Implicit Cultures:

Towards a Psychosocial Theory of 'Intuitive Religious Beliefs'

By

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If we threw a handful of children on an island and they raised themselves I think they would believe in God (Barrett cited in Beckford, 2008).

A child raised on a desert island…would come out as Geertz envisioned, something of a monster, something other than a fully human intentional and moral agent (Tomasello, 1999: 215).

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Abstract

This thesis defines and resolves some persistent criticisms of Justin Barrett and Jessie Bering's shared contention that religious beliefs are compelled by 'default' cognitive systems. I contend that the source of these criticisms is correctly the 'naturalness of religious belief' metathesis. This metathesis justifies the methodological reductions that both use to account for 'intuitive religious beliefs.'

 Through a review of the critical literature sourced from various methodologies including anthropology, hermeneutics, and social neuroscience, I uncover a recurrent set of criticisms that I contend theories of 'intuitive religion' need to confront in order to strengthen the theoretical, and by inference, empirical validity of their theories. Yet I also discuss why it is that Bering and Barrett fail to incorporate insights relative to persistent criticisms of their research, emphasising that it is because they fail to see the experimental plausibility of alternative methodologies and theories.

Somewhat proactively, I argue that Mathew Day's proposal for a psychosocial theory of religion offers a step in the right direction. Day's psychosocial theory rejects the 'naturalness of religion' metathesis.   My own revision and application of psychosocial theory allows for the reinterpretation of Bering and Barrett's findings from the vantage point of cultural psychology. I close by offering a developmental theory of 'intuitive religious beliefs' that includes the numerous theoretical perspectives addressed throughout this thesis and, crucially, is empirically grounded in research from cultural psychology. I propose a tentative empirical test to trial my claims.

Key words: Developmental Psychology, Cultural Psychology, Religious Belief, Cognitive Science of Religion, Consilience, Intuition.

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Précis

- o **The problem**

The classic Cognitive Science of Religion (here after: CSR) rests on the claim that panhuman cognitive processes constrain the forms religious beliefs take. This metatheoretical claim is overt in the nascent CSR subfield: the 'developmental psychology of religious belief' (Bloom, 2007, 150), particularly in the work two prominent researchers, Justin Barrett and Jessie Bering. Both theorists employ an idiosyncratic variant of the 'naturalness of religion' metathesis. (Barrett and Lanman, 2008: 10). Their 'Intuitive Model' argues that religious beliefs are emergent properties of innate cognitive processes. Traditionally, cognitive-developmental psychology was the empirical backbone of many CSR hypotheses. However, in my reading, the 'developmental psychology of religious belief' is now in conflict with contemporary CSR research.

A key issue in the 'developmental psychology of religious belief' relates to the increasing prominence of alternative theories of the human mind-brain that are often at odds with the models developmental psychologists are using. Many contemporary models of the mind emphasise the enactive, embodied, and culturally embedded nature of human cognition (Clark and Chalmers, 1998; Hutchens, 1985; Deacon, 1997; Gallagher, 2005). Cognitive models that incorporate such a perspective contest the methodological *supervenience* of computational cognitive psychology as an autonomous level of analysis. While alternative models of cognition have gained traction in some 'cultural evolution' theories of religion, they have yet to penetrate Bering and Barrett's work.

In this thesis, I investigate the relevance of criticisms of Bering and Barrett hypotheses stemming from a number of research domains, including social and cognitive anthropology, philosophy of religion, philosophy of mind, cognitive neuroscience, comparative religion, hermeneutics, as well as the CSR and developmental psychology themselves. By applying a

number of these criticisms to their work, I identify a set of important objections that critics in multiple disciplines express about their research. The bulk of this thesis locates and addresses these criticisms before developing plausible theoretical and empirical answers.

A key argument arising from my analysis is that CSR models that employ alternative theories of cognition present a material-scientific justification of ideas common in traditional sociocultural theories of culture and mind present in the works of Clifford Geertz and Emile Durkheim. This is despite the fact that the CSR's metathesis stems from a materialist critique of such models. Emphasising this close association has important implications for my revision of the metathesis at a later stage of this paper.

In the few instances Intuitive Model theorists consider alternative theories of cognition and culture, they offer a metatheoretical defence of experimentally based cognitive psychology by contrasting it with the more 'rhetorical' nature of cognitive models developed in ethnography, anthropology, and cognitive and social neuroscience. Bering and Barrett note how difficult it is to test the basic claims of cognitive-cultural theory through the methods and experimental models of cognitive psychology. As a result, two strands of CSR research are developing, one that builds on and is enriched by alterative theories of mind and culture and one that remains limited by classic cognitive approaches.

In summary, Bering and Barrett's research is increasing out of step with alternative theories of cognition gaining prominence in CSR research. I examine why this is the case and provide a means to bring Intuitive Model theory up to speed.

   o   **The Solution**

I argue that alternative models of mind will enrich Barrett and Bering's research. Nevertheless, I agree with them that accepting the philosophical and theoretical perspectives of alternative cognitive models is quite different from proposing how such models are workable within

established psychological methods. In the short term, convincing Bering and Barrett of the immediate experimental importance and plausibility of the new approaches requires that recent theories of mind and cognition are empirically justified within the very same psychological methodologies and task designs that Intuitive Model theorists utilise. By translating such theories into traditional nomothetic psychological methodologies, I am able to establish dialogue between Intuitive Model theory and alternative theories of cognition.

The originality of this thesis corresponds to the application of a diverse range of critical writings to Intuitive Model research. I pinpoint and accommodate common critical themes despite the fact these are products of markedly different analytical vantage points. Such extensive critical analysis is novel to Intuitive Model theories.

Through this extended critical analysis, I establish a cross-domain critical perspective that integrates the perspectives of scholars who utilise humanities' frameworks and scholars who have directly reviewed Bering and Barrett's theories. I also notice that alternative theories of cognition partially resolve some of the persistent criticisms of the CSR presented by humanities scholars. When combined, this literature questions Bering and Barrett's use of the 'naturalness of religion' metathesis to bracket the obvious role that culture and social forces play in a child's normative development. Bering and Barrett try to account, nearly exclusively, for the recurrent implicit biases and conceptual structures they contend encourage culturally persistent religious beliefs. While their focus on 'cognition in the raw' has offered numerous insights and empirical discoveries, the methodological reduction employed rests on a partial conceptual error. This error is because Intuitive Model theories have largely been a one-way street, examining how cognition constrains culture but not vice versa. While a concern for such factors is developing organically in numerous allied CSR research domains, an adequate model to integrate alternative theories of cognition and culture with the Intuitive Model has been lacking.

By blending all three critical perspectives (internal, external and the new theories of cognition), I challenge some key metatheoretical claims in Intuitive Model theory. However, the

importance of this thesis rests in its constructive nature. I manage to transform quite polemical critiques of the CSR into important revisions of the Intuitive Model's metatheory. Unlike many of the criticisms I discuss, I am able to present a revision rather than a simple dismissal of the metathesis. I do this in a manner that is partially able to accommodate common critical strands by way of positing productive dialogue between them and Bering and Barrett's theories

To establish constructive dialogue I present Bering and Barrett with Dan Sperber's recent writing on how to distinguish different kinds of religious belief. Sperber's writing on belief already informs Barrett and other developmental psychologists who study religious belief. While Sperber's inclusion of the added distinction between intuitive and semi-propositional beliefs seems to resolve some of the lagging criticisms of Intuitive Model research, it also demands a substantial revision of the conceptual framework that Bering and Barrett employ. I achieve this revision by highlighting subtle correlations between his theory of beliefs and the themes expressed in the critical literature. I suggest that the controversial religious studies scholar Mathew Day's recent psychosocial theory when blended with Dan Sperber's writing on beliefs may offer the means to revitalise Intuitive Model research.

I close by introducing cultural psychology. This is essential because I am finally able to present the empirical evidence that Bering and Barrett demand is necessary to challenge their hypotheses. Crucially, unlike my two examples of contemporary CSR theories which employ alternative models of cognition, theorists within cultural psychology employ the same methodological processes as Intuitive Model scholars. As such, cultural psychology weakens the recurrent Intuitive Model claim that alternative models of cognition encourage an empirical vacuum. Using findings from the same methodologies that Bering and Barrett et al. utilise, I am able to contest the *a*cultural methodological reduction behind Intuitive theories of religion, and begin to show, counter to the foundational 'naturalness of religious belief' metathesis, that sociocultural processes affect the most basic cognitions and perceptions.   Critically, and distinctly from the service of cultural psychology in contemporary 'cultural evolution' theories, the strong tradition in cultural psychology argues that culture and socialisation affect both

content and *cognitive processes*. While this is not controversial in itself, research within cultural psychology provides some clear and compelling insights into the magnitude of these effects on human cognitions. This allows us to incorporate perspectives from the humanities, which are currently marginalised in the Intuitive Model.

The dismissal of the metathesis does not require the dismissal of Barrett and Bering's extant research. It merely requires that the Intuitive Model is open to direct consideration and revitalisation from alternative theoretical vantage points. I highlight the productive nature of this revision by proposing empirical research along such lines.

