-place decimal, can make major alterations to an outcome.
‘Chaos Theory’ as a phrase sounds good but is an unfortunate coinage.
3. This view of God being at the end of time was the favourite of Professor Arthur Prior as it makes talk about omniscience much easier. It is not exactly the same as Augustine’s idea that to God everything is eternally present. However, the idea that God does not reason about anything but in fact knows everything intuitively comes from St Thomas Aquinas.
4. Science fiction writers have tackled the consequences of interfering in the past with the most imagination. The impossibility of doing so (and so changing the present at the same instant) is almost always written into time travel stories now. Time paradoxes such as ‘Can I go back in time and shoot my own grandfather before he fathers my father?’ delight philosophers and new life has been put into the discussions by space travel and Einstein’s Theory of Relativity. Some, such as Ken Perszyk of VUW, have solutions for discussion.
5. For example, Hamwee, John; Miall, Hugh; Elworthy, Scilla, 1989, *The Assumptions of British Nuclear Weapons Decision-Makers*, Oxford, The Oxford Research Group, p. 20, :
A quotation from a nuclear weapons decision maker:
It’s nothing to do with people in Minsk and Leningrad ... It isn’t a question of destroying millions of people ... it’s a question of dictators knowing that *we* know where *they* would be ... and that *they* would not survive.
[My emphasis.]
6. From a song by Tom Lehrer.
7. See note 1, above.

PART 4:

ADDENDA

Appendices

Bibliography

Appendix 1

The logical structure of a DP Tract

Part 1. A transcript of the pamphlet, thrust into my hands, with the pavement preacher's smile and 'God Bless' squeezed into his patter, in Lambton Quay, Wellington, 2002. Line numbers added.

Part 2. An analysis of the logical laws used

PART 1

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1 IF YOU SHOULD DIE TODAY WHERE WOULD YOU SPEND ETERNITY?

2 No one likes to think about death But death comes to everyone. God tells us in His Word.

3 *"And as it is appointed unto men once to die, but after this the judgment:"* Hebrews 9:27

4 Since death is so certain, you must prepare to meet God.

5 According to God's Word. you must spend eternity in one of two places, either in heaven or in hell.

"And these shall go away into everlasting punishment (hell): but the righteous into life eternal (heaven)." Matthew 25:46

10 EVERY PERSON BORN INTO THIS WORLD INHERITED A SINFUL NATURE

"....and were by nature the children of wrath, even as others." Ephesians 2:3b

"Wherefore, as by one man (Adam) sin entered into the world, and death by sin; and so death passed upon all men, for that all have sinned:" Romans 5:12

"Behold. I was shapen in iniquity; and in sin did my mother conceive me." Psalm 51:5

"The heart is deceitful above all things, and desperately wicked: who can know it?"

15 Jeremiah 17:9

THIS SINFUL NATURE PRODUCES ALL SORTS OF EVIL DEEDS.

"For from within, out of the heart of men, proceed evil thoughts, adulteries, fornications, murders, thefts, covetousness, wickedness, deceit, lasciviousness, an evil eye, blasphemy, pride, foolishness: all these evil things come from within, and defile the man." Mark 7:21-23

20 You must admit you are a sinner. Admit it to yourself and admit it to God. There is absolutely no chance for you to be saved from hell unless you know that you are a sinner. God's Word declares it and you must believe it. Because you are a sinner, you are destined for hell for all eternity.

"For the wages of sin is death..." Romans 6:23

25 *"...and sin, when it is finished, bringeth forth death."* James 1:15

THERE IS NOTHING YOU CAN DO TO SAVE YOURSELF.

You cannot be good enough.

"... there is none that doeth good, no, not one." Romans 3:12

30 You cannot be saved by keeping the law. Joining the church and being baptized will not even help save you.

"...by the works of the law shall no flesh be justified." Galatians 2:16

You are helpless. You cannot save yourself.

HERE IS THE GOOD NEWS OF THE GOSPEL.

In spite of your sin, God loves you and has done everything necessary for your salvation.

35 *"For when we were yet without strength (helpless), in due time Christ died for the ungodly."*
Romans 5:6

"For Christ also hath once suffered for sins, the just for the unjust, that he might bring us to God, being put to death in the flesh, but quickened by the Spirit:" I Peter 3:18

JUST BELIEVING INTELLECTUALLY THAT YOU ARE A SINNER, THAT GOD LOVES YOU AND THAT CHRIST DIED FOR YOU IS NOT ENOUGH.

40 You must apply this to yourself personally by repenting and receiving the Lord Jesus Christ as your own Saviour.

Repentance is "a change of mind" brought to your heart by the Holy Spirit through God's Word. It causes you to turn from your sins, dead religion and works to trust Christ alone.

45 *"...except ye repent, ye shall all likewise perish."* Luke 13:3

"But as many as received him, to them gave he power to become the sons of God, even to them that believe on his name:" John 1:12.

"...all men..." (Acts 17:30) are commanded to repent. Therefore, all men can repent.

Don't put this off - do it now!

50 *"...now is the accepted time; behold, now is the day of salvation."* II Corinthians 6:2

"Seek ye the Lord while he may be found, call ye upon him while he is near:" Isaiah 55:6

"For whosoever shall call upon the name of the Lord shall be saved." Romans 10:13

"...all men..." (I Timothy 2:4,6) can be saved.

55 Wherever you are right now, tell God that you are a lost sinner, ask Him to forgive you of your sins, and receive the Lord Jesus Christ as your Saviour. Claim salvation by faith.

"For by grace are ye saved through faith; and that not of yourselves: it is the gift of God: not of works, lest a man should boast." Ephesians 2:8-9

YOU MAY PRAY THIS SIMPLE PRAYER, MEANING IT WITH ALL YOUR HEART:

60 "Dear Lord. I know that I am a sinner, but I am sorry for my sins. I believe that the Lord Jesus died for me and rose again and with all my heart I turn from my sin and receive Him as my Saviour right now. Thank you, Lord, for saving me! Amen."

This is God's way of salvation according to His Word. Many times men fail to keep their word, but God never fails to keep His Word! Take God at His Word. Don't trust your feelings.

65 *"But the word of the Lord endureth for ever. And this is the word which by the gospel is preached unto you."* I Peter 1:25

PART 2

The Tract has a strongly logical design. It has statements (the lines in upper case) and paragraphs expanding and commenting on the statements, and quotations from the Bible 'proving' the statements or expansions. Then the statements are linked together in a way that, for the writers, makes them hang together logically - from the more simple propositions more complex conclusions are drawn.

For the logician the truth or falsity of the statements is not of great importance since logicians are interested in the validity of the inferences (has correct reasoning been used?) not the truth value of the parts of the argument. After all, valid (reasonable) arguments work no matter how true or false the bits of the argument are, and when the argument works, we call the argument's schema a logical law. For example: 'If $2 + 2 = 5$ then I'm the Queen of Sheba' has two false statements, (a). ' $2+2=5$ ' and (b). 'I'm the Queen of Sheba', but the logical schema (From a false statement you may validly conclude any other false statement) gives a whole piece of reasoning with which we are happy.

Does the *Tract* use valid reasoning? Does it have logical schema? Can we trust its reasoning?

To check this we must extract, in their simplest form, the 'facts' presented in the statements. When doing this we do not need to know if they are true or false. We note that the writers of the Tract are most anxious to prove that the statements are true. To do this they appeal to scripture as justification. This in itself should have been stated early on in the tract to tidy up the argument. It could be stated (a) that all the quotations from the Bible are true, or, (b) that they should be treated as true for the sake of the current argument. Naturally, the *Tract's* purpose being to convert, not to just to exercise our imaginative faculties, the writers can be expected to believe (a).

In this examination of the logic of the *Tract* we need do neither since we are not out to be convinced by the argument but merely to examine its logical structure. (Though our examination may make us reject its argument on logical grounds.) Therefore, we will ignore the scriptural references and all other justification such as 'Death comes to everyone' [Line 2].

Quite in line with ordinary conversation, in the *Tract* the logical connections are more implicit than carefully stated. However, there is one major appeal to logic, and it is of major interest to logicians because it dips into the logic of possibility and necessity called Modal Logic. In Line 48 we have ' "...All men..." (Acts 17:30) are commanded to repent. Therefore, all men can repent.' In our logical symbolism it maybe thought of as an example of *CLpMp* <If it is necessary to do *p* it is possible to do *p*> which is akin to Emmanuel Kant's dictum 'What I ought, I can.'

However, this bit of Modal Logic is part of proving that a statement (necessary to the writer's argument) is true; and it depends on the truth of scripture; therefore, it is not part of the main logical structure.

Now to the main structure:

The important statements, paraphrased, are as follows; using *h* for heaven and *g* (gehenna) for hell.

1. Each person goes to either *h* or *g*. [Lines 5-6]
2. Every sinner must go to *g*. [Line 22]
3. Everyone is a sinner. [Line 9 & 11]

(therefore)

4. Everyone goes to *g*. [Lines 22-25]
5. No one can avert going to *g*. [Lines 23, 26 & 32]
6. God has saved you from going to *g*. [Line 34]
7. If you repent and accept Jesus as your saviour you will go to *h* and not to *g*. [Lines 41 & 61]

This can be further simplified to make the logic clearer and predicate logic will do to put the logical patterns into symbols.

Domain: people; $\gamma x = x$ goes to gehenna; $\sigma x = x$ is a sinner; $\rho x = x$ repents and accepts Jesus as x 's saviour.

8. All people go to either g or Ng . $\Pi x \gamma x N \gamma x$
 9. All sinners go to g . $C \Pi x \sigma x \Pi x \gamma x$
 10. All people are sinners. $\Pi x \sigma x$
- therefore
11. All people go to g . $\Pi x \gamma x$
 12. It is not the case that anyone does not go to g . $NN \Pi x \gamma x$
 13. Not everyone goes to g . $N \Pi x \gamma x$
 14. If you do not repent and accept Jesus as your saviour you will go to g ; but, if you repent and accept Jesus as your saviour you will not go to g . $\Pi x K C N \rho x \gamma x C \rho x N \gamma x$

Further simplifying

- (i) We have already dropped h in favour of Ng , since there are only two possible states.
- (ii) 12. has the same meaning as (is equivalent to) 11. We can drop 12.
- (iii) 1. is unnecessary for the logical scheme of most importance.
- (iv) 7. is not part of the argument - it is a simple statement for belief or disbelief.

Now the argument of the first part is reasonably clear and goes as follows:

If 9. and 10., then 11.

Laying out the argument in symbols gives us:

16. $CKC \Pi x \sigma x \Pi x \gamma x \Pi x \sigma x \Pi x \gamma x$ <If all x sinning implies all x going to hell, and all x sin, then all x go to hell >

This formula is a simple substitution in a very ordinary and true logical law:

15. $CKC p q p q$
In 15. replace p by $\Pi x \sigma x$; replace q by $\Pi x \gamma x$; and the result is 16.

We already have the first two parts of 16. (9. $C \Pi x \sigma x \Pi x \gamma x$, and 10. $\Pi x \sigma x$) . Under such circumstances, 15. allows us to 'detach' the last part as a new law on its own. We have already named it 11. $\Pi x \gamma x$ < All people go to g >.

So far we have a valid logical progression.

But at this point we come across 13. $N \Pi x \gamma x$ < Not everyone goes to g > which is the logical guts of 6. <God

has saved you from going to hell >. 13. is the way you deny 11.

There are many ways to formally prove that you cannot have both 11. and 13. in the same logical system. Here are two, either of which I would recommend:

(a)

17. $NKpNp$ < not both p and not p >

This is a well known and intuitively obvious law of the propositional calculus, (that is, of the most basic standard basic logic) usually known as *the law of contradiction*.

In 17, for p substitute 11. Πxyx . This gives us 18.

18. $NK\Pi xyxN\Pi xyx$ < it is not the case that both everyone goes to hell and, not everyone goes to hell >

This is the contradiction spelt out in symbols, and denied.

(b)

The street preacher and the *Tract* may not wish to say that the law of contradiction fails in every case (one sincerely hopes so) but only that it fails for the statement 4. (or its later version 11.), namely 'We are all bound for everlasting hell fire.' In other words, the tract is asserting that

19. $KpNp$ < Both p and not- p >

is true in general but that in the case of 11. (a special case of its own) it is not true. The logician can say that the *Tract* at this point is treating 11. as a (non-logical) constant, and saying that you cannot substitute 11. for p in 19. – in this case the rule of uniform substitution (any substitution is OK if done uniformly throughout) may not be used. But the logical infelicities are not finished by this move.

We can call 11. ('We are all bound for everlasting hell fire') v and make it a constant and see what happens. Firstly the tract writers want 20. to be an axiom, that is to be true. It is their special-case version of 19.

20. $KvNv$

But the logical law 21. is valid, and valid for every p .

21. $CKpNpq$

In particular, it is valid for the substitution of v (the constant) for p (one of the variables), giving us 22.

22. $C KvNv q$

22. = C 20. — 23. This means we can detach 23. as a new law.¹

23. q

Thus the *Tract* writers must accept that even treating 11. as a special case we still arrive, by its use, at the single variable, q , as a *law*.

This means that we have proved that if we include both a proposition and its negation as a law in logic, we will be able to prove q , that is, anything we like, that is, anything and everything will be true, that is, chaos will rule. In our case, if we want both 11. and 13. (its negation) as laws of logic, we will have a chaotic situation.

What is going on? The *Tract* arrives at 11. by impeccable logic and then denies that it is true, which is about as illogical a move as it is possible to make.

If we are accustomed to evangelical talk and evangelical theology we know that the use of the good logical argument as far as 11. was so that a theological and evangelical point could be made: God can do as he/she likes, and has in fact, mercifully, removed 11. as the conclusion from 9. and 10. The *Tract* writers, despite having proved 11. from statements in the Bible, do not believe it is true.

There are two ways around the completely logical conclusion 11.

(i)

Change the premises:

(a) 9. becomes 24. $NC\Pi x\sigma x\Pi x\gamma x$ <Not all sinners go to g>

or (b) 10. becomes 25. $N\Pi x\sigma x$ <Not everyone is sinful>

whereupon

11. becomes 13. $N\Pi x\gamma x$ <Not everyone goes to g>

The writers of the *Tract* without doubt do not believe 25. $N\Pi x\sigma x$ <Not everyone is sinful.>.