I propose and defend four interrelated thesis claims:

- **Many 'developmental psychologists of religious belief' argue that the advent and acquisition of cross-culturally recurrent religious convictions are explicable by way of the study of developing cognitive processes and the implicit reasoning biases that these encourage. Yet this assumption derives from the increasingly implausible claim that cognitive development is a universal and stable process only peripherally influenced by cultural peculiarities and sensitivities. Despite theorists' insistence that this is not the case, I argue that the theories of 'intuitive religion' recreate a nature-nurture divide that is radically at odds with the contemporary philosophies, sciences sociologies, and psychologies of mind.**
- **This important conceptual error in the metathesis destabilises the validity of many of the methodological reductions and task designs that motivates experimental research. It renders empirical findings partial, questionable, and inconclusive.**
- **Furthermore, it has encouraged many criticisms of the project and promoted a number of attempts within CSR aligned literature to revitalise relations between cognitive development and cultural normalisation. However, I argue that extant attempts to integrate cognition and culture remain incomplete and are increasingly unworkable from a developmental perspective. For example, Sperber's 'epidemiology**

of representations', which establishes the Standard Model CSR, along with Harvey Whitehouse's 'mode's theory' problematically continue to see children's minds as conceptual slot machines (Bering, 2003). I explain why Intuitive Model theory must blend and balance psychosocial causal variables. Furthermore, the emerging field of cultural psychology offers clarification and may directly complement nativist theories.

- Intuitive theory will rest on a sounder empirical footing if the 'naturalness of religious belief' metathesis is revised, if not completely discarded. I show how a general psychosocial theory can invigorate research into normative 'religious intuitions.'

Justin Barrett's Major Hypotheses[1]

Hypothesis	Evidence
The Theological Correctness Hypothesis: Spontaneous or time pressured ('online') reasoning about religious ideas and agents differs, often drastically, from explicitly expressed, reflectively pondered, and theologically bounded ('offline') reasoning about such ideas and agents. 'Online; reasoning is frequently 'theologically incorrect' (Slone, 2004) as it necessitates the use of simple heuristics often at odds with reflective knowledge.	In story processing tasks, American subjects employed an anthropomorphic God concept that was inconsistent with their stated theological beliefs. They also anthropomorphised the narratives without any awareness of doing so (Barrett and Keil, 1996, Barrett, 1999). This effect was also found in Hindu populations (Barrett, 1998).
The Hyper-Agency Detection Device (HADD): HADD involves the rapid perception and computational processing of agency. It grants the perceiver the ability to consider the best course of action to take (classically: fight or flight) in response to the potential agent. Unexpected or ambiguous events with no clear physical cause routinely evoke the HADD. Belief in supernatural agents is encouraged when the HADD interacts with the theory of mind system.	Relevant research in evolutionary psychology. No specific experimental evidence. (Barrett, 2000, 2004; Barrett and Lanman, 2008; Guthrie, 1993, 2008).
The Preparedness Hypothesis: Differentiated concepts about 'humans' and 'gods' build on a default, intentional agency base. This conceptual base allows children to perceive at an early age that gods and humans not only have different abilities, they also have different desires, intentions, and beliefs. Thus, non-human concepts appear to develop alongside (rather than out of) human concepts, becoming specified as children cognitively and experientially mature. As such, children appear 'prepared' to entertain 'god concepts' because of the close affinity between the default intentional agency template and such concepts.	Barrett and researchers use the false belief task and a modified perspective-taking task to test children from Christian and secular backgrounds. The tasks include human and non-human agents (animals and gods). The results consistently show that children from as young as three are able to distinguish between the perceptual and reasoning abilities of animals, humans, and gods. The omniscience that the youngest children grant to agents means that their earliest agency representations are closer to 'god concepts' than 'human concepts' (Barrett and Richert, 2001; Barrett, Newman, et al., 2003; Barrett, Richert, et al., 2003; Richert and Barrett, 2005; Knight and Sousa, et al., 2003).

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[1] For a detailed discussion of Bering and Barrett's hypotheses please refer to the appendix.

Jesse Bering's Major Hypotheses

Hypothesis	Evidence
Theory of mind, language, and the intentionality system are unique responses to selection pressures in ancestral hominid social environments. These adaptations indicate that human minds are qualitatively dissimilar from chimpanzee minds.	Review of the ethological and evolutionary psychology literature. Studies conducted by Bering and Daniel Povinell et al. (2003).
Afterlife beliefs that feature immortal souls are the result of a number of socio-cognitive reasoning errors. These include: Pancultural simulation constraints (e.g., the inability to imagine psychological non-existence) which encourage a tendency to attribute mental states to the dead. This constraint results in type 1 errors as people defer to familiar mental states they presume to be analogous (e.g., sleeping and/or resting). This early emerging normative bias also encourages inferences that the dead continue to have mental states, such as beliefs, desires, and knowledge states.	Relevant research on simulation theory of mind and the 'simulation constraint' hypothesis. Related developmental research. American children aged between 4 and 12 watched a puppet show featuring a mouse. Suddenly an alligator appears and kills the mouse. The experimenters asked the children about the implications of death for the mouse (e.g., Is it still hungry, does it miss its mother?) While stating that the mouse would no longer needed to eat, many assumed that it would still miss its mother. It was only the older children who stated that both psychological and biological processes cease at death. This suggests that young children intuitively believed in the continuation of psychological states after death (Bering and Bjorklund, 2004; Bering and Blasi et al., 2005) .
The habit of thinking about goal directed cospecifics in their physical absence encourages humans to entertain the illusion that the dead maintain intentionally.	No direct experimental evidence. Anecdotal evidence and personal experience. Studies examining how the elderly cope with the loss of a long-term partner.
In all cultures and historic periods, people appear biased to believe that the world is designed for a purpose. A natural outcome of this assumption is for people to believe that they also have a pre-destined purpose with obligations in line with their creation.	No direct experimental evidence. Kelemen's research on 'promiscuous teleology' and Evan's work on cognitive predispositions toward creationism. Commentary on the role of suicide in Judaic-Christian traditions and martyrdom in Islam.

Jesse Bering's Major Hypotheses Continued

Hypothesis	Evidence
People are cognitively predisposed to interpret natural unexpected events as strategically relevant communicative attempts by culturally postulated supernatural agents, rather than viewing them as meaningless or the results of chance.	Relevant research on 'just world beliefs.' Children aged between three and nine years were told that they would receive help during a forced-choice game by an invisible agent named Princess Alice. They were informed that Alice would tell them via some unspecified means whenever they chose the wrong box. During game play the experimenters triggered unexpected events (such as flicking a light on or off or knocking a painting from a wall). The experimenters observed the child's behavioural responses to the unexpected events. They found that of the children who had been primed, it was the older children who reliably inferred communicative intent behind the random events, while the younger children often failed to make communicative connections (Bering and Parker, 2006).
Belief in supernatural agents with privileged epistemic access encourages prosocial behaviour because it encourages a believer to suppress selfish impulses.	Citations of suggestive religious texts, traditions, and religious studies scholars. Citation and modification of Barrett's research on 'god concepts.' American college students were asked to complete a competitive computer task that gave them the opportunity to cheat. Subjects who were primed by being shown a fictitious memorandum dedicated to an experimenter involved in the computer task or shown the memorandum and then told that the ghost of the dead researcher had been seen in the room were less likely to cheat than those who had not been primed (Bering, McLeod et al. 2005).
Natural selection, operating though theory of mind mechanisms and the broader intentionality system encouraged both belief and fear of supernatural agency because these beliefs suppress evolutionarily ancestral, antisocial behaviours which were out of step with the sophisticated socio-cognitive demands of human interactions and the advent of language. Cooperating with cospecifics proved evolutionarily beneficial to the individual human. Thus, a god-fearing person is likely to out-compete a person with no such beliefs.	Related research on religion and cooperation (Sosis and Alcorta 2003; Sosis and Bressler, 2003; Sosis and Ruffle, 2003; Johnson, 2005, Wilson, 2002). A comparison and evaluation of the intentionally system and the resultant behavioural strategies it encourages: 'Ancestral' 'God-fearing' or 'Machiavellian.' In their analysis, God-fearing strategies offer the greater fitness advantage (Bering and Johnson, 2006).

Chapter One: The Naturalness of Religious Beliefs

In this introductory chapter, I examine Barrett and Bering's hypotheses and experimental work in relation to the immediate[2] critical literature. The point of this analysis is not to merely question the hypothesis-specific validity of each theorist's research. My aim is to pinpoint a set of recurrent criticisms that are expressed about their work as a whole. I believe these criticisms locate problems with the joint use of a metatheoretical framework that justifies the methodological reductions employed in their empirical research and theoretical interpretations. In subsequent chapters, I develop this argument through engagements with alternative fields of criticisms before presenting my own resolution in the final chapter.

Of course, before I begin, a more pressing task is to justify my focus on the two theorists work. Bering and Barrett's theories express a similar variant of the 'naturalness of religion' metathesis, which features in the 'developmental psychology of religious belief.' Importantly the depiction of the metathesis in the developmental research is distinct from the naturalness metathesis found in the Standard Model CSR.[3] For clarity, and to distinguish their variation of the metathesis from how it is conceptualised in the dominant Standard Model from which it is frequently conflated, I define Barrett and Bering's explanatory model as the Intuitive Model[4] of religious beliefs. Bering and Barrett are arguably the most prominent promoters of the Intuitive Model.

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[2] I define the criticisms discussed in this chapter as 'immediate' or 'internal' criticisms because the critiques are investigating the same subject matter or employ the same exploratory methodologies as Bering and Barrett. Crucially these internal criticisms do not examine the metathesis.

[3] This thesis assumes knowledge of both fields and thus a generic overview of the CSR and Bering and Barrett's theories are not included within the thesis. However, a detailed overview of Bering and Barrett's theories is offered in the appendix.

[4] It will become clear throughout the remainder of the thesis that this is not an ideal term for the model because Intuitive Model theorists need to conceptually distinguish the development of cognitive and inferential processes and the development of intuitive content. Barrett, on occasion, describes Bering and Barrett's approach as 'nativist' (2003) though I think this produces the very nature vs. nurture confusion that he is trying to avoid. Intuitive in the sense I use it here, equates to Barrett's understanding of maturationally natural cognition. The term represents the definitional issues that I believe permeate the Intuitive Model. Bering's recent description of his work as the study of 'intuitive religion' supports my use of the Intuitive Model to describe their work (Bering, 2010).

Yet both Bering and Barrett argue, accurately, that there are important differences between their theories. Even so, I think it is important to consider both theorists because they construct, engage with, and support a similar metathesis, despite arriving at their conclusions through different theoretical frameworks.

The critical literature discussed below highlights that while critics contest the findings of one particular hypothesis, they rarely direct attention to the metathesis that guides Bering and Barrett's work. Thus, before I begin the analysis of the internal literature, I make explicit this metathesis and its role in the methodological reductions, objects of study and task designs of Intuitive Model research, noting the different ways Bering and Barrett arrive at their shared conclusions.

1.1 The Theoretical Basis of the Intuitive Model

The validity of the Intuitive Model's metathesis rests on a synthesis of theories and empirical findings in a number of research domains including cognitive psychology, ethology, comparative psychology, existential philosophy, developmental psychology, and evolutionary psychology. Conspicuously, and of importance to my own argument, it is the metathesis which compels and justifies Intuitive Model experimental research; the metathesis has not developed organically out of the research itself. Therefore, locating the theoretical antecedents of the metathesis is critical.

Both Bering and Barrett express arguments in support of psychological nativism and core knowledge theories. For present purposes, the following are the most important:

The first is computational research. The computational theory of mind was a central component of modern cognitive psychology. It also informs later connectionist models of mind, which differed from early computational models by emphasising non-linear processing trajectories. The computational model involved a synthesis of disparate research undertaken in

the 1910s – 40s particularly research which examined the machine computations of symbols. Of greatest importance was Alan Turing's cybernetic work on binary code and machine computation, John Von Newman and Norbet Wiener's work on autonomous programs and symbolic logic, Walter Pit's and Warren McCulloch's contention that nerve cells and their connections could be modelled through logic and Claude Shannon's 'detached' theory of information processing (Gardner, 1987: 22). These theoretical models were supported by laboratory research on brain damage, which highlighted cross-cultural cognitive similarities in pathologies like aphasia (language recognition) despite variations in language typologies (Gardner, 1987: 22). Early computational models contended that the human mind and its mental processes could be examined in relation to computations alone. This was important not only to psychology but also to research into artificial intelligence as it suggested that minds could be realised via computational interactions.

The idea that computers and brains are analogous is prolific in early cognitive psychology. The analogy stems from the fact that both process information. As the CSR scholar Bensen Saler notes, computers and minds are both physical instances of a formal system with stipulated elements and sets of rules or principles for operating on those elements (2001: 58). For another CSR scholar Todd Tremlin (2006), the correspondence is again not just a metaphorical association, it a literal one. Human cognition consists of discrete cognitive systems that manipulate distinct internal mental states (concepts, representations) in a rule based/ algorithmic manner. Critically, such cognitions cause behaviour.

David Broadbent's theoretical 'filter model,' outlined in his 1958 work *Perception and Communication,* first applied cognitive science to the study of human perception. While in 1967, Ulric Nessier described humans as dynamic information processing systems, whose mental operations were computational. The computational model of mind was popularised in the philosophy of mind by Hilary Putnam in 1961 and refined throughout the 1960s and '70s by Noam Chomsky and Jerry Fodor.[5]

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[5] See Gardner: 1997 for a more detailed overview.

Noam Chomsky's (1959) critique of 'mind blind' Skinnerian behaviourism is the most important of such applications.[6] Behaviourism dominated psychological research in the 1950 through to the mid 1960s. Chomsky's 'universal grammar' thesis sought to explain panhuman language acquisition through innate cognitive structures. It led to the Chomskian Turn (alternatively the 'Cognitive Revolution') in psychology. Chomsky's critique of behaviourism stemmed from his thesis that all normatively functioning infants are born with innate competences for acquiring and mastering language. This was in radical contrast to behaviourism, which denied the study of internal states in psychological research. Chomsky provides compelling evidence that children are predisposed to acquire language and that this predisposition develops organically, encouraged by innate syntactical structures. Chomsky believed that while such cognitive language processing systems encourage the mastery of language they also *constrain* the forms language takes cross culturally (Chomsky, 1959, 1966).

The key point of Chomsky's thesis is that not everything related to language is learned and appears anticipated by panhuman evolved cognitive processes. Furthermore, the theory postulates that the mind is neither a blank slate nor a general-purpose information-processing device. The theory encouraged psychologically minded researchers to reassume that it was empirically possible to map what was in the head of a cognitiser. Chomsky's hypothesis, while subsequently contested and revised, reasserted the presence and relevance of internal cognitions (such as mental states, attention, memory, perception, conceptual thought, and decision-making) in psychological research. Such foundational assumptions infuse both Bering and Barrett's developmental research.

Importantly, until the ascent of cognitive method and theory, variants of Piagetian theory dominated developmental psychology. Piaget supposed that babies perceive the world as William James famously describes as 'one great blooming, buzzing, confusion' (James, 1891/1950: 462). In light of new cognitive perspectives, developmental psychologists began to

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[6] Though in *Topics in the Theory of Generative Gramma*r Chomsky argues that his theory has little to do with modern computational research and is closer to classic linguistic theory (Chomsky, 1966: 9).

examine early competences and reasoning biases in children's thinking. The following quote recalling the computer analogy expresses this aim clearly:

> [O]ur job as developmental psychologists is to discover what programs babies run, and someday, how the program is coded in their brains, and how it evolved. If we could do that, we would have solved the ancient philosophical problems of knowledge in a scientific way (Gopnik and Kuhl et al., 1999: 6).

Jerry Fodor's (1983) treatment of the mind as modular also presages core knowledge research in cognitive developmental psychology. Fodor initially proposed that low-level cognition is composed of basic 'modules' or 'organs.' These modules are congenitally specified and functionally dedicated to specialised tasks such as perception and linguistic processing. Fodor draws directly on Chomsky's theory of 'generative grammar' (reformulated as a 'language acquisition device' (Chomsky, 1966; Fodor, 1983)), as well as experimental data on how optical illusions like the Muller-Lyer Illusion work (See Fodor, 1983 for discussion and citations).

Since drawing inspiration from cognitive science the major focus of cognitive developmental psychology is on the ways human conceptual structures constrain and inform cultural expressions (Barrett, 2007). Within the cognitive developmental literature, the focus is less on the modular mind and more on specialised domain cognitions.[7] Core knowledge theorists propose that the evolved information processing domains shape and constrain the conceptual architecture. The mind from the core knowledge perspective is an inferentially rich information-processing device with inbuilt biases, which encourage humans to see the world in certain predictable ways (Slone, 2004: 44).

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[7] Domains are not the same as modules. The modularity thesis only indirectly informs cognitive developmental psychology (see: Karmiloff-Smith (1996). Modules relate to functional specifications in the mind-brain while domains refer to specifications for different types of knowledge. Domains may include a set of interconnected modules. Hirschfeld and Gelman state:

> [A domain] is a body of knowledge that identifies and interprets a class of phenomena assumed to share certain properties and to be of a distinct and general type. A domain functions as a stable response to a set of recurring and complex problems faced by an organism. This response involves difficult-to-access perceptual, encoding, retrieval, and inferential processes dedicated to that solution (Hirschfeld and Gelman, 1994: 72).

According to the cognitive development literature, domains occur at a *supervenient* level of processing. They are specialised adaptations dedicated to the processing of specific types of perceptual information. Domains do not necessarily map back to specific brain regions. Domains can be described as normatively emerging inference systems or 'learning devices' (Barrett, 2007) dedicated to the processing of specialised kinds of information. Many inferential domains are active very early in cognitive development and some appear to manifest at birth. Such inferential systems encourage all human beings to perceive, think, feel, and behave in particular limited ways. They are the products of evolutionary pressures on our early ancestors and reflect biologically adaptive responses to the kinds of dangers, challenges, and opportunities commonly found in the environments in which our species evolved (see: Plotkin, 2007; Carruthers, 1992).