Either the writers:

(a) are Lamarckian believers in the inheritance of acquired characteristics, and believe that Adam and Eve became sinners of their own free will (thus the writers are sub- or infra-lapsarians²) and that this sin was inherited by the rest of human kind.

Or

(b) they believe in Darwinian inheritance of characteristics, that God predestined Adam and Eve to sin, creating them with a sin gene, or its theological equivalent (and thus the writers are supra-lapsarians).

In either case, they must espouse 24. In fact they do this by saying that some sinners are saved (by the grace of God). Therefore, their argument has to be:

15. $CKCpqpq$

In 15. replace p by $\Pi x\sigma x$, and replace q by $N\Pi x\gamma x$, and the result is 26.

26. $CKC\Pi x\sigma xN\Pi x\gamma x\Pi x\sigma xN\Pi x\gamma x$ < If everyone sins implies that not everyone goes to hell, and, everyone sins, then not everyone goes to hell >

26. is made up this way: $C K C 10, 13, 10, 13$.

This allows us to detach the last part, which is the conclusion, 13.

13. $N\Pi x\gamma x$ < Not everyone goes to hell >

This, though correct (valid) reasoning, is not the hard-hitting, life changing, salvation seeking conclusion that the *Tract* writers intended.

(ii)

The second way around the conclusion 11. $\Pi x\gamma x$ < Everyone goes to hell > is to make some such remark such as 'salvation by our own efforts is impossible, but for God all things are possible.' This is clearly what the *Tract* writers believe and they spend a good deal of the space on this tiny tract trying to convince us that this is indeed the case [Lines 26 - 32, then 39 - 65.]

The solution (if the argument summed up in 16. is to be left intact) is either an argument from God's omnipotence, or an argument that logic does not apply to God. The omnipotence argument runs into problems such as, 'Can God make a weight so heavy that he/she cannot lift it?'. Such problems were clearly understood in the Middle Ages. We can invent twenty-first century versions - 'Can God write a computer program that proves he/she does not exist?'

The logic problems are rather more serious. They challenge logicians to either

- (a) explain convincingly that God has to stick to 'our' logic, the alternative being chaos for both God and us.
- Or
- (b) come up with a logic of miracles, that is, a logic which allows God to bend the rules, presumably following a more complex or subtle set of rules (we do not want God to act randomly or chaotically).

In my first proof, above (17. to 18.), that you may not have both 11. and 13. I was showing the effects of just simply adding the joining of 11. and 13. (19. $KpNp$) as a truth (axiom) of the most simple and most complete of all logics. The result was chaos.

What about the second idea, that God has a logic of his/her own? This might be what our *Tract* writers [in my suspicion] attempted to manage by introducing a 'propositional constant', v , in my second proof (19. to 23.) to stand for, 'You humans are all bound for hell fire.' As we saw, it too ends us in chaos, and if it were part of God's logic, it would end him/her in chaos also.

This shows that trying to invent a God-logic, or 'miracle logic' is, as far as we can see, doomed to failure. God does not like chaos any more that we do. Logically nonsensical statements such as 'Paradoxes prove that God is cleverer than us,' or 'Illogicality is the glory of God,' or 'Such ideas were invented by God to test our faith' are either nonsense, or misreading God's nature, or doubting his/her command of logic.

* * *

The logical description of the two different arguments, one leading to everyone going to hell and the other leading to only some people going to hell, found that both arguments used variations or (substitutions in) the logical law 15. This law has been called, since the Middle Ages, *Modus Ponens*. It is one of the most universally acknowledged and universally used of all logical laws and can be seen in use every day: When the jug boils I can make a pot of tea; the jug is boiling; now it the time for a cup. It was law before speech was developed: Hungry lions eat people; there is a hungry lion coming towards me; I'm off up a tree pronto. There is no need to think that God does not use *modus ponens*: If drowning everyone but Noah will rid the world of sin and I want the world free of sin then I will tell Noah to make an ark and then send a flood. If sending my son will save mankind and mankind needs saving I will send my son. If forgiving this man's sin will make him well, and he is sick, I will forgive him his sin.

All Christians use a great deal of logic in developing their theologies. However, when good logic leads from desirable premises (all are sinners; all sinners go to hell) to undesirable conclusions (no one is saved) then the argument has to get more subtle and it is more difficult to make 'punchy' preaching points – though the logic may stay simple the premises may lose their 'all-or-nothing' simplicity.

However, if the *Tract* writers are willing to accept new premises, their logic can remain impeccable. If they wish, instead, to make God illogical, then their logic leads to chaos, and the arguments are unbelievable.

There has always been a logical problem with a God who is supposed to be both just and merciful. Pelagius about the year 400 took the route of mercy being more important than justice, and was excommunicated for his compassion. A likely logical path to combine both mercy and justice appears to the evangelical: a god of justice may demand punishment for wickedness and insist that someone take the rap; then this same god can get his own son to be the person punished, thus being merciful to the wicked. Such a solution is logically sophisticated. It makes God merciful (to the wicked) but neither just nor merciful to his/her son, the unwicked – presumably God and Son can take it.

Also required for this sophisticated argument are premises I have never seen stated in Christian theology:

- (a) that it is just to transfer one person's justly-deserved-punishment to another (and innocent) person.
- And
- (b) that it is efficacious to punish God (Jesus) for humankind's multiple and multiplying transgressions.
- There is a third premise, sometimes mentioned:
- (c) That doing what God does not like deserves punishment.

We do transfer punishment on occasions, for example, if we allow a gracious donor to pay the criminal's fine. So (a) may pass. Evangelicals do not allow (b) but have a substitute for it in the rule

- (d) It is efficacious that God punish his son if the transgressor is eager to accept such a trade off, and shows this by turning from evil deeds ('repents').

It would take a fairly hard-hearted rationalist to insist that (c) is unfair if he or she is enjoying life and thankful for being created on this earth by God; but most rationalists would deny that either they themselves and/or the world was created by God.

Another niggle: it does seem rather unfair of God to find a way to save us all from gehenna – at great cost to him/herself – and then take salvation back from those who are unwilling or unable to recognise that this has been done. If salvation has been mercifully acquired for us, once and for all, why then does God then slip back into strict Judge Jefferies mode and take salvation away from the unrepentant? Even humans do not insist on reformation, but only expiation for crime. God's mercy system (no salvation without repentance) seems even less morally just when you insist (as the *Tract* does, lines 9 - 15) that he/she set us up to fall, and that being a sinner is immutably our lot, or as deontic logic would phrase it, necessarily obligatory.

You have to be a believer to buy into the premises and the theology logically built upon them. But that is true of all religion.

Notes and References

1. My thanks for this tidy proof to Max Cresswell.
2. The arguments of the lapsarians were subtle and convoluted. The best summary of them that I have come across is in a five-volume reference work published much closer to the days when the debates were at their height. It is the Schaff-Herzog *Encyclopedia of Religious Knowledge*, published in 1894 by Funk and Wagnalls, in New York. They say:
Supralapsarianism. The doctrine that God foresaw, permitted and decreed the fall. This doctrine borders on fatalism and pantheism but is the logically most consistent Calvinism.
Sublapsarianism. This is the doctrine of moderate Calvinists, that the fall was not decreed, though foreseen. This formulation avoids ascribing the origin of sin to God.
Infralapsarianism. God elects who He will of the whole mass of ruined humanity after the fall. This is the doctrine of Augustine.

CRIB

8. $(\forall x)\gamma x \vee \sim \gamma x$
9. $(\forall x)\sigma x \supset (\forall x)\gamma x$
10. $(\forall x)\sigma x$
11. $(\forall x)\gamma x$
12. $\sim \sim ((\forall x)\gamma x)$
13. $\sim ((\forall x)\gamma x)$
14. $(\forall x)((\sim \rho x \supset \gamma x) \& (\rho x \supset \sim \gamma x))$
15. $(p \supset q) \& p \supset q$
16. $((\forall x)\sigma x \supset (\forall x)\gamma x) \& (\forall x)\sigma x \supset (\forall x)\gamma x$
17. $\sim (p \& \sim p)$
18. $\sim ((\forall x)\gamma x \& \sim ((\forall x)\gamma x))$
19. $\sim p \& p$
20. $(v \& \sim v)$
21. $(p \& \sim p) \supset q$
22. $(v \& \sim v) \supset q$
23. q
24. $\sim ((\forall x)\sigma x) \supset ((\forall x)\gamma x)$
25. $\sim (\forall x)\sigma x$
26. $((\forall x)\sigma x \supset (\sim (\forall x)\gamma x)) \& (\forall x)\sigma x \supset (\sim (\forall x)\gamma x)$

Extracts from Pali Sutras and Comments from Commentaries

Introduction

This appendix is to give no more than a taste of the scriptures of early Buddhism and the sort of philosophical (or 'theological') discussions of them that have taken place by Buddhist scholars and scholars of Buddhism.

The 'Pali Canon' of the Theravada strand of Buddhism is divided into 'three baskets' (thus: *Ti-pitaka*), the Sutta-Pitaka, the Vinaya-Pitaka, the Abhidhamma-Pitaka. This by no means gives us a chronological set of writings. The first is a collection of five sets of 'Discourses' (*nikaya*). The second is the book of 'Discipline' with three major divisions, in the second of which is some of the oldest material, for example the version of the first sermon, below. In the third collection is 'Further Doctrine' – seven works containing scholastic developments of the main Buddhist ideas, including psychological and ethical analysis, mostly put into the mouth of the Buddha by much later writers.

I have tried to select three examples from early to late. The first extract is Buddha's first sermon, from the Vinaya. The second two extracts are from the Sutta, in the collection called 'Medium-long Suttas.' The third is a summary only of the arguments between rival schools on karma and rebirth found in one book of the Abhidhamma. I then quote from two Western scholars who give overviews of Buddhist doctrine on karma and rebirth.

The First Sermon.

According to tradition the Buddha delivered his first 'conversion' sermon to his first five followers at Sanath near Varanasi (Benares) in Northern India. The oldest account of the sermon is in the Pali Canon, and therefore part of the Theravada (Hinayana) strand of Buddhism, probably written down in the early years of the Christian era, five hundred years after the Buddha's life. This translation is by J G Jennings, see Jennings (1948), pages 43 - 47. I have, naturally, left out the 86 notes and cross-references which accompany his translation, also all the Pali words for the technical 'theological' terms.

Vinaya-Pitaka, Maha-vagga, Khandhaka, I, vi,

...

§4. *Unfolding.* Then the Blessed One instructed the Five mendicants thus:

These two extremes, mendicant brothers, are not to be approached by him who has withdrawn [from the world]. Which two? On the one hand that which is connected with lust through sensuous pleasures, and is low, ignorant, vulgar, ignoble and profitless; and on the other hand that which is connected with self-mortification, and is ignoble, and profitless. Avoiding both these extremes, mendicant brothers, the middle road, bringing insight, bringing knowledge, leads to tranquillity, to highest knowledge, to full enlightenment, to peace. And, mendicant brothers, what middle road leads to Peace? It is indeed this Noble Eightfold Path, namely, right outlook, right will, right speech, right action, self-discipline, right activity, right self-knowledge, right self-transcendence. This middle road, mendicant brothers, leads to Peace.

§5. *First Truth.* Now, mendicant brothers, this is the *Noble Truth as to Sorrow*; earthly existence indeed is sorrowful, decay is sorrowful, death is sorrowful, union with the displeasing is sorrowful, separation from the pleasing is sorrowful, the wish which one does not fulfil is sorrowful – in brief, desirous transient individuality is sorrowful.

§6. *Second Truth.* Again, mendicant brothers, this is the *Noble Truth as to the origin of Sorrow*; it is this

recurring craving associated with enjoyment and desire, seeking enjoyment everywhere, namely, the craving for sense-pleasures, the craving for individual existence, the craving for super-existence.

- §7. *Third Truth.* Again, mendicant brothers, this is the *Noble Truth as to the Cessation of Sorrow*; it is the cessation of this very craving, so that no remnant or trace of it remains – its abandonment, its renouncement, liberation from it, detachment from it.
- §8. *Fourth Truth.* And this, once more, mendicant brothers, is the *Noble Truth as to the road leading to the Cessation of Sorrow*; it is indeed that Noble Eightfold Path, namely, right outlook, right will, right speech, right action, self-discipline, right activity, right self-knowledge, right self-transcendence.
- §9. *Freedom.* As soon, mendicant brothers, as my knowledge and insight concerning these four noble truths were pure, I knew that I had obtained supreme and full enlightenment. The knowledge now as a thing seen arose in me: ‘The liberation of my mind is established, separate existence is here ended, there is not now survival.’

From: Jennings, J.G., 1948, *The Vedantic Buddhism of the Buddha*, London, OUP, pp. 42-47

Karma and its Results

Majjhima-nikaya, iii, 202. Cula-kammavibhanga

The brahmin student Subha, son of Todeyya, came to the Lord, and having exchanged courteous and pleasant greetings with him sat down at one side. As he sat there he said to the Lord,

“Now what, sir Gotama, is the cause, what is the occasion, why lowness and greatness are seen among human beings, among those who have been born as human beings, for they are found to be short-lived and long-lived, of bad and good health, bad and good looking, weak and mighty, poor and wealthy, of low and high family, stupid and intelligent. Now what is the cause?..

“Student, Beings have their own karma, they are heirs of karma, their origin is karma, they have karma as their kinsman, as their resource. Karma distributes beings, that is, according to lowness and greatness.”

“I do not understand the meaning of this utterance so concisely expressed and not analysed at length. It would be well if sir Gotama would teach me the Doctrine so that I might understand the meaning of this utterance so concisely expressed.”

“Then listen, student, reflect well on it, I will speak.”

“Even so, sir,” Subha replied.

The Lord said,

“There is the case of a person, a woman or a man, who takes life, cruel with blood-stained hands, given to striking and killing, and without mercy to living things. When that karma is worked out and completed, with the dissolution of the body after death, he is reborn in a state of misery, in an unhappy destiny, in a state of punishment, or in hell; or if he is not thus reborn, but attains the state of man, wherever he is reborn he is short-lived. . .

“There is the case of a person, a woman or a man, who has put aside and refrains from taking life, who has laid aside the use of a stick or a knife, and dwells modest, full of kindness, and compassionate for the welfare of all living things. When that karma is worked out and completed, with the dissolution of the body after death, he is reborn in a state of happiness or the world of heaven, or if he is not reborn in heaven but attains the state of man, wherever he is reborn he is long-lived. . .