The domain-specificity thesis has a number of implications for theories about human cognitive processing and conceptual development. It suggests that tacit spontaneous intuitions are themselves localised to a given domain with a content bias toward a restricted range of specific stimuli. A domain produces cognitive heuristics in each domain, which structure experiences and inspire courses of actions in unique ways from the heuristics in other domains (Gelman, 1990, Boyer, 1994: 110). Furthermore, domains do not process objects holistically but rather focus on certain aspects of the observed object. For example, the human processing of faces is a highly sophisticated and subtle cognitive skill; it provides important strategic information about the intentions of cospecifics. Such evolved adaptations place emphasis on the processing of faces, while relegating other features of the visual environment to the periphery. Thus, human faces may not be as readily distinguishable by other organisms, highlighting the species parochialism of our domain processing (Boyer and Barrett, 2005: 4). This is an important point; inference 'systems' need not map reality faithfully; rather their job is to provide useful, often tacit, heuristic interpretations. Domains will encourage misrepresentations of the perceived entity if such a distortion proves beneficial to the perceiver. Boyer and Clark Barrett argue that the human brain is 'philosophically incorrect' (Boyer and Clark Barrett, 2005: 4). As such, domain boundaries are not the product of natural distinctions within the human organism's

environment but are cognitively prescribed and biased through the functional bias of the adaptation. An important feature of domains is that they also process information they were not designed to process.

Domain-specific core knowledge theory contends that babies and young children are cognitively equipped to represent and order the world in certain predictable and limiting ways (see Gopnik, Meltzoff and Kuhl, 1999 for overview). In particular, theorists argue that children approach the world with maturationally natural inferences about objects, language, and people. Persuasively, the work of Spelke and collaborators found that babies, infants, young children, and adults hold a stable and tacit system of object representation. This system governs object motion: including knowledge of cohesion (objects move as connected and bounded wholes), continuity (objects move on connected, unobstructed paths), and contact (objects influence each other's motion when and only when they touch) (Leslie and Keeble, 1987; Spelke, 1990; Aguiar and Baillargeon, 1998). Meltzoff and Moore (1997, 1998, 1999) also found that neonates can imitate the facial expressions of others, suggesting that a basic ability to correlate internal and external features and to represent the external world may be in place by birth. Furthermore, there is a wealth of evidence that children make an ontological distinction between animates and inanimates (see Wellman and Gelman, 1998 for review). According to core knowledge theory, cognition develops concurrently with perception and motor skills, involving enrichments around an unchanging core (Spelke and Brienlinger et al., 1992).

The Intuitive Model affirms that the domain-specific mind encourages various *a priori* panhuman knowledge bases about the world and the objects and agents in it.   These 'default' and enduring 'folk' cognitive domains precede experience,[8] are unwilled and are held regardless of whether or not they are reflectively pondered (Cosmides and Tooby, 2005: 18; Boyer, 2001: 26). The three basic bodies of implicit knowledge are:[9]

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[8] Though require experience and learning to arise.
[9] See Tremlin: 2006: 66ff for an extended overview.

Folk Physics/Mechanics – the naïve ability to predict the general properties and behaviour of physical objects and substances (such as object boundaries, gravity, mass and movement constraints).

Folk Biology – the naïve ability to locate the characteristics of plants and animals (in particular, species essences and the taxonomic relations between species).[10]

Folk Psychology – the intuitive ability to reason about the mental states of other people and agents (such as seeing people as interactive and goal directed through their beliefs and desires).

While dedicated to processing and interpreting specialised environmental knowledge, folk bodies of tacit knowledge are routinely interactive. They also develop at different periods. For example, theory of mind does not develop until between the ages of four and five, while intuitive knowledge about objects is in place by six months. Innate domains of knowledge play a crucial role in the development of human thinking. Bering states:

> Most developmentalists envision a process in which such supportive, implicit knowledge is conceptually enriched and elaborated with experience ("adding flesh to bones") to give weight to the mature folk systems seen in older children and adults (Karmiloff-Smith, 1992). Importantly, these experiences will be largely the same, because the world is governed by certain ontological regularities that are seldom, if ever, actually violated. Thus, the mature, adult endpoint of conceptual change will reenact culturally recurrent trends, regardless of superficial differences in cultural forms (Bering, 2002b: 266).

Core knowledge theory is the empirical backbone of Intuitive Model theory and directly informs the guiding metathesis of this research. For present purposes, it will suffice to survey core folk psychological competencies. Certainly, the knowledge domain or 'inferential system' of folk

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[10] Susan Carey and her collaborators do not regard folk biology as a separate domain. They present a persuasive argument that folk biological reasoning is an extension of folk psychological reasoning (Carey 1985; Carey and Spelke, 1995; Johnson and Carey: 1998) Atran disagrees (see Medin and Atran, 2004, 2009 for discussion).

psychology receives the most attention in Bering and Barrett's theories and experiments.[11] Both assert the pervasiveness of 'nativist,' largely unlearned, developmentally stable, historically and cross culturally invariant folk psychological reasoning heuristics.

Nativist folk psychology theory posits the presence of a kind of 'mind-reading' (Baron-Cohen, 1995) device or system, which allows all non-cognitively impaired humans[12] to automatically and implicitly reason about the occluded beliefs, desires and goals of other humans. It provides immediate information and grants the perceiver the ability to act or modify their behaviour accordingly. In cognitive developmental psychology, the theoretical construct of theory of mind describes the cognitive platform behind mature human folk psychological skills.

Folk psychology also allows a person to predict, and on occasion manipulate, the future behaviour of others. Cognitive developmental psychology and evolutionary psychology agree that folk psychological inferences, particularly those activated by theory of mind, are the foundation of successful social interactions. Theory of mind reduces cognitive complexity and encourages the repetition of reliable heuristic reasoning patterns.

The false belief test is one of the primary ways developmental psychologists study folk psychology. The false belief test tracks when children are able to express knowledge that another agent may entertain different (specifically false) beliefs than the beliefs they themselves hold. The simplicity of the task design belies the importance of the competences it uncovers. Developmental psychologists focus on children's awareness of false beliefs because knowledge that another agent may hold false beliefs equates to awareness that mental states are distinct from real world events, situations and behaviours (Wellman, 2001). An awareness of the fallibility of other minds is critical to mature folk psychology.

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[11] Theorists fiercely contest the developmental processes of folk psychological reasoning (see Davis and Stone, 1995 for overview). Below I highlight that Bering and Barrett have quite distinctive understanding of the mechanisms behind folk psychology.

[12] For example, Baron Cohen's research (1995) on autistic people suggests that the disorder may stem from the developmental failure to activate theory of mind.

The classic false belief test (Wimmer and Perner, 1983), of which there are now numerous variations (the most famous is the Sally-Ann test), presents a child with the following set-up:

1) Maxi places his chocolate in the kitchen cupboard and then leaves the room to play.
2) While playing out of sight of the cupboard, his mother moves the chocolate from the cupboard to the draw.
3) Maxi re-enters the room.
4) The child is then asked where they think Maxi will look for the chocolate.

The ability to pass the test (i.e., answer correctly that Maxi will look for the chocolate where he left it in the kitchen cupboard) is reliably sensitive to age. Between the ages of four and five children begin to pass the test; suggesting that children of this age are aware that Maxi relies on his beliefs to motivate his actions. In contrast, three-year-old children present no awareness of the role of belief in shaping action. However, they do not just answer randomly, they assume that Maxi will look for the chocolates in the kitchen drawer.

Barrett and Bering tweak the false belief test, as well as similar tasks such as the appearance reality task, to make them pertinent to testing the emergence of religious concepts and ideas. For example, Barrett's employs the Sally-Ann false belief task to test for intuitions about God's abilities (Barrett and Keil, 1996; Barrett and Richert et al., 2001, Barrett and Newman et al., 2003 etc). Thus, unlike other nascent fields in the cognitive sciences (for example: cognitive neuroscience) CSR research builds on developmental psychology's rich body of work on human cognition, utilising its experimental designs which seek to suppress cultural intrusions and attempt to map 'cognition in the 'raw.'

1.2 The Naturalness of Religious Beliefs

The Intuitive Model's 'naturalness of religious beliefs' metathesis (Barrett and Lanman, 2008: 10) argues that human minds generate 'precursor' religious beliefs as a by-product of normative cognitive development, such as the advent of theory of mind reasoning. It also proposes that the cross-cultural recurrence of certain kinds of religious beliefs and ideas (such as belief in 'god' and belief in 'souls') evidences the causal significance of panhuman developmental trajectories and the inferential biases and constraints these produce. The intuitive model studies 'natural cognition.' Firstly, 'natural cognition' means cognitions that occur regardless of cultural variations and secondly, cognitions that are characteristically tacit, rapid, and reflexive. Research on 'natural cognition' suggests that minds are tuned to accommodate certain kinds of culturally prescribed religious ideas because so much of the inferential work is already in place. Bering also argues that religious concepts do not just activate intuitive inferences in minds. Instead, these 'default' inferences may actually give rise to them.

Bering and Barrett follow the Standard Model's investigative strategy. They endeavour to identify the universal features of cognition argued to have causal effects on cultural thought and behaviour (Barrett, 2003). They also engage with the same template of posited religious universals; including a belief in supernatural agency, belief in misfortune and belief in ritual efficacy (Whitehouse, 2010). Yet, in contrast to the Standard model, Barrett and Bering seek to account for how universal cognitions actually *produce* religious thought and behaviour. This is the key difference between the two CSR models. Barrett and Bering criticise the Standard Model for failing to account for the 'origins' of religious ideas.

The Standard Model employs a tailored version of Sperber's 'epidemiology of representations' (1975, 1996). It focuses attention to the *transmission* of religious concepts between minds. Research highlights how evolved cognitive interests, constraints, biases, and mnemonic systems allow the spread of 'cognitively optimal' religious representations like supernatural agent

concepts (Boyer, 1994, 2001, etc; Barrett and Nyhof, 2004; Tremlin, 2006; Pyysiäinen, 2001, 2006). In Pascal Boyer's explanatory model, recurrent religious beliefs are 'parasitic' on evolved cognitions; they are successful recalled and transmitted because they have a mnemonic advantage. Namely, they minimally breach intuitive expectations (Boyer, 1990, 1994 etc). The actual 'origins' of such beliefs are a secondary question in Boyer's model and the wider Standard Model his research helped shape.   In the Intuitive Model and the developmental psychology of religion in general, the origins of such beliefs are central. In further contrast, Intuitive model theory argues that the same religious beliefs are pervasive, not because of their breach of intuitive expectations but because such beliefs are completely intuitive.

Bering and Barrett argue that the cognitive processes, which encourage the generation and transmission of religious ideas, are *non-cultural* features of the human mind. They contend that the study of early emerging cognition (hence, the focus on children's reasoning) can methodologically suppress environmental factors because cognition, at these early stages at least, is an internal process (Barrett, 2003, 2004a, 2004b). Yet, as Barrett and Bering frequently remind critics, claiming that basic panhuman cognitions are acultural is not the same as arguing that they are present at birth or biologically hardwired (Barrett, 2003). Rather it is the contention that early emerging, maturationally innate, cognitive processes produce rich inferential biases that compel the acceptance and believability of explicit propositions. Both Bering and Barrett argue that the concepts that interest them (Bering: 'ghost' and 'soul' concepts, Barrett: 'god' concepts) build upon generic skeletal concepts themselves created by the mundane operations of universal cognitions. Bering and Barrett contend that cultures play only an epiphenomenal role in enhancing or suppressing these intuitive concepts. Cultures only provide declarative access (descriptions, meanings: *interpretations*) to the 'default' inferences that are spontaneously and normatively generated. In its more radical form, Intuitive Model theories propose that cultural inputs may not even be necessary; the intuitive knowledge bases are so rich that they may produce such concepts *even in the absence* of explicit supporting propositions:

> The acquisition of explicit concepts through cultural means of transmission appears to be critical for "filling In"' general inferential processes with content enriched information about agency, but the inferential processes themselves are neither enabled, nor activated, by such concepts. Instead, explicit religious concepts might be epiphenomena that shadow the operation of intuitive patterns of reasoning (Bering, 2003: 252).

Bering states that declarative beliefs are shaped by the socioeconomic demands of a given cultural group and 'play no causal role' in generating patterns of belief. This is the same for declarative religious beliefs, which merely allow conscious access to intuitive patterns of reasoning about religious concerns (Bering, 2003: 245). This is a more plausible model than the Standard Model because in the Standard Model:

> It is unclear how culturally acquired religious concepts can actually *endow* individuals with the cognitive incentive to, for instance, envision personal consciousness as surviving death, or to envision life events (which are the "actions" of the gods), as being purposeful or meaningful (Bering, 2003: 245).

The majority of developmental psychologists of religion agree that children entertain naïve precursor theories about the agents, ideas, and beliefs that feature in many religious traditions. A number of theorists have also proposed developmental cognitive biases and default inferences that, as a by-product, may have encouraged many cross-culturally recurrent religious beliefs. For example, Paul Bloom argues that children present an 'innate dualism,' which can readily account for the separation of the 'body' and the 'soul' in the vast majority of human cultures (2004, 2005, 2007, with Wiesberg, 2007).   Deborah Kelemen argues that a 'promiscuous' predilection for reasoning in teleological terms emerges early and endures throughout the life course (1999a, 1999b, 1999c, 1999d, 2003, 2004; with Carey, 2007; Casler 2008; DiYanni, 2005a, 2005b; Lombrozo, 2007; Rosset, 2009, Widdowson et al., 2003), while Margret Evans found that children prefer creationist accounts of species origins over mechanistic accounts (2000a, 2000b, 2001; with Poling, 2002, 2004). Akin to Bering and Barrett's theories, these theorists suggest that the roots of religious beliefs stem from default reasoning behaviours.   Thus, because of a rich inferential skeleton 'many concepts central to

major religious traditions are not as opaque to young children as often thought' (Barrett, 2000: 30).

Combined these perspectives compel Intuitive Model research. I now examine the Intuitive Model's key conceptual terms.

1.3 Key Terms: 'Belief,' 'Intuition,' and' 'Religious Belief'

It is crucial to focus on the Intuitive Model's conceptual definitions of key terms such as 'belief' 'intuition' and 'religious belief' because, much like other fields in the CSR, the 'developmental psychology of religious belief' is driven, and governed by, conceptual terminology. It is the definitional understandings of beliefs that justify the focus and task designs that scholars use. As such, the Intuitive Model is a form of philosophical psychology not just an extrapolation of experimental psychology. While only Barrett has offered a detailed conceptual discussion of the terms employed in Intuitive Model theories, Bering's conceptual understandings appears to be quite similar.[13] Anticipating my reformulation of the Intuitive Model's understanding of intuitive religious beliefs in chapter three, it is necessary to review the Intuitive Model's understanding of belief in detail here. This will also highlight that the Intuitive Model is as much a conceptual/ theoretical project as it is an experimentally driven one.

Barrett and Lanman 'minimally define' belief as '*the state of a cognitive system holding information (not necessarily in propositional or explicit form) as true to the generation of further thought and behaviour*' (2008: 110, italics in original). Belief is 'fundamentally a mental process' (Barrett, 2004b) that encourages ideas about the ordinary objects, agents, and events that populate human worlds. Barrett, citing early work by Sperber (1997), splits beliefs into two kinds, reflective beliefs and non-reflective beliefs (2004b; Barrett and Lanman, 2008).

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[13] Given the importance of definitional clarity in the Intuitive Model, I find it striking that Bering has given little space to explaining what he means by key terms such as 'belief' and 'intuition' in his theories.

o **Reflective and Non-Reflective Beliefs**

Reflective beliefs are the kinds of beliefs that people consciously hold and reason through. Typically, such beliefs are communicable to other people. They are normally meta-representational in the sense that they are deliberate, evaluative responses that allow a person to make a judgement or reach a decision. Characteristically held in semi-propositional form,[14] reflective beliefs are individually and culturally idiosyncratic. Simple reflective beliefs include: 'Green potatoes should not be eaten,' 'this car is red,' pigs are dirty animals,' 'it is hygienic to wash your hand after going to the toilet' and 'Marlborough gets a lot of sun.' These beliefs are predominantly the product of personal experience and/or tutelage. Reflective beliefs also include difficult and complex knowledge that requires great effort to grasp. The Western school curriculum transmits reflective knowledge about complex sciences, such as algebra, chemistry and biology. An essential feature of reflective beliefs is that they do not necessary correlate to relevant behaviours. For example, a person may reflectively 'know' that smoking cigarettes is carcinogenic, but continue to smoke regardless.

Reflective religious beliefs are simply reflective beliefs associated with religious themes. Indeed, the only thing that distinguishes reflective religious beliefs from other reflective beliefs is that religious beliefs are determined to be about ideas that feature in religious traditions. According to Barrett, religious beliefs are simply particular types of information that motivate 'religious' actions, sidestepping the problematic understanding of religious belief in religious studies. These may include '*Mana* is the primary link between humans and the *Atua*,' 'Joseph Smith discovered the Book of Mormon,' and 'Kali is vengeful.' The Standard Model CSR focuses on reflective beliefs, looking to the underlying structures and relating these back to the cognitive by-products that enable their transmission and acquisition. In contrast, Intuitive Model theories have only a secondary interest in reflective religious beliefs of this nature.

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[14] A semi-propositional belief is a belief a person holds even though they may not have specific reasons or knowledge to justify their belief. Even without such knowledge, the belief is a reflective response that compels behavior. I develop the role of semi-propositional religious beliefs in chapter three, where I examine and apply Sperber's writing on semi-propositional beliefs to Intuitive Model theory.