[Ten more examples follow, of people who are given to hurting with hand or clod or stick or knife, wrathful, turbulent, angry, furious, malevolent, hostile, resentful, jealous of their honour, reverence, esteem, hard, haughty. . . then:]

“There is the case of a person, a woman or a man, who when visiting an ascetic or a brahmin questions him about what is good what is bad, what is blameless or not, what should be followed or not, what, if he does it, will lead to misfortune, and sorrow for a long time. . . and what, if he does it, will lead to good fortune and happiness for a long time. . . . He is reborn in heaven or, if he attains the state of a man, he is very intelligent. .

“Thus, student, beings have their own karma, they are heirs of karma, their origin is karma,

they have karma as their kinsman, as their resource. Karma distributes beings, that is, according to lowness and greatness.”

From: Thomas, Edward J. 1935, *Early Buddhist Scriptures*, London, Kegan Paul, Trench, Trubner.
pp.126-130

Majjhima-nikaya, i, 389; Kukkuravatika

These four kinds of actions, Punna, have been independently realized by me with higher knowledge and preached. What are the four ? There is black action with black ripening, white action with white ripening, black and white action with black and white ripening, and action neither black nor white with neither black nor white ripening, which tends to the destruction of action.

What action is black with black ripening? In this case a person produces an injurious accumulation of body, speech, and mind, and hence is born in an injurious world. There he is affected by injurious impressions, and feels injurious feeling extremely painful, such as do those beings that are in hell. Thus the rebirth of a creature is due to the creature. It is through what he does that he is reborn and impressions affect one thus reborn. Thus I say, Punna, that beings are the heirs of their action. This is called black action with black ripening.

And what action is white with white ripening? In this case a person produces a non-injurious accumulation of body, speech, and mind, and hence is born in a non-injurious world.

(1-6) The opponent holds that the factors of the noble have no positive results, for they do not lead to further re-birth. The opposing view stresses in rejoinder that the career of the noble person produces great rewards, namely the fruits of the path, as its maturation.

VII.10. Whether a maturation is a factor resulting in factors.

(1-5) The opponent holds that a maturation is a factor resulting in further factors, that is that a maturation in turn is the cause of further maturation. The rejoinder considers this view to lead to an endless cycle of maturation entailing maturation which in turn would rule out the possibility of ending existence and attaining liberation.

From: James P. McDermott's summary, in Potter, Karl H., 1996, *Encyclopedia of Indian Philosophies*, Vol. VII, *Abhidharma Buddhism to 150A.D.* pp. 286-287

A Western Scholar's Summary of Early Buddhist Beliefs on Karma

THE BUDDHIST PICTURE OF KARMA

How shall we picture the world as the Buddhist sees it? We have seen that for the Buddhist all things are empty, nothing persists in time for more than a moment. What we call a "thing" is actually a series of moments, and each moment comprises a vast array of factors flashing at the same moment but separately. A "person" is a certain kind of thing, and this same analysis applies to him or her. A person is only a series of momentarily flashing factors.

The factors that flash at a moment in the history of an individual person are of various sorts, or at any rate are experienced by us as being so. For one thing, what I take to be me is actually one series, among others, of apparently bodily physical factors, causing me to view myself as occupying a particular place at a particular time, to have a certain series of repeated visual experiences related in the way that causes me to speak of "my body", "my sense-organs", "my location in a world of physical objects and other bodies", and so on. In fact, there is no such spread-out physical world – the appearance of bodies, organs and objects is an interpretation, a construction made on the basis of moments of color, sound, smell, taste and touch. Even this last division of kinds of momentary flash-factors may or may not be independent of our conceptualizing abilities – Madhyamakas and Yogacaras say they are not, that they too are imaginary constructions. Besides physical appearing factors, the flashes constituting our experience comprise myriad qualitative factors covering all the distinguishable sorts of data we experience in daily life – sensations, emotions, theories, interpretations, attitudes, ideas. Given the vast proliferation of factors that can be distinguished as comprising each moment of one's existence, it is not surprising that what we find in these texts is *not* an attempt to classify *all* the kinds of factors that there are (possibly a hopeless task), but rather a series of attempts to identify those particular factors which comprise our bondage, which breed karma and its resultant frustrating continuance of life from birth to death and around again. In the present Chapter we are not attempting to provide an exhaustive metaphysical account, but to summarily report what the texts under survey here pick out as those factors which cause bondage and whose "rooting out" promises liberation.

Let's rehearse the picture of man's place in the universe as it was seen by Buddhists in the period we are endeavoring to survey. Living beings occupy at any given time one or another of five courses (*gati*): hell, the animal realm, the world of ghosts, the human realm, or heaven as a god. Which course they occupy is determined by a portion of one's karma, part of the result of his actions in previous existences. It has always been thus, beginninglessly. Furthermore, differences among those occupying any one of these courses is also conditioned by one's karma, differences in appearance, health, wealth and influence, in the experiences a person has. The Pali sutras lay out a good deal of information specifying which sorts of acts breed which sorts of karma.

But talk of acting seems to bring with it commitment to something acting, an agent. Since the Buddha taught that nothing lasts for more than a moment, karma would seem to be impossible, at least in the sense of something that is laid down in the agent and retained for a time, to be worked out in some subsequent action. One sect of Buddhists, the Vatsiputriyas (also called Pudgalavadins), posited a personal agent (*pudgala*) who transmigrates from existence to existence. This notion of a person was roundly attacked by

other Buddhist schools as contravening the Buddha's explicit words, but the problem remains for Buddhists in general to explain how the residues produced by actions at one point in time remain available to be worked out at a subsequent point. In particular, for example, and leaving aside the basic question of maintenance for a moment, when one dies how is it that "one's karma" is preserved so that it may become pertinent to "the same one" in the next birth? In answer to this, some schools (Sarvastivadins, Vatsiputriyas and Sammitiyas) posited an intermediate state (*antarabhava*), consisting of the series of five aggregates, which connects the place of death to the place of rebirth. Vasubandhu sets forth this account at length in the *Abhidharmakosa* ... But the other Buddhist schools generally rejected the theory of an intermediate state;

Another way of facing up to this problem of the persistence of karmic residues was by making a distinction between manifest (*vijñapti*) and unmanifest (*avijñapti*) karma. Manifest karma is the immediate and evident result of a bodily or vocal act – e.g., the pain experienced from a good swift kick. Unmanifest karma, on the other hand, is the disposition or potency laid down in the mind of someone performing a bodily or vocal action, a disposition which is not evident at that moment but will produce appropriate karmic results at a later time.

But how can anything – e.g., unmanifest karma – be laid down and maintained, given the Buddhist commitment to momentariness? To answer this challenge the Sarvastivadins or Vaibhasikas, who maintained a theory of time on which the past and future as well as the present exists, suggested a particular type of factor called *prapti*, rendered here as "possession", which, though momentary like every factor, engenders another of its sort constituting a following moment, and so on until the karmic result of the originating act occurs. Sautrantikas, who deny that the past or future of a moment exist at that moment's occurrence, rejected the foregoing theory, arguing instead that an action lays down a trace (*vasana*, literally a "perfume") or potency (*sakti*) that conditions each moment in the series following the action, this trace also being termed a "seed" (*bija*). It is easy to imagine how the question of where these seeds exist while they are waiting to bear fruit in the form of karmic maturations led to the Yogacara postulation of a storehouse-consciousness (*alayavijñāna*). Vasubandhu, in the fourth Chapter of the *Abhidharmakosa*, develops an account of what a full-fledged action consists of. It has three parts, he says: first, the preparation (*prayoga*), the preparatory actions of collecting implements together along with one's intention to perform the action; second, the action itself together with the laying down of karma; third, what he terms the "back" (*prstha*), the succeeding moments; such as the satisfaction of the actor and the string of unmanifest karma that follows on the action itself. This last element allows, e.g., for the reduction of karmic force of an act if the agent repents immediately after performing the action.

From: Potter, Karl H. (Ed), 1999, *The Encyclopedia of Indian Philosophies, Volume VIII, Buddhist Philosophy from 100 to 350 A.D.*, Delhi, Motilal Banarsidass Publishers, pp. 32-35.

Li Ji, The Record of Rituals

Extracts from *The Sacred Books of the East*, Vol. 27, 'The Texts of Confucianism', Part III, The *Lî Kî* (1 to 10), Translated by James Legge, Oxford, Clarendon Press, 1885, and still regarded as the best translation.

The footnotes by James Legge, essential to understanding the translation, I have edited and re-numbered for this appendix, mainly to leave out his justifications for his readings. I have also modernised his numbering system and his idiosyncratic romanisation of Chinese pronunciation has been altered to the official *pin yin* form.

Book 1, Section 2, Part 1

1.1. When a thing is carried with both hands, it should be held on a level with the heart; when with one hand, on a level with the girdle.

1.2. An article belonging to the son of Heaven should be held higher than the heart; one belonging to a ruler of a state, on a level with it; one belonging to a Great officer, lower than it; and one belonging to an (inferior) officer should be carried lower still.

1.3. When one is holding an article belonging to his lord, though it may be light, he should seem unable to sustain it. In the case of a piece of silk, or a rank symbol of jade, square or round, he should keep his left hand over it. He should not lift his feet in walking, but trail his heels like the wheels of a carriage.

...

3.8. When his ruler wishes an officer to take a place at an archery (meeting), and he is unable to do so, he should decline on the ground of being ill, and say, 'I, so-and-so, am suffering from carrying firewood.'

Book 4, Section 1, Part 3

[This book contains four lists of seasonal duties. This is the third.]

1. In the last month of spring, the sun is in Wei, the constellation culminating at dusk being Qi xing, and that culminating at dawn Qian niu¹.

2. Its days are jia and yi. Its divine ruler is Tai Hao, and the attending spirit is Ju Mang. Its creatures are the scaly. Its musical note is the Jue, and its pitch-tube is the Gu xian². Its number is eight. Its taste is sour. Its smell is rank.

3. Its sacrifice is that at the door, and of the parts of the victim the spleen has the foremost place.

4. The Elaeococca begins to flower. Moles are transformed in quails³. Rainbows begin to appear. Duckweed begins to grow.

5. The son of Heaven occupies the apartment on the right of the Qingyang (Shrine); rides in the carriage with the phoenix bells, drawn by the azure dragon (horses), and bearing the green flag. He is dressed in the green robes, and wears the azure gems. He eats wheat and mutton. The vessels which he uses are slightly curved, (to resemble) the bursting forth (of nature).

6. In this month the son of Heaven presents robes yellow as the young leaves of the mulberry tree to the ancient divine ruler (and his queen)⁴.

7. Orders are given to the officer in charge of the boats to turn a boat bottom up. Five times he does so, and five times he turns it back again, after which he reports that it is ready for the son of Heaven, who then gets into it for the first time (this spring). He offers a snouted sturgeon (which he has caught) in the rear apartment of the ancestral temple, and also prays that the wheat may yield its produce⁵.

8. In this month the influences of life and growth are greatly developed; and the warm and genial airs diffuse themselves. The crooked shoots are all put forth, and the buds are unfolded. Things do not admit of being restrained.

9. The son of Heaven spreads his goodness abroad, and carries out his kindly promptings. He gives orders to the proper officers to distribute from his granaries and vaults, giving their contents to the poor and

friendless, and to relieve the needy and destitute; and to open his treasures and storehouses, and to send abroad through all the nation the silks and other articles for presents, thus stimulating the princes of states to encourage the resort to them of famous scholars and show courtesy to men of ability and virtue.

10. In this month, he charges the superintendents of works, saying, 'The rains of the season will be coming down, and the waters beneath will be swelling up. Go in order over the states and visit the towns, inspecting everywhere the low and level grounds. Put the dykes and dams in good repair, clear the ditches and larger channels, and open all paths, allowing no obstruction to exist.'

11. The nets used in hunting animals and birds, hand nets, archers' disguises, and injurious baits should not (in this month) issue from (any of) the nine gates.

12. In this month orders are given to the foresters throughout the country not to allow the cutting down of the mulberry trees and silk-worm oaks. About these the cooing doves clap their wings, and the crested birds light on them. The trays and baskets with the stands (for the worms and cocoons) are got ready. The queen, after vigil and fasting, goes in person to the eastern fields to work on the mulberry trees. She orders the wives and younger women (of the palace) not to wear their ornamental dresses, and to suspend their woman's-work, thus stimulating them to attend to their business with the worms. When this has been completed, she apportions the cocoons, weighs out (afterwards) the silk, on which they go to work, to supply the robes for the solstitial and other great religious services, and for use in the ancestral temple. Not one is allowed to be idle.

13. In this month orders are given to the chiefs of works, to charge the workmen of their various departments to inspect the materials in the five store-houses – those of iron and other metals; of skins and hides and sinews; of horn and ivory; of feathers, arrows and wood (for bows); and of grease, glue, cinnabar, and varnish. (They are to see) that all these things be good. The workmen then labour at their several tasks. (The chiefs) inspect their work, and daily give them their orders. They must not produce anything contrary to what the time requires; nor can they practise a licentious ingenuity, which would dissipate the minds of their superiors.

14. In the end of this month a fortunate day is chosen for a grand concert of music. The son of Heaven, at the head of the three ducal ministers, the nine high ministers, the feudal princes (at court), and his great officers, goes in person to witness it.

15. In this month they collect the large, heavy bulls; and fiery stallions, and send them forth to the females in the pasture grounds. They number and make a list of the animals fit for victims, with the foals and calves.

16. Orders are given for the ceremonies against pestilence throughout the city; at the nine gates (also) animals are torn in pieces in deprecation (of the danger): to secure the full development of the (healthy) airs of the spring⁶.

17. If, in this last month of spring, the governmental proceedings proper to winter were observed, cold airs would constantly be prevailing; all plants and trees would decay; and in the states there would be great terrors. If those proper to summer were observed, many of the people would suffer from pestilential diseases; the seasonable rains would not fall; and no produce would be derived from the mountains and heights. If those proper to autumn were observed, the sky would be full of moisture and gloom; excessive rains would fall early; and warlike movements would be everywhere arising.

Notes:

1 Wei is the seventeenth of the twenty-eight Chinese constellations [longitude in 1800, 44° 8' 1''] corresponding to Musca Borealis. Qi xing is understood to be Alphard, the main star of Hydra, and small stars near it. Qian niu corresponds to certain stars (e, m, n) in the neck of Aquila.