Non-reflective beliefs are beliefs that a person entertains regardless of whether or not they know they are doing so. As should be clear from the previous section, the study of non-reflective beliefs is the focus of Intuitive Model theories. These beliefs are forms of unlearned tacit or 'folk' knowledge (Barrett and Lanman, 2008). They are inferential outcomes of the normative processing activities of the mind-brain. Barrett emphasises that when developmental psychologists state that a child 'knows' or 'understands' or has a 'belief' about something, they really mean they hold a non-reflective belief about the object or event or agent that child is thinking about (Barrett, 2003). Non-reflective beliefs arise via core knowledge structures and encourage certain assumptions and intuitions about the contents and actions of objects and entities that populate the world. These include assumptions that stones are inedible, snakes are dangerous, and that the sun revolves around the earth.

Experimental designs attempt to trace such implicit beliefs. For example, the participants in Barrett and Keil's (1996) foundational 'theological correctness' experiments were observed to entertain non-reflective beliefs about God's humanlike qualities (specifically, humanlike limitations), despite counterstatements expressed in their reflective beliefs.

There is a much closer correlation between a non-reflective belief and behaviour than between reflective beliefs and behaviour. Intuitive Model theory posits that many early emerging non-reflective beliefs endure throughout the life course. Contradictory, or more elaborate reflective beliefs, may suppress inferential beliefs but they never do so completely. They are likely to re-appear in circumstances where a person does not have the time or means to entertain reflective beliefs. For example, Kelemen and Rosset (2009) found that teleological reasoning biases grew stronger in scientifically educated dementia suffers as they lost access to learned reflective knowledge.

Because non-reflective beliefs are the direct outputs of mental processes that are the same for all non-impaired humans, they are also universal, with little, if any, interpersonal and intra-and-

inter-cultural variation. Barrett states: 'No matter where you go or to whom you talk, people believe that rocks can only be in one place at a time, cannot pass through other solid objects, and must be supported or else fall down'(Barrett, 2004: 9). These folk inferences allow spontaneous decision-making because they greatly lesson the burden of cognitive processing:

> Producing such beliefs is the job of such [cognitive] tools and the utility of such beliefs cannot be underestimated. What if every time we move an object from one place to another (as when we feed ourselves, get dressed, wash dishes, and so forth) we had to reason consciously that objects require support or else they fall toward the ground until their path is blocked by another physical object of sufficient density to stop their descent. Isn't it much more convenient that we have an unconscious device that forms beliefs about how gravity operates on concepts so that we don't have to clutter our minds with such mundane issues? (Barrett, 2004b: 7)

Though Bering does not describe belief in the same way as Barrett, his focus is also on pancultural non-reflective beliefs. He describes these more generally as content-free cognitive processes. He means that non-reflective beliefs or inferential biases are very general; the culturally acquired content that fills them is not deterministic. For example, a bias toward tacit beliefs in psychological immortality does not correlate immediately to 'body' and 'soul' dualism.

In Barrett and Bering's reading, non-reflective beliefs correlate directly to 'intuitions,' as a key feature of non-reflective beliefs is that they are 'instinctual,' allowing behavioural responses without reflective deliberation. The term 'intuitions' can therefore substitute non-reflective beliefs or the more broad term 'implicit knowledge.' Hence, Barrett and Bering contend that they study 'intuitive religious beliefs.'

○ **Practiced and Non-Practiced Naturalness**

A second, and related, division is between 'practiced' and 'non-practiced' cognitions (McCauley, 2000). These basic forms of cognitive naturalness account for the key ways intuitive beliefs arise. Despite being the result of two pathways and involving idiosyncratic content, non-reflective beliefs have the same reflexive and intuitive properties as non-reflective beliefs.

The maturationally natural pathway involves non-reflective beliefs promoted by evolved cognitive mechanisms. These adapted responses arise during exposure to normative human environments. They arise in the absence of instruction, supportive cultural practices, and/or enabling artefacts or technologies. Examples include native language fluency, basic numeracy skills and distinctions between ontological kinds.

Practiced natural non-reflective beliefs, which may overlap or work in tandem with maturationally compelled assumptions, are quite different:

> Practiced naturalness captures the idea of acquiring mastery of certain concepts or skills through intensive training and practice. A chess master may acquire practiced naturalness regarding chess strategy and play. Given enough practice, automaticity and fluency results, so that knowledge of how various pieces move can become non-reflective beliefs. Similarly, an expert in Shakespearean literature might develop such well-rehearsed representations of various characters in Shakespeare's plays that their motives, desires, and idiosyncrasies become non-reflective beliefs. More mundanely, growing up in a particular cultural setting can endow us with non-reflective beliefs about the proper way to order food at a restaurant, how to purchase food at a grocery store, how to drive a car, or how to behave during a worship service (for example, when to stand, kneel, sit, etc). These non-reflective beliefs become non-reflective through practiced naturalness (Barrett and Lanman, 2008: 112).

Nearly exclusively, the Intuitive Model studies the maturationally natural pathways of non-reflective religious belief formations. Yet Intuitive Model theories readily acknowledge that 'religiosity' involves much more than non-practiced 'intuitive religion' (Bering, 2010). Even so,

Intuitive Model explanations do not attempt to go beyond this explanatory boundary line.[15] The 'naturalness of religious belief' metathesis makes no direct claim about how latent biases are encouraged or suppressed by cultures or the individuals who experience them; religiosity is thus not seen an isomorphic outgrowth of underlying cognition (Bering, 2010: 167). Barrett, in particular, cedes the study of practiced natural non-reflective beliefs to 'cultural evolution' theories. However, the Intuitive Model does rest on a probabilistic claim. While the 'naturalness of religious beliefs' metathesis is non-deterministic, the inferential cognitions which excite the generation of religious beliefs suggest that such beliefs will appear in numerous, if not all, cultural settings.

1.4 The Intuitive Model's Empirical Methodologies

The 'naturalness of religious belief' metathesis and the Intuitive Model's definition of key concepts such as 'belief,' 'intuition,' and 'non-practiced' and 'non-reflective beliefs' justifies the methodological reductions and choice of human subjects that feature in Bering and Barrett's work. The Intuitive Model, while analysing general cognition, does not study religion in general. Like all CSR research, scholars *fractionate* and *deflate* religion (Boyer, 2005; Whitehouse, 2008) focussing on one recurrent belief or set of interrelated beliefs.

Barrett affirms that nomothetic cognitive-development psychology is the preeminent way to study 'intuitive religion.' Indeed, both Bering and Barrett believe that it is controlled experimental research that puts the 'science' in the CSR (Barrett, 2008b). Barrett, in particular, has long criticised the CSR for the paucity of experimental evidence behind key hypotheses proposed by cognitive anthropologists:

> Unfortunately, I perceive in my field a general tendency to attempt to solve theoretical problems through argumentation alone. Rather than systematically test Lawson and McCauley's claim, for instance, we would rather explain how they just don't seem right (or do seem right), cherry picking historical cases or ethnographic anecdotes instead of doing the hard work of systematic data

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[15] However, Intuitive Model theories of atheism are an exemption to this rule. I discuss atheism in chapter three.

collection. Where is the *science* in the cognitive science of religion? (Barrett, 2008b: 297)

Barrett argues that controlled experimental studies ensure that Intuitive Model theories, in contrast to more 'speculative' anthropological theories rest on a more reliable empirical footing. Not only are they supported by a strong research tradition in experimental psychology but the emphasis on precise, controlled testing of predictions, allows for reliable empirical studies of posited hypotheses.

Nomothetic developmental psychology is essential to Intuitive Model research because of the contention that cognitive biases and inferences are maturationally natural. Children are thus the necessary subjects of such research. In addition, against a strong neo-Piagetian tradition, which argues that a fundamental cognitive shift occurs between the cognitions of children and adults, Intuitive Model theories propose that maturationally default non-reflective beliefs endure throughout the life course, thus increasing the relative salience of studies conducted on children.

Crucially, experimental science grants access to people's tacit religious beliefs through task designs that separate spontaneous or time-pressed reasoning from explicit reasoning behaviours. This is critical in Intuitive Model research because Intuitive Model theories propose that the study of religious texts and interpretive, ethnographic research provide no information about an individual's tacit religious beliefs. It is only the experimental 'lab' and not observational anthropology or comparative religious studies that allow access to a person's implicit beliefs.   Because you cannot ask a believer about the tacit beliefs she entertains, a religious expert and an adult lay believer encultured in a specific religious tradition, in a purely cognitive sense, differ little from a five-year-old child who has absolutely no explicit knowledge of the religious tradition. It is this supposition that justifies why Intuitive Model theorists are able to study the causal role of cognition in isolation from cultural causations.

Similarly, Intuitive Model theories have little interest in consilience theorising between interpretive and explanatory approaches as the subject matter of investigation, the cognitive development of 'religious' thinking in young children, removes interest in the holistic and detailed study of the child's world and socialised context. Intuitive Model theory posits that the singular focus on panhuman cognitive development offers a rich basis for the generation of recurrent religious ideas in various cultures.

Intuitive Model theories prefer 'artificial' rather than naturalistic studies. In fact, key to the Intuitive Model is the *artificially* or contextual neutrality of the experimental setting. The experiments are artificial in the sense that children are encouraged to ponder questions they may not have explicitly considered in their normative world engagements and thus have not had time to reason through initial interpretative reflections. Justifying this, Intuitive Model theorists note that children display only very basic understandings of death and the reasoning behaviours of other agents. Experimental devices such as time constraints and the inability to source authoritative advice grant psychologists a glimpse at the implicit assumptions that children entertain. Thus, 'developmental psychologists of religious belief' employ uncommon questions and task designs to spark default intuitive responses. Furthermore, the 'lab' setting ensures that religious contextual influences play only a minimal role in resultant reasoning and behaviour.

1.5 Theoretical Divergences between Bering and Barrett

I noted at the outset that despite similarities in perspectives, there are also crucial distinctions between Bering and Barrett's research methods and resultant hypotheses. These now need to be emphasised to ensure I do not collapse the work of either in the following pages.

   ○ **Differing Understandings of Ontology and Explanation**

Firstly, Barrett and Bering have different expectations about the explanatory scope of their theories. Barrett restricts his hypotheses to the experimental findings themselves: the 'preparedness hypothesis' is a statement about the available developmental data. Bering's 'folk psychology of souls' places his developmental research amongst a theoretical survey that includes ethnography, comparative psychology, existential psychology, and evolutionary psychology. His developmental research preempts the larger evolutionary hypotheses.

While Barrett's research relates to the classical cognitive interest in the information processing of concepts, Bering departs from this investigative framework through his focus on the evolutionary origins of existential concern.

   ○ **Different Emphasis on Evolutionary Theory**

The role of evolutionary theory in Bering and Barrett's hypotheses reflects a distinction in ontological commitments. Barrett is a practicing Christian who does not believe that the natural scientific study of religion is able to answer ultimate ontological questions. He remains 'agnostic' (Barrett, 2004b: 9) on evolutionary theorising about the origins of religious beliefs. He has no problem with the claims that religious beliefs are prolific because they are the by-products of everyday cognitive processing. However:

> The relationship between CSR and evolutionary science is…more opportunistic than necessary. That is, CSR could explore how natural human cognition informs and constrains religious expression without explaining why human cognition is how it is. Such an explanation, perhaps provided by evolutionary psychology, increases the depth of CSR's accounts, but in fact amounts to a secondary project (Barrett, 2007: 12).

In contrast, Bering positions himself as a member of the 'new atheist movement' (personal communication). Bering wants to explain the peculiarity and pervasiveness of beliefs from an evolutionary perspective. His research is overtly entrenched in the theoretical propositions of classic evolutionary psychology, including David Buss, Leda Cosmides, John Tooby and Steven Pinker. The evolutionary model behind his hypotheses is critical. He states:

> It is unclear to me how one could ever begin to construct such a methodology without first having a general evolutionary theory capable of generating hypotheses and offering an interpretive lens through which to view the findings (Bering, 2006:489).

Evolutionary perspectives have major implications for Bering's understanding of the 'naturalness of religion' metathesis. Bering's causal account is bottom up. His interest is in aligning the evolutionary foundation of human cognitions with religious beliefs as they appear across cultures. The 'folk psychology of souls' is clearly an attempt at a general evolutionary psychology of existential reasoning. It is an ambitious macro-level theory that necessarily correlates the empirically sourced with the theoretically speculative. He argues that beliefs in meaningful supernatural agents are an ex-adaptation. Like Barrett, he argues that early intuitions about supernatural beings were a by-product of a mind adapted to police predation and to reason strategically about other agents. However, Bering also contends that the basic building blocks of such cognitions became a system favourable to evolutionary processes due to their fitness enhancing social inhibitions.[16] He has studied the cognitions of chimpanzees hoping to uncover the deep roots of religious beliefs (Bering, 2001).

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[16] For the purposes of this thesis, I am putting aside the rich internal and external debates about the position of evolutionary theory in the CSR. Certainly, the role of evolutionary theory in CSR research is both basic and richly contested. However, it is my contention that the recurrent focus on the validity and relevance of evolutionary theorising ensures that equally recurrent questions remain unanswered. By bypassing evolutionary evaluations I can address the criticisms directly and locate commonalities between research areas that are often alienated from each other due to different emphases on evolutionary frameworks. Engaging with the critics on their own terms offers a way to consider and accommodate critical perspectives without the ontological search for the evolutionary plausibility of subjects under discussion. I am inspired by some CSR researchers such as Whitehouse (2008) and Barrett (2008) who argue that the evolutionary basis of cognitive processes need not be a central focus in the CSR. I accept that temporarily placing aside the rich and fertile discussions on the place of evolutionary theory in cognitive studies of religion is admittedly risky. However, it is not a regression as my thesis encourages Intuitive Model theorists to interact directly with the critical literature on the critics own terms. Because these criticisms

As noted above, Barrett is critical of such evolutionary considerations (Barrett, 2007).He is also critical of the easy alignment of research conducted in different explanatory fields. Developmental studies may be of interest to scholars working in these fields but it is not necessary for scholars to be jacks-of-all-trades, as this has the potential to destabilise experimental evidence.

Barrett is not overly concerned with explaining the evolutionary developments of these mechanisms. Similarly, he believes that the existential meaning of religious beliefs is a theological question beyond the instrumental investigative framework of the natural sciences. Put simply Barrett is interested in 'how' questions, whereas Bering is interested equally in 'how' and 'why' questions.

Still, Barrett argues that Intuitive Model theories complement Standard Model theories because the Intuitive Model introduces a missing ingredient within 'cultural evolution' or 'selectionist' models; namely the actual developmental origins of such beliefs. Bering disagrees. He contends that concept acquisition, as features in Barrett's theories and the dominant Standard Model hypothesis, Boyer's theory of minimally counterintuitive representations, should only be of peripheral interest in cognitive studies of religion. He states:

> I remain unconvinced that the ontogenetic expression of implicit religious beliefs turns on children's conceptual slots being filled by such counterintuitive representations… Rather, it seems equally, if not more (based on recent data, Barrett et al. 2001; Bering 2002a; Bering & Bjorklund 2004; Kelemen 1999), plausible that the generativity of religious concepts is nothing more than an epiphenomenal process that maps descriptive, memorable ontological properties onto already existing causal inferences that are spontaneously generated by individual minds (Bering, 2003: 244/245).

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can be observed from numerous disciplines, I think it is valid for scholars to examine them unburdened by the fruitful and extensive evolutionary debates.

Uniquely, Bering contends that research in the CSR has failed to distinguish between environmental and subjective events, such as the ways in which people derive existential meaning from perceptual inputs. He argues that the CSR ignores the existential meanings that people grant their religious beliefs (Bering, 2003: 250). In his reading, this existential meaning is vital to the everyday experience of religion. Bering's 'folk psychology of souls' seeks to overcome this absence by focusing on how cognitive mechanisms allow people to make sense of random events in terms of individual meaning. He sees key hypotheses, such as the 'simulation constraint' hypothesis, directly contesting the Standard Model. He argues that the experimental data suggests that beliefs in psychological immortality arise spontaneously because of the inability of children and adults to simulate the experience of death.

- **Different Folk Psychological Models: Simulation vs. *Theory* Theory of Mind**

Bering's interest in the onset of an 'existential theory of mind' draws attention to a major difference between Bering and Barrett's theoretical frameworks. As I highlighted earlier, both agree that theory of mind and folk psychology is a decisive human adaptation; it is required for skilful social interaction and plays a primary causal role in explaining behaviour.

Barrett's focus on conceptual development in religious thinking builds upon classic theory of mind literature. Barrett subscribes to the *theory* theory of mind, the contention that children understand the beliefs and desires of others through the utilisation of 'theory like' principles (McCauley, 2000). Children are described as little scientists because they draw conclusions about the mental states of others by observing and interpreting their behaviour. From such tacit inferences, they develop predictions, expectations, and further inferences before applying these in novel scenarios and hypothetical situations. In particular the 'rules' that govern how beliefs and desires motivate behaviour encourage predictions about the internal mind states of entities perceived as intentional agents. Paul Churchland describes these rules:

> Each of us understands others, as well as we do, because we share a tacit command of an integrated body of lore concerning the law like relations holding among external circumstances, internal states, and overt behavior. Given its nature and functions, this body of lore may quite aptly be called "folk psychology" (1990: 207).

In contrast, Bering's focus is not on conceptual development and the interpretation of agency but on inferential reasoning behaviour relative to social interactions. Bering contends that the key mechanism underlying theory of mind competence is a simulation mechanism.

Simulation theory of mind is an alternative model of theory of mind aptitudes. Simulation theory denies, or at least appends, the key 'theory theory' claim that people understand others through the deployment of theories. Bering follows Paul Harris and Goldman's argument that humans routinely generate analogous internal experiences of others in order to comprehend them.

Intuitive reasoning about other agents is a result of such simulations. The simulation hypothesis asserts that people must recognise their own mental states before they can ascribe them to other people/ agents. Simulation theorists argue that it is essential to social coordination and may underline empathy experiences (Goldman, 1992). The ability to defer to one's own thoughts while interpreting the behaviour of others massively reduces complexity.

 Bering's interest in simulation theory encourages him to propose a new variant of theory of mind competence. This is a new model because of the central focus on 'meaningful mentalistic interpretations' (Bering, 2002: 3). Bering's 'existential theory of mind' integrates thought, emotion, and motivations in pursuit of a fuller understanding of intuitive reasoning. Introspection is thus the basis of such reasoning and it develops and matures as a person does.