2 Gu xian, 'the lady bathes,' is the third of the tubes that give the six upper musical accords.

3 This statement, perhaps, arose from seeing quails running about among the mole-hills [prior to migrating]...

4 ... The offering is supposed to have been in connexion with a sacrifice preparatory to the silkworm season. The rearing of silkworms was due, it was supposed, to Xi ling, the wife of the Yellow Dī [one of the 'sage kings']...

5 ... We must regard the king's taking to the boat as an encouragement to the fishermen, as his ploughing was to the husbandmen. The long-snouted sturgeon has always been called 'the royal sturgeon'. How the praying for a good wheat harvest seems to be connected with this ceremony I do not know.

6 Compare *Analects* Book 10:8. The ceremonies there referred to were the same as those here, carried out in the villages and, indeed, throughout the land. Diseases prevailing were attributed ... to the action of evil spirits, and ... measures adopted to drive them away. Confucius and others, even the government itself, gave countenance to these...

Book 21. The Meaning of Sacrifices, Section 1

1. Sacrifices should not be frequently repeated. Such frequency is indicative of importunateness; and importunateness is inconsistent with reverence. Nor should they be at distant intervals. Such infrequency is indicative of indifference; and indifference leads to forgetting them altogether. Therefore the superior man, in harmony with the course of Heaven, offers the sacrifices of spring and autumn. When he treads on the dew which has descended as hoar-frost he cannot help a feeling of sadness, which arises in his mind, and cannot be ascribed to the cold. In spring, when he treads on the ground, wet with the rains and dews that have fallen heavily, he cannot avoid being moved by a feeling as if he were seeing his departed friends. We meet the approach of our friends with music, and escort them away with sadness, and hence at the sacrifice in spring we use music, but not at the sacrifice in autumn.
2. The severest vigil and purification is maintained and carried on inwardly; while a looser vigil is maintained externally. During the days of such vigil, the mourner thinks of his departed, how and where they sat, how they smiled and spoke, what were their aims and views, what they delighted in, and what things they desired and enjoyed. On the third day of such exercise he will see those for whom it is employed.
3. On the day of sacrifice, when he enters the apartment (of the temple), he will seem to see (the deceased) in the place (where his spirit-tablet is). After he has moved about (and performed his operations), and is leaving at the door, he will seem to be arrested by hearing the sound of his movements, and will sigh as he seems to hear the sound of his sighing. . . .
16. At (the time of) the border [that is, at the edge of the city] sacrifice (to Heaven), those who are engaged in funeral rites do not dare to wail, and those who are wearing mourning do not dare to enter the gate of the capital; this is the highest expression of reverence.
17. On the day of sacrifice, the ruler led the victim forward, along with and assisted by his son on the opposite side; while the Great officers followed in order. When they had entered the gate of the temple, they fastened the victim to the stone pillar. The ministers and Great officers then bared their arms, and proceeded to inspect the hair, paying particular attention to that of the ears. They then with the knife with the bells attached to it, cut it open, took out the fat about the inwards, and withdrew (for a time) [to offer the hair and blood]. Afterwards they offered some of the flesh boiled, and some raw, then (finally) withdrawing. There was the highest reverence about everything.
18. The sacrifice in the suburb of the capital was the great expression of gratitude to Heaven, and it was specially addressed to the sun, with which the moon was associated¹. The sovereigns of Xia presented it in the dark. Under the Yin [Shang] dynasty they did so at noon. Under the Gao [a legendary dynasty] they sacrificed all the day, especially at daybreak, and towards evening.
19. They sacrificed to the sun on the altar, and to the moon in the hollow; to mark the distinction between (the) gloom (of the one) and (the) brightness (of the other), and to show the difference between the high and the low. They sacrificed to the sun in the east[ern suburb], and to the moon in the west[ern suburb]; to mark the distinction between (the) forthcoming (of the sun) and (the) withdrawing, (of the moon), and to show the correctness of their (relative) positions. The sun comes forth from the east, and the moon appears in the west; the darkness and the light are now long, now short; when the one ends, the other begins, in regular succession – thus producing the harmony of all under the sky².
20. The rites to be observed by all under heaven were intended to promote the return (of the mind) to the beginning (= Creator of all); to promote (the honouring of) spiritual Beings; to promote the harmonious use (of all resources and appliances) of government; to promote righteousness; and to promote humility. They promote the return to the beginning, securing the due consideration of their originator. They promote (the honouring) of spiritual Beings, securing the giving honour to superiors. They promote the (proper) use of all resources, thereby establishing the regulations (for the well-being of) the people.

Notes

1 Here, again, nature-worship seems to crop up. Zhang Hao says on the passage: 'Heaven is the great source of tao (the course of nature and duty), and of all the visible bodies which it hangs out, there are none greater than the sun and moon. Therefore, while the object of the suburban sacrifice was a grateful acknowledgment of Heaven, the sun was chosen as the restingplace for its spirit (or spirits). The idea in the institution of the rite was deep and far-reaching.' It must be borne in mind that the rites described in the text are those of former dynasties, especially of that of Gao. I cannot bring to mind any passages in which there is mention made of any sacrifice to the sun or sun-spirit in connexion with the great sacrifice to Heaven, or Shang Di, at the service on the day of the winter solstice in the southern suburb.

2 The sacrifices in this paragraph are those at the equinoxes ... They are still maintained. [1885]

Book 19. The Greater Record of Mourning Rites, Section 1

...

5. Immediately after death, the principal mourners sobbed¹; brothers and cousins (of the deceased) wailed; his female relatives wailed and leaped.

6. When the dead body (of a ruler) had been placed properly (beneath the window with the head to the south), his son sat (or knelt) on the east; his ministers, Great officers, uncles, cousins, their sons and grandsons, stood (also) on the east; the multitude of ordinary officers, who had the charge of the different departments, wailed below the hall, facing the north. His wife knelt on the west; the wives, aunts, sisters, their daughters and grand-daughters, whose husbands were of the same surname as he, stood (behind her) on the west; and the wives, his relatives of the same surname, whose position had been confirmed in their relation to their husbands, at the head of all the others married similarly to husbands of other surnames, wailed above in the hall, facing the north.

7. At the mourning rites (immediately after death) of a Great officer, the (son), presiding, knelt on the east, and the wife, presiding, on the west.

Notes

1 They were too much affected, it is said, to give loud expression to their grief.

Book 19 Section 2

31. The largest (or outermost) coffin of the ruler of a state was eight inches thick; the next, six inches; and the innermost, four inches. The larger coffin of a Great officer of the highest grade was eight inches thick; and the inner, six inches; for one of the lowest grade, the dimensions were six inches and four. The coffin of a common officer was six inches thick.

32. The (inner) coffin of a ruler was lined with red (silk), fixed in its place with nails of various metals; that of a Great officer with (silk of a) dark blue, fixed with nails of ox-bone; that of a common officer was lined, but had no nails. . . .

34. The (accumulated) hair and nails of a ruler and Great officer were placed (in bags) at the four corners of the coffin; those of an officer were buried (without being put in the coffin). . . .

36. Of scorched grain there were put by the coffin of a ruler eight baskets, containing four different kinds; by that of a Great officer, six baskets, containing three kinds; by that of a common officer, four baskets, containing two kinds. Besides these, there were (dried) fish and flesh.

37. Ornamenting the coffin (on its way to the grave), there were for a ruler the curtains with dragons (figured on them), and over them three gutter-spouts; the fluttering ornaments (with pheasants figured on them and the ends of the Curtains); above (on the sloping roof of the catafalque) were axe-heads, of the symbol of discrimination, thrice repeated, and of flames, thrice repeated. These occupied the pall-like roof of white silk, as embroidery, and above it was the false covering attached to it by six purple ties, and rising up with ornaments in five colours and five rows of shells. There were (at the corners) two streamers of feathers, suspended from a frame with the axes on it; two from another, bearing the symbol of discrimination; two from another, variously figured; all the frames on staffs, showing jade-symbols at the top. Fishes were made as if leaping at the ends of the gutters. The whole of the catafalque was kept together by six supports rising from the coffin, and wound round with purple silk, and six sustaining ropes, also purple (drawn through the curtains).

Book 20. The Law of Sacrifices

1. According to the law of sacrifices, (Shun)¹, the sovereign of the line of Yu, at the great associate sacrifice, gave the place of honour to Huang Di, and at the border sacrifice made Gu the correlate of Heaven; he sacrificed (also) to Guann xu as his ancestor (on the throne), and to Yao as his honoured predecessor...

2. With a blazing pile of wood on the Grand altar they sacrificed to Heaven²; by burying (the victim) in the Grand mound, they sacrificed to the Earth. (In both cases) they used a red victim³.

3. By burying a sheep and a pig at the (altar of) Great brightness, they sacrificed to the seasons. (With similar) victims they sacrificed to (the spirits of) cold and heat, at the pit and the altar, using prayers of deprecation and petition; to the sun, at the (altar called the) royal palace; to the moon, at the (pit called the) light of the night; to the stars at the honoured place of gloom; to (the spirits of) flood and drought at the honoured altar of rain; to the (spirits of the) four quarters at the place of the four pits and altars; mountains, forests, streams, valleys, hills, and mounds, which are able to produce clouds, and occasion winds and rain, were all regarded as (dominated by) spirits.

Notes

1 ... It is there said that in the idea of sacrifices (*ji*), which is here given, there is no indication of deprecation by means of them, and much less of atonement, but that they were merely expressions of gratitude. The character *ji* is one of those formed by combination of the ideas in its several parts. The *Shuo Wen Ji Zi*, the earliest Chinese dictionary, says that it is made up of two ideograms: the symbol for spiritual beings; and another, composed of and representing a right hand and a piece of flesh. Offerings of flesh must have been common when the character was formed ... 'To carry human affairs before the gods (i.e. spirits.) That which is the medium between, or brings together men and gods (spirits). To offer flesh in the rites of worship; to sacrifice with worship.'... The general idea symbolised by it is an offering whereby communication and communion with spiritual beings is effected.

2 On the blazing pile were placed the victim and pieces of jade; in the square mound were buried the victim and pieces of silk... Of course a 'pit' was formed in the mound to receive the offerings.

3 This was specially the colour of the victims under the Kan dynasty.

ji 祭
Spiritual beings 示
Right hand & flesh 肉又

Appendix 4

Proof Engines

Introduction

A List of Proof Engines

Introduction

Computer programs are available which will check whether a formula is well formed, and whether it is true using a truth table method or a semantic tree method. My experience of them has been that they are almost as difficult to learn how to use as it is difficult to learn the logic in the first place. Most professional logicians find them cumbersome, mainly because the number of variables and operators in formulae which human logicians need to deal with are few; for example, few propositional formulae of interest to pure logicians use more than p , q , and r . Once the basic shape of a law is understood it is easily expanded by substitution and will remain true or false according to whether the simple formula it is based upon is true or false.

However, applied logic is likely to involve long strings of argumentation with very many variables or constants; doing truth tables or tree proofs in your head and on paper would be very time consuming. Testing all the component parts of an aircraft to be sure that it is safe to fly has to be done methodically and in the proper order – some checks depend on others – and a logical description of such a programme of checks is long and complex; proof engine programs are indeed used for some aircraft testing routines. Similarly, a court case in which many different pieces of evidence are presented, many people are involved, and laws of different degrees of universality are cited, could give rise to very complex formulae when expressed in logical symbols. A proof machine might be an efficient way of arriving at the truth of the reasoning, and thus, if the facts were correct, at the truth of the matter.

The other use of proof machines is for teaching symbolic logic. This has probably been the main purpose for the creation of these programs to date, and they have certainly become more user-friendly and attractive since the advent of the internet and web-browsers. For example, some of the programs do not have their own proof ‘mechanisms’ built in but instead send the formula to be tested to the ‘home’ computer on the other side of the world, where the computations are done and the answer sent back, in seconds. Hans von Ditmarsch of Otago University maintains a web site devoted to information listing the logic teaching programs available on the web.

See: www.cs.otago.ac.nz/staffpriv/hans/logiccourseware.html

Most of the information about individual proof programs which are listed below is available through the web and is from Hans von Ditmarsch and his site, but the comments are mine.

Almost all the proof engines I have come across use some version of ‘infix’ notation – is is, after all, the main system of notation in use today, and it is the one which practically everyone coming to symbolic logic for the first time will be taught. However, getting such symbols as $\supset$ and $\diamond$ and all the Greek letters Π , Σ , ϕ , ξ , etc., from your English keyboard is not easy. Some of the most recently constructed, such as *Jape* have a small menu or, better still, a ‘virtual keyboard’ in a window on the screen which, when you click on it, prints the symbol you want at the cursor. Most proof engines use versions of infix (such as that of *The Logic Book* by Bergman, Moor and Nelson) with various other substitutes that can be built up from an ordinary keyboard; for example, instead of $\supset$ they sometimes use $\rightarrow$ (hyphen, greater than). Symbol switching is, I’m afraid, part of doing logic.

A short historical note:

In the late 1950s Richard Routley (later Richard Sylvan) of the Philosophy Department at VUW started building a computer to do logic proofs. It was made of cast-off telephone switching gear, mainly uni-selectors, the bits that used to click round when a number was dialled. It was mounted on a frame on wheels about the size of a tea-trolley. It did some test runs but the uni-selectors were old and unreliable. It was programmed to show a blue light if the formula you entered was not well formed, a red for contradictions, an amber for contingent results, and green for tautologies. When Richard left Wellington students tried to get it going properly, but when they too left it was pushed into a back room. Its fate thereafter I do not know.

A List of Proof Engines

Dr Hans van Ditmarsch

For this thesis Llewelyn Richards has edited out those entries least interesting to theologians and those unavailable on the World Wide Web.

EDUCATIONAL LOGIC SOFTWARE

Most of these programs, as they must, provide proof engines as part of their educational task, therefore the proof engines can be used independently of the teaching material. Last updated 6 August 2002. Maintained by Hans van Ditmarsch. Comments appreciated: hans@cs.otago.ac.nz.

1. *Bertie3*, <http://137.99.26.4/~wwwphil/software.html>

Functions : natural deduction in propositional and predicate logic

Platforms : Dos, Windows

Developer : Austen Clark, University of Connecticut USA

Email : austen.clark@uconn.edu

Book : Merrie Bergmann, Jim Moor, and Jack Nelson, *The Logic Book*, 2nd edition. McGrawHill 1992.

Comment by Llewelyn Richards: I would not recommend natural deduction as a useful method for the serious theologian to spend time upon. It smacks of the 'angels on pinheads' type of debates of the Middle Ages and the endless and very similar uninspiring discussions by Buddhists. Symbolic logics, brutally independent of meanings of the propositions they may have substituted into their formulae, are much clearer about what is good argument and what is not. See, instead of *Bertie3*, but by the same authors, *Twootie*, below.

2. *Twootie*, <http://137.99.26.4/~wwwphil/software.html>

Functions : computing truth (trees) in propositional and predicate logic

Platforms : Dos, Windows

Developer : Austen Clark, University of Connecticut USA

Email : austen.clark@uconn.edu

Books : Merrie Bergmann, Jim Moor, and Jack Nelson, *The Logic Book*, 2nd edition. McGrawHill 1992. Richard Jeffrey, *Formal Logic: Its Scope and Limits*, 3rd edition. McGraw-Hill 1991.

Comments by Llewelyn Richards: available as GNU Public Domain License software.

This is a good place to start if you have a DOS computer. Old fashioned in not having snazzy graphics, it has, nevertheless, a very simple set of ordinary keyboard equivalents for 'infix' symbols and is easy to use. Its way of laying out tree proofs is, thankfully, standard. It does not do truth tables, however.

The website has a homepage which explains what Twootie will do and links to instructions for getting the software downloaded from the web into your computer and invaluable notes on getting started. The software is in the 'public domain' meaning that anyone may use it, gratis, but users agree not to modify it without posting prominent notices on the modified version and never charging for the modified version's use.

Twootie is basically a teaching machine and will not do your proofs for you, but if you have been working through Bergmann, Moor and Nelson's *The Logic Book*, then, with the inside back cover open as a reminder, Twootie encourages you to do tree proofs using good practice. The instantaneous 'ticking' of correctly decomposed formulae and the line of helpful hints at the bottom of the screen when you make a mistake are very encouraging. Its use of colour is clear and helpful. Some steps are at first shrouded in mystery (How do you get rid of a menu which was useful but is now cluttering up the screen? How do you quit without closing the whole computer down? ...) but like all computer programmes you cannot break it by hitting keys, trial-and-error fashion, even if you do sometimes, in frustration, have to shut down, and start again.

Twootie does propositional and predicate logic trees but does not go on to modal logics, or relevance (intuitionist) logics, nor has it any facility for you to build other or new logics. It does not do natural deduction (its cousin programme *Bertie*, does this) nor truth tables nor proofs from axioms. Twootie uses just those symbols available on a typewriter of computer keyboard and its substitutions

for the special symbols of infix logic are very intuitive, for example $\supset$ for $\supset$ or $\rightarrow$, $\forall$ for $\forall$, and $\exists$ for $\exists$. Using uppercase letters for propositions ('atomic sentences') takes only a little while to get used to.

Because Twotie is a teaching tool rather than a proof machine it will not search for the correct proof tree 'decomposition rule' for you. A machine could easily do this since the decomposition rules are simply attached to single operators and their negations; for example 'conditional decomposition' splits $p \supset q$ into two branches both needing investigation, a $\neg p$ branch and a q branch. 'Negated conditional decomposition' splits $\neg(p \supset q)$ into two lines not needing further investigation, p and $\neg q$. However, most proof engines that do proofs automatically (Hans von Ditmarsch calls them 'Theorem Provers' below) take considerable understanding of what they are doing before they can be used successfully – just as calculators need an understanding of arithmetic in order to work them successfully.

3. *Boole*, <http://www-csli.stanford.edu/LPL/>
 Functions : truth tables
 Platforms : Windows, Apple
 Developers : John Etchemendy, Stanford University USA, Jon Barwise, Indiana University USA
 Email : Dave Barker-Plummer, dbp@csli.stanford.edu, or User Support, LPLbugs@csli.stanford.edu
 Book : John Etchemendy & Jon Barwise, *Language, Proof and Logic*. CSLI Publications, 2000.
 Comments by Llewelyn Richards: The book comes with the software: *Fitch*, *Boole*, *Tarski's World*, and a link back to California via the web called *Grade Grinder*. However, despite being available on two different platforms, some excellent graphical presentation, plus virtual keyboards, the book and the software have two major problems for the theologian or logician who just wants proofs done. The book goes with a course unique to Stanford which uses a quaint device for teaching elementary logic; unfortunately it needs explanation to the tyro by an instructor. *Boole*, which at first seems a most useful tool because it leaves calculations to the engine, in fact requires the learner to do the calculations and then merely checks them.
4. *Jape*, <ftp://ftp.dcs.qmw.ac.uk/programming/jape/index.html>
 Functions : natural deduction and sequent proof in classical predicate logic; plus various other logics and formal systems; plus user-defined logics
 Platforms : Apple, Unix, Linux
 Developers : Bernard Sufrin, Oxford University UK & Richard Bornat, QMW London UK
 Email : Bernard.Sufrin@comlab.ox.ac.uk, richard@dc.s.qmw.ac.uk
 Book : no
 Comment by Llewelyn Richards: I have used the Apple version. Although *Jape* is a very good looking and extendable program and has a 'virtual keyboard' window which makes writing formulae very easy, it is quite difficult to pick-up from cold. It uses a clever version of proof trees but assumes a great deal of preparatory experience of the moves that make tree proofs work. *Jape* is an acronym for 'just another proof editor', but this is by no means the case because of its looks and its further reaches. It praises its typeface designer, but being an Apple, the readability is poor overall. Why have Microsoft and Apple never caught up to Acorn in the art and science of typography on the screen?
5. *Logic Animations*, <http://turing.wins.uva.nl/~jaspars/animations/>
 Functions : semantic computations in propositional, predicate, dynamic, modal logic
 Platforms : web
 Developers : Jan Jaspars, Free-lance logician & University of Amsterdam, the Netherlands
 Email : jaspars@science.uva.nl
 Book : no
 Comments by Llewelyn Richards: mainly in Dutch, otherwise it looks very good as a teaching programme, and can be extended out to modal logic. An all-in-English version is promised.
6. *Logic Cafe*, <http://www.oakland.edu/phil/cafe/>
 Functions : truth tables, predicate logic arguments, online logic textbook with integrated web-based exercises.
 Platforms : web (Linux, Mac, public domain versions)
 Developers : John Halpin, Oakland University
 Email : halpin@oakland.edu
 Book : online

Comments by Llewelyn Richards : This is a very good looking site, excellent for anyone coming with very little experience with logic. Watch out for Americanisms: 'just in case' means 'just in the single case where...' and does not mean 'as a precaution' as in standard English. It asks you to download a special font which will change the key-stroke $>$ into $\supset$ and $\backslash$ into $\vee$ and so on. When you get to make proofs yourself it will check your proof and point out any mistakes helpfully.

7. *Logic Daemon*, <http://logic.tamu.edu/>
 Functions : natural deduction for predicate logic
 Platforms : web
 Developers : Colin Allen, Texas A & M University USA
 Email : colin-allen@tamu.edu
 Book : Colin Allen and Michael Hand, *Logic Primer* (2nd ed.). MIT Press 2001.
 Comments by Llewelyn Richards: ascii interface. Although this URL will get you to information about a book, *Logic Primer*, a link will take you on to the pages *Logic Daemon* where you may submit your attempts at tree proofs and they will be assessed for correctness and hints given about where you have gone wrong. Simple to use but only after you have learnt the basics from a tutor or the book.
8. *Logic for Fun*, <http://csl.anu.edu.au/~jks/puzzlesite/>
 Functions : expressing puzzles and other problems in first order logic
 Platforms : web
 Developer : John Slaney, Australian National University
 Email : John.Slaney@anu.edu.au
 Book : no
 Comments by Llewelyn Richards : Though the logic puzzles may be fun they are not presented in a way which anyone conversant with the logical systems in my thesis will understand without help.
9. *Logic Toolbox*, <http://philosophy.lander.edu/~jsaetti/Welcome.html>
 Functions : syllogisms, truth tables, natural deduction for propositional logic
 Platforms : web, windows
 Developers : John Saetti
 Email : john.saetti@gcccd.net
 Book : no
 Comments by Llewelyn Richards: Although the most easily accessible web pages are about Venn diagrams and Boolean processes, all in bright colours, the truth tables, and other useful engines lie behind huge microsoft files which have to be downloaded first. I have not been through this rigmarole.
10. *Logics Workbench*, <http://www.lwb.unibe.ch/>
 Functions : proof and computation in propositional logics (minimal, intuitionist, classical, modal, nonmonotonic, ...)
 Platforms : web, Apple, Linux, Solaris
 Developers : Gerhard Jäger (project leader), Peter Balsiger, Alain Heuerding, Stefan Schwendimann, University of Bern, Switzerland
 Email : lwb@iam.unibe.ch
 Book : extensive online manual
 Comments by Llewelyn Richards: this is a whole suite of engines that will check many different sorts of logic and can be customised to carry out different jobs, just give a result or show workings... Looks good, no special typeface to load, but again, not for beginners without help. It is immediately available.
11. *Paul Tomassi, Logic*, <http://www.oxford-virtual.com/Philosophy/Tomassi/>
 Functions : propositional and predicate logic
 Platforms : web
 Developers : Oxford Virtual Technology
 Book : Paul Tomassi, *Logic*, Routledge 1999.
 Comments : web tutor accompanying a textbook so not immediately available.
12. *Plato*, <http://www.utexas.edu/courses/plato/>
 Functions : proofs in propositional and predicate calculus
 Platforms : PC, Mac

Email : marcow@cs.utexas.edu , Robert C. Koons: rkoons@mail.utexas.edu

Book : Robert C. Koons, *A Logical Toolbox*, 2000.

Comments by Llewelyn Richards: not seen, only the home page is easily available, the software has to be downloaded, including a special typeface - which may well be a plus once it is running..

13. *Power of Logic*, <http://www.poweroflogic.com/>

Functions : various logical topics, proof checking

Platforms : web

Email : webmaster@poweroflogic.com

Book : C. Stephen Layman, *The Power of Logic* (2nd ed.), McGraw Hill.

Comments by Llewelyn Richards: you have to be logged in to the McGraw Hill company site to read more text than just chapter headings.

THEOREM PROVERS

Theorem provers are generally too complex to use for elementary logic education. However, interfaces to theorem provers may be quite user-friendly. Although some programs are basically quite simple they can handle complex problems; for example the program called *Prover* in the UK and *NP-Tools* in Sweden is written to prove propositional formulae only but can handle over a million variables in 30 minutes. This program is used for railway signals control, nuclear power plant inspections and for checking the control systems of Saab aircraft.

For more information about such programs see:

1. *Mechanized Reasoning Home Page*

<http://www-formal.stanford.edu/clt/ARS/ars-db.html>

maintained by Carolyn Talcott and Michael Kohlhase,

email: clt@sail.stanford.edu, kohlhase@cs.uni-sb.de

2. *WorldWide Web Virtual Library: Formal Methods*

<http://www.comlab.ox.ac.uk/archive/formal-methods.html>

maintained by Jonathan Bowen, email: jonathan.bowen@sbu.ac.uk

3. *Formal Methods Education Resources*

<http://www.cs.indiana.edu/formal-methods-education/>

maintained by Kathi Fisler, email: kfisler@cs.wpi.edu

OTHER LISTS OF EDUCATIONAL LOGIC SOFTWARE

1. Logic programs and teaching aids, theorem provers and languages

http://home.clara.net/ghrow/subjects/logic_software.html

maintained by George Row, email gh.row@usa.net

2. Newsletter on Philosophy and Computers

<http://www.apa.udel.edu/apa/publications/newsletters/computers.html>

3. Tim van Gelder's Critical Thinking on the Web

<http://www.philosophy.unimelb.edu.au/reason/critical/software.html>

4. Naoyuki Tamura's (tamura@kobe-u.ac.jp) web-based Linear Logic Prover

<http://bach.cs.kobe-u.ac.jp/llprover/>

also contains many references to other logic software lists

LOGIC EDUCATION PROJECTS AND RESEARCH

1. Association of Symbolic Logic: Committee on Logic Education
http://www.math.ufl.edu/~jal/asl/logic_education.html
David Gries' pages on teaching logic as a tool
2. A list to discuss logic education is maintained at Bucknell University, USA;
to subscribe to the list: send a message to: listserv@bucknell.edu containing the message subscribe
logic-l@bucknell.edu (once subscribed, you can send a message to the list: logic-l@bucknell.edu)
3. Carnegie Mellon curriculum on causal and statistical reasoning,
<http://www.phil.cmu.edu/projects/csr/>
provides online courseware in causal reasoning
4. The Self-Paced Logic Project
<http://www.sp.uconn.edu/~py102vc/selfpace.htm>
by Austen Clark, University of Connecticut USA,
email: austen.clark@uconn.edu

An Invented Religion in Recent Literature

General description of Quintarianism

Extract from Lois Bujold's *The Curse of Challion*

Logical problems of Quintarianism

General description of Quintarianism

Lois McMaster Bujold writes science fiction notable for its gradual shift over 14 titles from the usual fare of spaceships and shooting wars to power struggles, political ambition, and, surprisingly, the personal relationships and family life of her lively and likable characters. She has written two books in the 'fantasy' genre. The first, *The Spirit Ring*, is set in an early renaissance Italy and loosely incorporates a Benvenuto Cellini-like character; the religion is Catholicism plus some magic. The second, *The Curse of Challion* (published in 2001 by Eos: HarperCollins) is set perhaps a bit earlier, say 1300, in an imagined version of Spain. However, the usual plot of a princess in distress saved by a faithful retainer and handsome prince, turns – at every turn – on the Quintarian religion of this imagined land.

The Quintarian religion has five gods. They are a family set of Daughter (spring), Mother (summer), Son (autumn), Father (winter), and the Bastard, who has no season but is responsible for balance, and overlooks all things out of kilter, such as crime, orphans, homosexuals, and also evils, curses, and the wicked in general. There is, over the border in a warring state, a religion which denies the existence of the Bastard, tortures Quintarians, homosexuals and others and this is the Quadrene heresy.

The family of gods are responsible for more than just seasonal affairs. For example, the Son is the main god of hunting and war, the Daughter (they do not appear to have proper names) oversees health, doctoring, medicines, hospitals and care of the 'cursed', working against the more evil aspects of ill luck, destiny or fate. Every town has a temple with priests, one priest overseeing the duties of the others who are dedicated to the service of one or other of the five Gods. The temple always has a quatrefoil shape with four altars, and has an annex out the back with an altar to the Bastard. For each God there is a sort of private army, part police, part an order of knights, which adds to the convoluted politics by taking sides in the dynastic, regional and administrative power struggles. The Gods do not act in concert, nor against each other.

There are also ghosts (not under any sort of control), dæmons strictly controlled by the gods, fate and destiny are also present, and major curses hang over whole families. The gods' interference in people's lives is regarded as working mostly long term and not in particular instances, is seldom seen or noticed, difficult to recognise, and entirely dependent on the person allowing the specific god to take over. Thus free will is preserved and the gods are not at all controllable by gifts, bribes, sacrifices, or prayers. Prayers are seldom answered.

However, two signs of the gods' existence are quite clear and the only bits of 'magic' (apart from the curses) which make this a truly fantasy world rather than just a real world full of superstition. The first sign is that, at death, the soul of the person is taken by only one of the Gods. This is vouchsafed by what happens at a pre-burial ceremony: five wild animals, each representing one of the gods, are brought to the open coffin, and released; one animal remains on or beside the body, the rest scamper away or fly off. This happens every time, making it clear which god has taken the soul. The second sign is a form of kamikaze action or suicide-bombing: when justice is unobtainable otherwise for a major crime, for example, the murder of a wholly innocent person for political or monetary gain, then, if someone is willing to have the Bastard kill the criminal and willing to die at the same time, the Bastard will work the 'death miracle'. Thus 'miracle' deaths come in pairs, both deaths from some sort of internal rot, and in one night. The Bastard sends a dæmon who must carry the two souls off, imagined as in buckets balancing on a yoke.

This is a brief account of the beliefs of this imagined society, particularly those which have an important part to play in the lives of the characters, and in the plot, of this novel.

To give a taste of the sort of theological speculation which makes up a goodly portion of the thoughts of the faithful servant hero throughout the book there is, in Part 2 below, an extract from his musings as he takes part in a dawn service on the first day of spring – the Daughter's season – a day put aside for her worship and rituals. It is, by the way, interrupted at the end of this extract by the climax of the novel, involving the hero's third 'death' and miraculous (or very unlikely) recovery. The first death was from a flogging when he was a galley slave on a Quadrene ship. This punishment was for defending another slave, a young man who at the end of the book becomes the princess's husband. His second death was when he invoked the death miracle on himself on behalf of his mistress, the princess, who was being forced to marry the most unsavoury Dondo. The Daughter god intervenes, our hero is brought back to life, but Dondo's soul is still on earth, attended by the Bastards dæmon who requires a second soul to fill his other bucket. Three deaths by one selfless person will lift the curse of Challion. Good swash-buckling fantasy fare! Thank goodness the Daughter is on our hero's side.

Extract from Lois Bujold's *The Curse of Challion*

Pages 404 to 405, italics as in the original.

...

I'd storm heaven for you, if I knew where it was.

He knew where it was. It was on the other side of every living person, every living creature, as close as the other side of a coin, the other side of a door. Every soul was a potential portal to the gods.

I wonder what would happen if we all opened up at once? Would it flood the world with miracle, drain heaven? He had a sudden vision of saints as the gods' irrigation system, like the one around Zagotur; a rational and careful opening and closing of sluice gates to deliver each little soul-farm its just portion of benison. Except that this felt more like floodwaters backed up behind a cracking dam.

Ghosts were exiles upon the wrong border; people turned inside out. Why didn't it work the other way around? What would it be like to be an anti-ghost of flesh let loose in a world of spirit? Would one be frustratingly invisible to most spirits, impotent there, as ghosts were invisible to most men?

And if I can see ghosts sundered from their bodies, why can't I see them when they're still in their bodies? Had he ever tried? How many people were ranged around him right now? He closed his eyes and tried to see them in the dark with his inner sight. His senses were still confused by matter; somewhere in the outer rank of prayer rugs, someone started to snore, and was nudged awake with a startled grunt by a snickering companion. If only it worked that way, it would be like seeing through a window into heaven.

If the gods saw people's souls but not their bodies, in mirror to the way people saw bodies but not souls, it might explain why the gods were so careless of such things as appearance, or other bodily functions. Such as pain? Was pain an illusion, from the gods' point of view? Perhaps heaven was not a place, but merely an angle of view, a vantage, a perspective.

And at the moment of death, we slide through altogether. Losing our anchor in matter, gaining... what? Death ripped a hole between the worlds.

And if one death ripped a little hole in the world, quickly healed, what would it take to rip a bigger hole? Not a mere postern gate to slip out of; but a wide breach, mined and sapped, one that holy armies might pour in through?

If a god died, what kind of hole would it rip between earth and heaven? What was the Golden General's blessing-curse anyway, this exiled thing from the other side? What kind of portal had the Roknari genius opened for himself; what kind of channel had he been...?

Cazaril's swollen belly cramped, and he rolled a little sideways to give it ease. *I am a most peculiar locus at present.* Two exiles from the world of spirit were trapped inside his flesh. The demon, which did not belong here at all, and Dondo, who should have left but was anchored by his unrelinquished sins. Dondo did not desire the gods. Dondo was a clot of self-will, a leaden plug, digging into his body with claws like grappling hooks. If not for Dondo, he could run away.

Could I?

He imagined it . . . suppose this lethal anchor were suddenly and – ha – miraculously removed. He could run away... but then he'd never know how it might have worked out. *That Cazaril. If only he'd hung on another day, another mile he might have saved the world. But he quit just an hour too soon...* Now there was a

damnation to make the sundered ghosts seem a faint quaint amusement. A lifetime – an eternity? – of second-guessing himself.

But the only way ever to know for *certain* was to ride it out all the way to his destruction.

Five gods, I am surely mad. I believe I would limp all the way to the Bastard's hell for that frightful curiosity's sake.

Around him, he could hear the others breathing, the occasional little rustle of fabric. The fountain bubbled gently. The sounds comforted him. He felt very alone, but at least it was in good company.

Welcome to sainthood, Cazaril. By the gods' blessings, you get to host miracles! The catch is, you don't get to choose what they are....

Betriz had it exactly backward. It wasn't a case of storming heaven. It was a case of letting heaven storm you. Could an old siege-master learn to surrender; to open his gates?

Into your hands, O lords of light, I commend my soul. Do what you must to mend the world. I am at your service.

The sky was brightening, turning from Father Winter's gray to the Daughter's own fine blue. In the shadowed court, Cazaril could see the shapes of his companions begin to shade and fill with the light's gift of color. The scent of the orange blossoms hung heavily in the dawn damp, and more faintly, the perfume of Betrizz's hair. Cazaril pushed back up onto his knees, stiff and cold.

From somewhere in the palace, a man's bellow split the air; and was abruptly cut off. A woman shrieked.

...

Logic and Quintarianism

The logic of the Quintarian religion will be just as difficult as that of a monotheistic religion in some regards and less difficult in others.

As we have it here, there is a clear theology of free-will, which, it will be noted, allows people free choices but binds the gods – if a person does not allow a god to act then the god cannot act. The gods are not omnipotent. This is a more logical stance than DP theology in two respects, (a) predestination is ruled out, (b) the logical problems surrounding omnipotence, omniscience, and total goodness are ruled out. I am not sure that Bujold has followed this theology of free-will entirely consistently since fate and destiny are mentioned, and both smack of predestination. However, the gods have to work extremely slowly, waiting for the right person to come along, before they can overcome, for example, the curse in the book's title.

The mercy/justice illogicality does not occur in Quintarianism. It is said, by Cazaril and others, 'Do not pray for justice, you may get it, but pray for mercy.' In DP theology God has to work through his sense of justice in accomplishing his mercy to humankind, and the seamless garments of both justice and mercy are left rather tattered in the process. In the Quintarian religion justice is the lot for those who do not surrender their wills to the god, but mercy is given to those who do. The working out of these conclusions comes in the lifetimes of our heroes and heroines in the book, but for those before, and for the evil people in the book, how the dead are dealt with by the gods is not clear. Only the Bastard has, in his realm, a hell. Certainly fear of the afterlife does not feature in the preaching of Quintarian clergy and saints. But death is feared, or at least regretted, by almost everyone; it is a punishment for some, (much of the tension in the plot comes from attempted murders and death's ability to get unpleasant people out of the way of a happy ending); and definitely death is not good enough for the really nasty.

The logical status of ghosts is not clear from the parts of the story in which they appear, and would need some work, though the difference between ghosts and dæmons is made clearly.

There is no cosmology in *The Curse of Chalion*. None of the five gods seems especially fitted to be a creator. Perhaps the five gods came into being with the 'causeless' creation science has proposed for our twenty-first century. However, the theoretical theologians of invented religions, like the Baker Street Irregulars who find new 'facts' every day about Sherlock Holmes, could start a debate and propose rival cosmologies for Quintarians and Quadrenes.

The powerful 'suffering servant' story is a most important part of the plot of *Chalion*, and carries its strong moral message, pointing to the highest human good action, as gifted to the West by Christianity. However, in the minds of many people in the West today there still lingers a magical, irrational, element in

the way the gift of a selfless life-giving action is efficacious. To lay down your life for your fellows can mean a lifetime of doctoring in the Congo, or it can mean a single action such as throwing yourself on an exploding grenade to protect your buddies. In a fantasy world (and I would include the world lived in by all present day believers in spirits and interfering deities) there is some magical reward for the exploded soldier: for the Christian, Muslim or Jew it may be a new life in heaven or on a new earth; for the Hindu it may be a better reincarnation; in the world of science fiction it may be spectacularly good reconstructive surgery; and in the world of fantasy fiction the intervention of a god who can prevent a dæmon carrying off your soul. None of these rewards are to my mind logically satisfying, especially if they are part of the motive for the single good, though suicidal, act. They take the edge off the unselfish goodness. A logic which distinguishes between selfish and unselfish acts looks like a good thing to add to any Deontic logic, and already a logic of supererogation which may head in this direction has been outlined by Mares and McNamarra (1997).

Our hero, Cazaril, in his acts which lead to his own deaths, acts unselfishly. In fact all death-miracles engineered by the Bastard are also unselfish; temple staff who investigate possible cases of death-miracle make that the first sign that a murder has not in fact been disguised as a death-miracle. Also an attempt to lift the curse by *forcing* someone to drown three times and resuscitating him, failed at the third try. The gods will not be coerced. The highest morality is thus endorsed in Bujold's book, but so is magic, which is a pity. Of course the suffering servant who spends a whole life in service does not fit easily inside the covers of an adventure story which must, and thankfully so, end happily ever after.

I would be happy to hear from anyone attempting to look at the theology of Quintarianism more closely. E-mail: LLyn@paradise.net.nz

Appendix 6

Crib

Page	Polish	Infix
11.	$CpCqp$	$p \supset (q \supset p)$
23.	$CKCpqpq$	$((p \supset q) \& p) \supset q$
27.	$CCpqCNqNp$	$(p \supset q) \supset (\sim q \supset \sim p)$
32.	5.	$(\forall x) \sim (\phi x) \supset (\exists x) \sim (\phi x)$
33.	$F6.$	$(p \supset q) \& (\sim p \supset \sim q)$
	6.	$(q \equiv p) \supset (\sim p \supset \sim q)$
	Cpq	$p \supset q$
34.	$CKApAqrKNpNqr$	$(p \vee (q \vee r) \& (\sim p \& \sim q)) \supset r$
35.	$CqCpq$	$q \supset (p \supset q)$
39.	1.	$(\forall x) (\forall p) ((Sxp \& (Sx \sim Bxp))$
	2.	$(\forall x) (\forall p) (\forall y) ((Sxp \& (Sy \sim Bxp))$
	3.	$(\forall x) (\forall p) ((Sxp \& (Sx \sim Bxp)) \supset (\exists q)(Sxq \& \sim Bxq) \vee (\exists q)(Sx(\sim p \& q)$
50.	$CNOpFp$	$\sim Op \supset Fp$
	$CKNFpNOpPp$	$(\sim Fp \& Op) \supset Pp$
53.	$PL. 4.2$	$(\forall x) (\forall y) \phi xy \supset \sim ((\forall x) (\forall y) \phi \sim xy)$
	$CpNNp$	$p \supset \sim \sim p$
54.	$PL. 5.1$	$(\forall x) (\psi x \supset \phi ax) \supset (\psi b \supset \phi ab)$
	$Theol. 6.1$	$(\forall x) \psi x \supset \phi gx$
	$PL. 5.1$	$(\forall x) (\psi x \supset \phi gx) \supset (\psi b \supset \phi gb)$
	6.2	$\psi b \supset \phi gb$
55.	$Theol. 8.1$	$(\forall x) (\beta x \supset \gamma x)$
	$Nth. 8.2$	βa
	$Theol. 8.3$	$\beta a \supset \gamma a$
	$Theol. 8.4$	γa
	$LL. 3$	$((p \supset q) \supset ((r \supset p) \supset (r \supset q))$
62.	Kpq	$p \& q$
	$CCKpqrKCprCqr$	$((p \& q) \supset r) \supset ((p \supset r) \& (q \supset r))$
65.	$FR1$	$(p \& q) \supset r$ [and similarly for Fr2, 3; Er7, 8, 9]
	$FR4$	$\sim ((t \& u) \supset p)$ [and similarly for Fr5, 6; Er10, 11, 12]
66.	5.	$\sim ((p \& q) \supset t)$
	$LCps$	$L(p \supset s)$
	$LCNps$	$L(\sim p \supset s)$
68.	$Nth. 7.1.1$	$(\forall x) (O\phi x \equiv (L(\sim \phi x \equiv O\psi x))$
	$Theol. 7.2.1$	$(\forall x) (O\phi x \equiv (L(\sim \phi x \equiv O\theta x))$
	$Theol. 7.2.2$	$(\forall x) (O\theta x \supset O\psi x)$
74.	$CCpqCCqrCpr$	$((p \supset q) \supset ((q \supset r) \supset (p \supset r)))$ [the syllogism, Syll. for short]

	$CCqqCCqrCqr$	$((q \supset q) \supset ((q \supset r) \supset (q \supset r)))$
	Cpq	$p \supset q$
	Cpp	$p \supset p$ [the law of Identity, Id. for short]
75.	$\alpha, C\alpha\beta \rightarrow \beta$	$\alpha, (\alpha \supset \beta) \rightarrow \beta$
	1.	$p \supset p$
	2.	$(p \supset p) \supset (p \supset (q \supset p))$
	3.	$p \supset (q \supset p)$
76.	Axiom 1.	syll.
	Axiom 2.	$((p \supset q) \supset p) \supset p$ [the law called Peirce]
	Axiom 3.	$p \supset (q \supset p)$ [the paradox of material implication, called Paradox]
	4.	$((p \supset (q \supset p)) \supset ((q \supset p) \supset r) \supset (p \supset r))$
	5.	$((q \supset p) \supset r) \supset (p \supset r)$
	6.	$((p \supset q) \supset p) \supset p$
	7.	$p \supset p$
	$Apq = CNpq$	$(p \vee q) \leftrightarrow (\sim p \supset q)$
	$Kpq = NCpNq$	$(p \& q) \leftrightarrow \sim (p \supset \sim q)$
	$Epq = KCpqCqp$	$(p \equiv q) \leftrightarrow (p \supset q) \& (q \supset p)$
77.	$C\Pi p p \Sigma p p$	$(\forall x)p \supset (\exists x)p$
	$\Pi x\phi x$	$(\forall x)\phi x$
	$\Pi xC \phi x \psi y$	$(\forall x)(\phi x \supset \psi y)$
	$\Pi xyC \phi x \psi y$	$(\forall x)(\forall y)(\phi x \supset \psi y)$
	$C \Pi x\phi x \Sigma x \psi x$	$((\forall x)\phi x) \supset ((\exists x)\psi x)$
78.	Rule $\Pi 1$	$\phi x \supset \beta \rightarrow ((\forall x)\phi x) \supset \beta$
	Rule $\Pi 2$	$\alpha \supset \phi x \rightarrow (\alpha \supset (\forall x)\phi x)$
	Rule $\Sigma 1$	$\phi x \supset \beta \rightarrow (\exists x)\phi x \supset \beta$
	Rule $\Sigma 2$	$\alpha \supset \phi x \rightarrow (\alpha \supset (\exists x)\phi x)$
	$^FCK\Pi x\phi x \Sigma x\psi x A\psi a\psi b$	$((\forall x)\phi x \& (\exists x)\psi x) \supset (\psi a \vee \psi b)$ [false]
	$CK\Pi x\phi x \Sigma x\psi x A\psi a\psi b$	$((\forall x)\phi x \& (\exists x)\psi x) \supset (\psi a \vee \psi b)$
	$\Pi xyC\gamma xC\beta y\lambda xy$	$(\forall x)(\forall y)(\gamma x \supset (\beta y \supset \lambda xy))$
	$\Pi yxC\gamma xC\beta y\lambda xy$	$(\forall y)(\forall x)(\gamma x \supset (\beta y \supset \lambda xy))$
	$\Pi xC\gamma xC\beta \lambda xb$	$(\forall x)(\gamma x \supset (\beta y \supset \lambda xb))$
	$\Sigma yK\beta y\lambda cy$	$(\exists x)(\beta y \& \lambda cy)$
79.	$\Pi xC\phi x\Pi yC\psi y\theta xy$	$(\forall x)(\phi x \supset ((\forall y)(\psi y \supset \theta xy)))$
	$\Pi xC\phi x\Sigma yK\psi y\theta xy$	$(\forall x)(\phi x \supset ((\exists y)(\psi y \& \theta xy)))$
	$\Sigma xK\phi x\Pi yC\psi y\theta xy$	$(\exists x)(\phi x \& ((\forall y)(\psi y \supset \theta xy)))$
	$\Sigma xK\phi x\Sigma yK\psi y\theta xy$	$(\exists x)(\phi x \& ((\exists y)(\psi y \& \theta xy)))$
80.	Kpq	$p \& q$
	$\mathfrak{J}pq$	$p \downarrow q$
	Cpq	$p \supset q$
	Cqp	$q \supset p$
	6.	$p \supset Bp$

81.	7.	$(p \& q) \supset (q \& p)$
	8.	$(\forall x) O \sim \phi x$
82.	For ants	$(\forall y) ((\exists x) O \theta xy \& (\exists x) F \theta xy)$
	For People	$((\forall x) (\forall y) P \theta xy) \& ((\exists x) (\exists y) O \theta xy)$
	CpMp	$p \supset Mp$
83.	K.	$L(p \supset q) \supset (Lp \supset Lq)$
	T.	$Lp \supset p$
	D.	$Lp \supset Mp$
84.	K3.	$LL (\forall x) \phi x$
	S4.	$Lp \supset LLp$
	S5.	$Mp \supset LMp$
	K4.	$L (\forall x) \phi x$
	K5.	$LMLLM (\forall x) \phi x$
	K6.	$M (\forall x) \phi x$
	DK1.	$(O(p \supset q)) \supset (Op \supset Oq)$
85.	D1.	$Lp \supset Mp$
	DD1.	$Op \supset Pp$
	DT1.	$Op \supset p$
89.	1.	$((p \supset q) \supset ((q \supset r) \supset (p \supset r)))$ [syll.]
	2.	$(\sim p \supset p) \supset p$
	3.	$p \supset (\sim q \supset p)$
	Definitions: see p. 7 entry above	
90.	K.	$L(p \supset q) \supset (Lp \supset Lq)$
	KD.	$O(p \supset q) \supset (Op \supset Oq)$
	D.	$Lp \supset Mp$
	DD.	$Op \supset Pp$
	$Pp =_{df} NONp$	$Pp \leftrightarrow \sim O \sim p$
	$Fp =_{df} ONp$	$Fp \leftrightarrow O \sim p$
	KD1.	$O(Op \supset p)$
	KD2.	$Op \supset Pp$
	KD3.	$O(p \supset q) \supset (Op \supset Oq)$
	KD4.	$L(p \supset q) \supset (Op \supset Oq)$
	COpp	$Op \supset p$
91.	KDD1.	$Lp \supset Pp$
	KDD2.	$Op \supset Mp$
	KD5.	$L(p \supset p)$
	1.	Syll.
	1.1.	$(p \supset (\sim p \supset q)) \supset (((\sim p \supset q) \supset r) \supset (p \supset r))$
	1.2.	$((\sim p \supset q) \supset r) \supset (p \supset r)$
	1.3.	$((\sim p \supset p) \supset p) \supset (p \supset p)$
	4.	$p \supset p$

	5.	$L(p \supset p)$
	KD6.	$Lp \supset L(q \supset p)$
	KD7.	$Lp \supset (Op \supset Op)$
	KD8.	$Lp \supset p$
92.	KD9.	$Lp \supset Pp$
	KD10.	$(\sim P \sim p) \supset (\sim L \sim p)$
	KD11.	$Op \supset (\sim L \sim p)$
	KD12.	$Op \supset Mp$
	$Fp = LCps$	$Fp \leftrightarrow L(p \supset s)$
	$Op = LCNps$	$Op \leftrightarrow L(\sim p \supset s)$
	$LCNps = LCNsp$	$L(\sim p \supset s) \leftrightarrow L(\sim s \supset p)$
93.	$Op = LCNsp$	$Op \leftrightarrow L(\sim s \supset p)$
	$Op = LCep$	$Op \leftrightarrow L(e \supset p)$
	KD13.	$L(p \supset (q \supset r)) \supset (L(p \supset q) \supset L(p \supset r))$
	=	$L(e \supset (q \supset r)) \supset (L(e \supset q) \supset L(e \supset r))$
	=	$O(p \supset q) \supset (Op \supset Oq)$
	KD6.	$Lp \supset L(q \supset p)$
	=	$Lp \supset L(e \supset p)$
	= KD8.	$Lp \supset Op$
	KD2.	$Op \supset Pp$
	$Pp =_{df} MKep$	$Pp \leftrightarrow M(e \& p)$
	KD2.2	$L(e \supset p) \supset M(e \& p)$
	$CLNpLCpq$	$L(\sim p \supset L(q \supset r))$
	KD2.3	Me
94.	KD15.	$L(p \supset q) \supset ((L((q \supset r)) \supset (L(p \supset r)))$
	KD16.	$L(p \supset q) \supset ((L((q \supset s)) \supset (L(p \supset s)))$
	KD17.	Oe
95.	4.	$p \supset p$
	KD4.1	$L(p \supset q)$
	KD4.2 LCee	$L(e \supset e)$
96.	KD2.	$Op \supset Pp$
97.	QKD2.1	$O\phi x \supset P\phi x$
	QKD2.2	$(\forall x) O\phi x \supset (\forall x) P\phi x$
	QKD2.3	$(\forall x) O\phi x \supset (\exists x) P\phi x$
	QKD2.4	$(\forall x) O\phi x \supset P\phi a$
	Πp	$(\forall p)$
98.	Th1.	$X(Xp \supset p)$
	Th2.	$Xp \supset Yp$
	Th3.	$X(p \supset q) \supset (Xp \supset Xq)$
	Th4.	$L(p \supset q) \supset (Xp \supset Xq)$
99.	KT1.	$Lp \supset p$

	DT1.	$Op \supset p$
	KD8.	$Lp \supset Op$
	KD12.	$Op \supset Mp$
100.	ThT1.	$Xp \supset p$
	FCpXp	$p \supset Xp$ [false]
	Th8.	$Lp \supset Xp$
101.	Th7.	$Xp \supset Mp$
	Th20.	$X\sim p \supset \sim p$
102.	$Fp = ONp = LCps$	$Fp \leftrightarrow ONp \leftrightarrow L(p \supset s)$
	Op	$L(\sim p \supset s)$
	$=$	$L(\sim s \supset p)$
	$=$	$L(e \supset p)$
	$Mp = {}_{df}NLNp$	$Mp \leftrightarrow \sim L\sim p$
103.	Th1.	$X(Xp \supset p)$
	Th2.	$Xp \supset Yp$
	Th3.	$(X(p \supset q)) \supset (Xp \supset Xq)$
	Th4.	$Xp \supset XXp$
	Th5.	$Yp \supset XYp$
	Th6.	$Xp \supset p$
	Th7.	$Xp \supset Mp$
	Th8.	$Lp \supset Xp$
	L1.	$L(p \supset (L(p \supset q) \supset q))$
	L1.1	$L(h \supset (L(h \supset q) \supset q))$
	L2.	$L(p \supset (q \supset r)) \supset (L(p \supset q)) \supset (L(p \supset r))$
	L2.1.	$L(h \supset (p \supset q)) \supset (L(h \supset p)) \supset (L(h \supset q))$
	L3.	$Lp \supset (L(p \supset q))$
	L3.1	$Lp \supset (L(h \supset q))$
	L4.	$Lp \supset p$
	$Xp = LChp$	$Xp \leftrightarrow L(h \supset p)$
	$Yp = NXNp = NLChNp$	$Yp \leftrightarrow \sim X\sim p \leftrightarrow \sim L(h \supset \sim p)$
	$Yp = MKhp$	$Yp \leftrightarrow M(h \& p)$
104.	Th.2.1	$(L(h \supset p)) \supset (M(h \& p))$
	$CXpYp$	$Xp \supset Yp$
	Th9.	Mh
	Oe	Oe
	Xh	Xh
105.	$LCee$	$L(e \supset e)$
	$LChh$	$L(h \supset h)$
	Th.10.	$(\forall p)(Xp \supset p) \supset h$
	Th.11	$h \supset (\forall p)(Xp \supset p)$
	$h = \Pi pCXpp$	$h \leftrightarrow (\forall p)(Xp \supset p)$

119. DP1. $(\forall x)\mu gx$
 DP2. $(\forall x)(\exists z)((\pi x \& \theta z) \supset X\mu xz)$
120. DP3. $(\exists z)(\forall x)((\pi x \& \theta z) \supset X\mu xz)$
 DP4. $(\forall x)(\exists y)(\exists z)((\pi x \& \pi y) \& \theta z) \supset (\sim P\mu xz \& \mu xz) \supset Oyx y$
 DP5. $(\forall x)(\exists y)(\exists z)((\pi x \& \pi y) \& \theta z) \supset (P(\psi xy \& \sim \psi xy))$
 DP6. $((\forall x)(\exists z)((\pi x \& \theta z) \supset (Z\mu xz)) \supset \psi gg$
126. Ont. 1. $((p \supset q) \& q) \supset p$ [false]
 L1. - 3 See p. 74 entry above, Axioms 1 - 3.
 G1.1 $Ga \supset (\sim Ga \supset q)$
 G1.2 $p \supset (\sim p \supset Ga)$
127. Cpp $p \supset p$
 CpCqCNEpqKpq $p \supset (q \supset ((\sim (p \equiv q)) \supset (p \& q)))$
129. $\Pi x Ixx$ $(\forall x)(x = x)$
130. $SxKfxPyIyx$ $(\forall x) \phi x \& ((\forall y) y = x)$
 Epq $p \equiv q$
 C $\phi x \Pi x \phi x$ $\phi x \supset ((\forall x) \phi x)$
 EEpqEEprErq $((p \equiv q) \equiv (p \equiv r)) \equiv (r \equiv q)$
131. Epp $p \equiv q$
 EEpqEqp $(p \equiv q) \equiv (q \equiv p)$
 EEpqEEqrEpr $((p \equiv q) \equiv (q \equiv r)) \equiv (p \equiv r)$
 $\Pi p p$ $(\forall p) p$
 $o =_{df} \Pi p p$ $o \leftrightarrow (\forall p) p$
 $Np =_{df} Eop =_{df} E p o$ $\sim p \leftrightarrow (o \equiv p) \leftrightarrow (p \equiv o)$
 $\Pi p NEp Np$ $(\forall x) \sim (p \equiv \sim p)$
132. Does [Id.] follow from [Peirce] and [Paradox] and [Syll.]?
139. $Fp = ONp$ $Fp \leftrightarrow O \sim p$
 $Pp = NONp$ $Pp \leftrightarrow \sim O \sim p$
 M1. $(\forall x) O\phi x$
140. KD1.1 $(O(\forall x)(\phi x \supset \psi x)) \supset ((\exists x)(O\phi x \supset O\psi x))$
 KD1.2 $(\forall x)((\phi x \supset \psi x) \supset (O\phi x \supset O\psi x))$
 M2. $(\forall x)(\phi x \supset \psi x) \supset (\exists x)(\phi x \supset \psi x)$
141. CCpqCCpq $(p \supset q) \supset (p \supset q)$
 Cpp *Id.*
 KD3. $(O(a \supset b)) \supset (Oa \supset Ob)$
142. K1. $L(p \supset q) \supset (Lp \supset Lq)$
 Ki2. $L(p \supset p)$
 Ki3. $L(Lp \supset Lp)$
 Ki4. $L(Lp \supset q) \supset (LLp \supset Lq)$
 Ki5. $L(LLp \supset q) \supset (LLLp \supset Lq)$
 Ki6. $L(LLMp \supset q) \supset (LLLMP \supset Lq)$
 Ki7. $L(LLMMp \supset q) \supset (LLLMMp \supset Lq)$

- D., T., S4., S5., [see entries for pp.83-84 above]*
145. DB1. $(\forall x)L\alpha \supset L(\forall x)\alpha$
 DB1. [expanded] $(\forall x)L\phi x \supset L(\forall x)\phi x$
 $\Pi x C\phi x L\phi x$ $(\forall x)(L\phi x \supset L\phi x)$
146. *T. and DT, [see entries for p. 83 and p.85 above]*
147. *Note 4. [see entries for p.131 above]*
148. CLCKabcCKaObOc $(L((a \& b) \& c) \supset ((a \& Ob) \supset Oc)$
 AN**S**bOb**P**aCaOa $(\sim (\exists b)Ob) \vee ((\forall x)(a \supset Oa))$
149. COaOOa $Oa \supset OOa$
 CNOaONa $O\sim a \supset O\sim Oa$
 CPaOPa $Pa \supset OPa$
 OCOaa $O(Oa \supset a)$
154. A1. $((p \& q) \& r) \supset s$
 A2. $((p \& q) \& r) \supset s \supset (\sim s \supset \sim ((p \& q) \& r))$
155. A3. $(p \supset q) \supset (\sim q \supset \sim p)$ [transposition]
 A4. $((\phi x \& \psi x) \& \xi x) \supset \xi s \supset (\sim \xi s \supset \sim ((\phi x \& \psi x) \& \xi x))$
 A5. $(\forall x)((\phi x \& \psi x) \& \xi x) \supset \xi s \supset (\sim \xi s \supset \sim ((\phi x \& \psi x) \& \xi x))$
 A6. $(\forall x)((\phi x \& \psi x) \& \xi x) \supset \xi s \supset (\sim \xi s \supset (\exists x)(\sim ((\phi x \& \psi x) \& \xi x)))$
 A7. $(\forall x)((\phi x \& \psi x) \& \xi x) \supset \xi s \supset (\sim \xi s \supset (\forall x)(\sim ((\phi x \& \psi x) \& \xi x)))$
156. A8. $(\forall x)((\phi x \& \psi x) \& \xi x) \supset (\forall s)\xi s \supset$
 $(\sim (\exists s)\xi s \supset (\forall x)(\sim ((\phi x \& \psi x) \& \xi x)))$
 A8. [simplified] $(\forall x)((\phi x \& \psi x) \& \xi x) \supset (\forall s)\xi s \supset$
 $(\sim (\exists s)\xi s \supset (\sim ((\phi x \& \psi x) \& \xi x))))$
158. A3. [transposition]
 A9. $(p \supset \sim q) \supset (q \supset \sim p)$
 A10. $(\forall x)\phi gx \supset \sim (\exists x)(\exists y)(\psi y \& \phi yx)$
 A11. $(\forall x)\phi gx \supset \sim (\exists x)(\exists y)(\psi y \& \phi yx) \supset$
 $(\sim (\forall x)\phi gx \supset (\exists x)(\exists y)(\psi y \& \phi yx))$
 A12. $\sim (\forall x)\phi gx \supset (\exists x)(\exists y)(\psi y \& \phi yx)$
159. A13. $(\forall x)(\phi x \supset \kappa gx) \supset (\forall y)(\beta y \& \kappa gx)$
 A3. [transposition]
 A14. $(\forall x)(\phi x \supset \kappa gx) \supset (\forall y)(\beta y \& \kappa gx) \supset$
 $(\sim (\forall y)(\beta y \& \kappa gx) \supset (\sim (\forall x)(\phi x \supset \kappa gx)))$
 A15. $(\sim (\forall y)(\beta y \& \kappa gx)) \supset (\sim (\forall x)(\phi x \supset \kappa gx))$
160. A16. $(\forall x)(\delta gx \supset \gamma x)$
 A17. $((\forall x)(\delta gx \supset \gamma x)) \& ((\exists x)\sim \delta gx)$
 A18. $(\forall x)(\pi gx \supset \gamma x)$
 A19. $(\exists y)(\beta y \& \pi gy)$
 A20. $(\forall x)((\exists y)(\pi xy \& \beta y)) \supset ((\exists z)(\delta xz \& \beta z))$
 A21. $(\exists y)(\pi gy \& \beta y) \supset (\exists z)(\delta gz \& \beta z)$
 A22. $(\exists z)(\delta gz \& \beta z)$

162.	A3.	[transposition]
165.	$ApNp$	$p \vee \sim p$
	$\mathfrak{f}$	$\downarrow$
	$\mathfrak{f}pNp$	$p \downarrow \sim p$
166.	N, K, C, A	$\sim, \&, \supset, \vee$
	$Apq = CCpqq$	$p \vee q \leftrightarrow (p \supset q) \supset q$
167.	Cpq	$p \supset q$
	$NKpNq$	$\sim (p \& \sim q)$
168.	W1.	Syll.
	W2.	Paradox
	W3.	$((p \supset \sim p) \supset p) \supset p$
	W4.	$((\sim p \supset \sim q) \supset (q \supset p))$
	$Apq =_{df} CCpqq$	$p \vee q \leftrightarrow (p \supset q) \supset q$
	Cpp	$p \supset q$
	$NCpp$	$\sim (p \supset q)$
169.	W5.	$Tp \supset \sim Tp$
	W6.	$\sim Tp \supset Tp$
	Om1.	$(\forall p)(p \supset \phi p)$
170.	Om1.1.	$(\forall p)(1 \supset \phi 1)$
	Om1.2.	$(\forall p)(\frac{1}{2} \supset \phi \frac{1}{2})$
	Om2.	$(\forall p)(\frac{1}{2} \supset \phi 0)$
	Om3.	$(\forall p)(0 \supset \phi 0)$
	Om4.	$((1 \supset \phi 1) \& (\frac{1}{2} \supset \phi \frac{1}{2})) \& (0 \supset \phi 0)$
	$KKC11C\frac{1}{2}0C00$	$((1 \supset 1) \& (\frac{1}{2} \supset 0)) \& (0 \supset 0)$
	$KK1\frac{1}{2}1$	$((1) \& (\frac{1}{2})) \& (1)$
	$K\frac{1}{2}1$	$\frac{1}{2} \& 1$
171.	$\Pi pCp\psi p$	$(\forall p)(p \supset \psi p)$
	$KKC1\psi 1C\frac{1}{2}\psi \frac{1}{2}C0\psi 0$	$((1 \supset \psi 1) \& (\frac{1}{2} \supset \psi \frac{1}{2})) \& (0 \supset \psi 0)$
	$KKC11C\frac{1}{2}0C00$	$((1 \supset 1) \& (\frac{1}{2} \supset 0)) \& (0 \supset 0)$
	$KK1\frac{1}{2}1$	$((1) \& (\frac{1}{2})) \& (1)$
	$K\frac{1}{2}1$	$\frac{1}{2} \& 1$
172.	A1.	$((p \& q) \& r) \supset s$
173.	A1.1	$((p \& q) \& r) \supset \sim s$
	A2.2	$((p \& q) \& r) \supset \sim s \supset (\sim \sim s \supset (\sim ((p \& q) \& r)))$
	A2.3.	$((p \& q) \& r) \supset \sim s \supset (s \supset (\sim ((p \& q) \& r)))$
	A2.4	$((p \& q) \& r) \supset \sim s \supset (s \supset ((\sim p \vee \sim q) \vee \sim r))$
175.	3-valued $ApNp$	$p \vee \sim p$
	becomes $CCpNpNp$	$(p \supset \sim p) \supset \sim p$
178.	RC1.	$p \supset (q \vee p)$
188.	${}^FTp1.$	$\phi xw \supset \psi yz$ [false]
	${}^FTp2.$	$((\forall x)F\phi xw \& \psi yz) \supset O\psi yz$ [false]

	<i>Theo3.</i>	$(F(\forall x)(\forall w)\phi xw \ \& \ (\exists x)(\exists w)\psi xw) \supset O\psi jg$
	<i>Trp4.</i>	$(\exists x)(\exists w)(\exists y)(\exists z)((F\phi xw \ \& \ \phi xw) \supset O\psi yz)$
190.	<i>Trp5.</i>	$\sim ((\exists x)(\exists w)(\exists y)(\exists z)((F\phi xw \ \& \ \phi xw) \supset O\psi yz))$
	<i>Theo4.</i>	$\sim (((\forall x)(\forall w)F\phi xw \ \& \ (\exists x)(\exists w)\phi xw) \supset O\psi jg)$
191.	<i>Theo5.</i>	$(F(\forall x)(\forall w)\phi xw \ \& \ ((\exists x)(\exists w)\phi xw)) \supset O\psi jg$
	<i>Theo6.</i>	$((\forall x)F\phi x \ \& \ (\exists x)\phi x) \supset O\psi g$
205.	<i>Sy4.1</i>	$(\forall x)(\psi x \supset (\exists y)\theta y \ \& \ \phi y)$
	<i>Sy4.2</i>	$(\forall x)(\phi x \supset \psi xu)$
206.	<i>Sy4.3</i>	$(\forall x)((\phi x \supset \psi xu) \supset (\phi x \supset \psi xu))$
	<i>Sy4.4</i>	$((\forall x)(\phi x \supset \psi xu) \supset ((\exists x)(\phi x \supset \psi xu))$
223.	<i>LChp</i> = _{df} <i>Xp</i>	$L(h \supset p) \leftrightarrow Xp$
224.	<i>Xa</i> = _{df} <i>LCha</i>	$Xa \leftrightarrow L(h \supset a)$
	<i>Xφx</i> = _{df} $\Pi x LCh\phi x$	$X\phi x \leftrightarrow (\forall x)L(h \supset \phi x)$
225.	<i>St.1.1</i>	$\delta y \supset (\exists y_1 \dots y_n) \beta g y_1 \dots y_n$
	<i>St.1.2</i>	$\beta g a_1 \dots a_n$
	<i>St.2.1</i>	$(\forall x)(\sigma x \supset O \sim \tau x)$
226.	<i>St.3.1</i>	Mh
	<i>St.4.1</i>	$(\forall x)(\pi x \supset O \xi x h)$
248.	<i>Xp</i> = _{df} <i>LChp</i>	$Xp \leftrightarrow L(h \supset p)$
	<i>Xφx</i> = _{df} $\Pi x LCh\phi x$	$X\phi x \leftrightarrow (\forall x)L(h \supset \phi x)$
	<i>ThP1.</i>	$(\forall x)(X(X\phi x \supset \phi x))$
	<i>ThP2.</i>	$(\forall x)(X\phi x \supset Y\phi x)$
	<i>ThP3</i>	$(\forall x)(X\phi x \supset \sim X \sim \phi x)$
	$\Pi x \phi x$	$(\forall x)\phi x$
	$\phi \Pi x x$	$\phi(\forall x)x$
257.	<i>Th2.</i>	$(\forall x)(Xp \supset Yp)$
	<i>Th1.</i>	$(\forall x)(Xp \supset p)$
271.	<i>Sp1.</i>	$p \equiv q$
272.	<i>Sp2.</i>	$((\forall x)F\phi xg \equiv (\exists x)\phi gx)$
	<i>Sp3.</i>	$a \varepsilon b$
	<i>Sp4.</i>	$(a \varepsilon b) \supset (a \varepsilon a)$
	<i>Sp5.</i>	$(a \varepsilon \kappa b) \supset (a \varepsilon a)$
	<i>Sp6.</i>	$(a \varepsilon kb) \supset (\forall c)((c \varepsilon b) \supset (c \varepsilon \mu a))$
282.	<i>Gi5.</i>	$(\forall x)x=y$
	<i>Gi6.</i>	$(\forall x)(\forall y) \sim (x=y \equiv \phi xy)$
	<i>Gi7.</i>	$(\forall x)(\forall y) (\sim (x=y \equiv \phi xy)) \ \& \ ((\forall z) \sim \xi z)$
	<i>Gi8.1</i>	$O(\forall z) \sim \xi z$
	<i>Gi8.2</i>	$(\forall z)O \sim \xi z$
289.	<i>Gi9.</i>	$(\forall x)\phi x$
	<i>Gi10.</i>	$(\phi x) \supset (\forall x)\phi x$
	<i>Gi11.</i>	$(\exists x)((\phi x \ \& \ ((\forall y)\phi y \supset y=x))$

301.	$CKC\alpha\beta\alpha\beta$	$((\alpha \supset \beta) \supset \alpha) \supset \beta$
312.	$B5.1$	$(\forall x)(\psi x \supset \phi x)$
	$B5.2$	$(\exists x)(\theta x \supset \psi x)$
	$B5.3$	$(\exists x)(\theta x \& \sim \psi x)$
313.	$B5.4$	$(\forall x)((\theta x \& \psi x) \supset \phi x)$
	$B6.$	$(\forall x)(\sim \psi x \supset \sim \phi x)$
	$B5.2.1$	$(\exists x)\psi x$
	$B5.3.1$	$(\exists x)\sim \psi x$
	$B5.4.1$	$(\forall x)(\psi x \supset \phi x)$
	$B8.$	$(\forall x)(\phi x \supset \psi x)$
314.	$B5.1.1$	$(\forall x)(\psi x \equiv \phi x)$
	$PC10. [transposition, A3.]$	$(p \supset q) \supset (\sim q \supset \sim p)$
	$B9.$	$(\psi x \supset \phi x) \supset (\sim \phi x \supset \sim \psi x)$
	$B10.$	$(\forall x)(\psi x \supset \phi x) \supset (\exists x)(\sim \phi x \supset \sim \psi x)$
322.	$KPpBp$	$(Pp \& Bp)$
337.	$C1.1$	$(\forall x)(\forall y)(\forall z)((\xi x \& (\theta y \& \theta z)) \supset (\phi xyz \supset \epsilon x))$
	$C2.1$	$(\forall x)(\theta x \supset O\gamma x)$
	$C3.1$	$(\forall x)(\xi x \supset O\beta x)$

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