However, simulation theory expects that people interpret events, agents, and objects in terms of subjective meanings compelled by innate mental apparatuses. Such cognitively compelled subjectivity plants religious themes and ideas onto an indifferent external world. As expected in

'theory theory,' such simulations are predictive and explanatory. It is the generated subjective meaning, which realises the simulation and motivates behaviour. Subsequently, as in 'theory theory,' the default-reasoning stance remains dormant throughout a human's life and is exposed in rapid or real-time thinking behaviours.

However, Bering's focus is not so much on simulation but on simulation constraints. The 'simulation constraint' hypothesis encourages him to focus on the effects these constraints and errors have on subjective reasoning. For example, because children cannot imagine psychological non-existence they 'simulate' analogous experiences such as 'sleeping' or 'resting.' The effects of such simulation constraints on existential reasoning are the focus of his theories.

Considered together, these three distinctions (ultimate ontological commitments, relative centrality of evolutionary psychology and alternate understandings of innate folk psychology) encourage very different emphases and conclusions in their research.

Crucially though, despite these differences, Bering and Barrett agree at a metatheoretical level. Both psychologists assume structural similarity in the mind-brain and its generic development in all healthy humans. They concur that many religious beliefs are truly intuitive.

1.6 The Internal Critical Literature: Three Themes

Having described the explanatory framework above, I now examine the core critical writings on Bering and Barrett's theories. Despite their various differences, I note certain commonalities in the critiques of each theorist's work that apply to both theorists in equal measure. My aim in this section is not to defend or add further criticism to their specific hypotheses, nor is it to uncover whether specific criticisms of a particular hypothesis are warranted. Rather, my aim is

to discover what the critical literature, as a collective body, contends are the major unresolved issues in Intuitive Models of religious beliefs. [17]

I begin by citing the three dominant objections to Bering and Barrett's work. I then consider how each theorist has and/or would respond to these objections. I argue that these recurrent criticisms isolate significant issues at a metatheoretical level. In subsequent chapters, motivated by these criticisms, I explain why Bering and Barrett need to consider and respond to scholars who use humanities' frameworks or alternative models of cognition. The three recurrent criticisms of Bering and Barrett's theories are:

1) Experimental task designs are problematic and findings are ambivalent and/or inconclusive.
2) Bering and Barrett imply universality without appropriate ethnographic or experimental evidence. They appear to universalise a uniquely modern and American understanding of religion and religious belief.
3) The Intuitive Model excludes the obvious, and critical, role of sociocultural causations.

These criticisms represent what I consider the major unresolved criticisms of their research. I now examine each of these criticisms individually:

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[17] I exclude criticisms which discuss one of Bering and Barrett's hypotheses and have no immediate relevance to their experimental research on children (such as Lisdorf's criticism of Barrett's HADD system (2007 and Robbins and Jack's (2006) critique of the simulation constraint hypothesis). Furthermore, I ignore criticisms that only pertain to one theorists (for example, the evolutionary framework of the 'folk psychology of souls' is heavily contested, see: Hegde and Johnson 2006; Pyysiäinen, 2003, 2006, Boyer, 2006). Finally, my decision to investigate the metathesis is strategic. Because I do not have training in developmental psychology, I do not have the ability to analyse the experimental work in terms of its experimental validity. I necessarily rely on those that have had such training and from them source a set of recurrent criticisms, which I approach from novel angles in the following chapters.

o   **Experimental Findings are Problematic**

The most significant criticisms focus on the ambivalent nature of the Intuitive Model's experimental findings. Critics contest every Intuitive Model experimental study arguing that they involve questionable task designs and discordant and/or contradictory results in the subsequent replication of experiments. Many critics argue that Bering and Barrett are guilty of 'over-interpreting' experimental findings.

A related problem is that Bering and Barrett's theories call into question long established hypotheses and empirical evidence. For example, Barrett must compete with the neo-Piagetian argument that 'god concepts' are always by-products of human concepts (Piaget, 1951: 111 and below for discussion).

Peter Westh (In Press) contests the validity of the 'theological correctness' experiments. He notes that in the majority of the experiments, participants completed the task at their own paces, and some even had the story in front of them. He concludes that 'there is no reason to think that the anthropomorphic bias in the story comprehension task was caused by a pressure to perform "*fast* on-line reasoning" or by limited memory capacity. If indeed there was 'cognitive pressure' it was due to the *complexity* of the task rather than a demand for simple and fast heuristics' (Westh, In Press: 11, italics in original). Thus, in his reading, the fundamental Intuitive Model claim that 'people's knowledge about how the gods operate does not turn on any specifically cultural content' (McCauley, 2000: 78) does not have experimental support.

Nikos Makris and Dimitris Pnevmatikos also question the Intuitive Model's experimental evidence. They cross-checked Barrett and Richert et al.'s claim that children are able to conceptualise the representational properties of supernatural entities prior to the development of a representational understanding of the human mind. The critics replicated two of the three experiments published as 'God's Beliefs vs. Mothers' (2001), involving a modified perspective-taking task. Makris and Pnevmatikos were motivated by Pnevmatikos' earlier findings (2000)

which support the contradictory neo-Piagetian claim that before developing the cognitive ability to pass the false belief task children routinely attribute human properties to *all* non-human entities, whether plants, animals and/or gods.

Makris and Pnevmatikos take specific issue with the claim that 'when children reason about God's and a person's knowledge, they are able to reason more accurately about God than they can about human beings' (Barrett, 2003: 231). They argue that extant experimental results are ambiguous and can actually explain the opposite of what Barrett and Richert claim. The same studies highlight children's strong tendency to project human mental properties onto their concepts about God.

Margret Evans and Henry Wellman argue the same point; children only grasp God's omniscience once they can reason about false beliefs (Evans and Wellman, 2006: 471). They locate a methodological shortcoming in the experimental design, arguing that the results (Barrett and Richert, et al., 2001) do not make clear whether three-year-old children attribute the human agent with superhuman qualities or whether they anthropomorphise God.

Certainly, the use of the false belief test to track the onset of mature theory of mind understandings is problematic. A body of developmental literature (Wellman and Cross et al., 2001; Wellman and Liu, 2004) view the development of second order representational ability as one of gradual progression rather than an abrupt shift in cognitive development. In particular, Pratt and Bryant's (1990) experiments imply that by the age of three children understand that 'not seeing' equals 'not knowing.' Wellman and Liu also found that children have basic understandings of ignorance much earlier than four-and-a-half-years old as maintained in the false belief literature. Both experiments point to the presence of some abilities necessary for the representation of human minds much earlier than expected in the theory of mind literature. In light of this research, Makris and Pnevmatikos argue that Barrett and collaborators should have employed a task that allowed them to consider early emerging skills in the representations of human minds.

Thus, Makris and Pnevmatikos' experiments include a task that tracked an early emerging component of a representational understanding of the human mind: the knowledge that perceptual limitations inhibit knowledge. They argue that the inclusion of a task that traces this early emerging understanding is critical to establishing the validity of the 'preparedness hypothesis.'

The results of their first experiment were similar to Barrett and his collaborators. Like American children, Greek children did not appear to be able to distinguish between God and human minds before the age of five. Subsequently, they did not transfer their new knowledge of human fallibility onto God.

However, the second experiment, which included the novel task design problematise the results of the earlier experiments. In the second study, children did not grant God the qualities that Barrett contends underline the 'preparedness hypothesis.' They found that prior to the advent of mature representational ability children report similar limitations for both humans and gods. This suggests that the youngest children do not treat God and human minds differently. Rather they display a singular and indiscriminate conception of mind and thus, in Makris and Pnevmatikos reading, are no way 'cognitively prepared' to grasp 'god concepts' of mind prior to human ones:

> This understanding is quite general and not accompanied by reflection on its object so that it does not enable younger children to reason comparably for human and super-natural mental properties (Makris and Pnevmatikos, 2007: 373).

Their study proposes that it is only at the age of five years that children exhibit a heuristically sound awareness about human minds. It is only when this representational ability is established, and utilised, that children are capable of generating understandings about a differentiated supernatural mind. They conclude: '[b]efore that time, children seem to have

only one way of understanding the representational properties of mind, human or super-natural, and that is an anthropocentric one' (Makris and Pnevmatikos, 2007: 374).

Nevertheless, Makris and Pnevmatikos' conclusions are as tentative as Barrett and his collaborators. Barrett responds that their second experiment is unable to track whether children are reasoning anthropomorphically or merely egoistically (Barrett, 2008a: 1). This is important because if it is the latter the pre-representational findings may be nothing more than an example of children working through what is familiar to them rather than a projection of human qualities onto other agents.

Bering's perceived 'over-interpretation' of experimental data relates to his blending of this data with evolutionary and existential psychological perspectives. Evans and Wellman, whose experimental work Bering's theory intimately depends, criticise his task designs and the conceptual frameworks that explain the experimental data (2006: 471). They also criticise the lack of a developmental trajectory for the existential reasoning behaviour he documents. Without this consideration, Bering's evolutionary and developmental theory is unconvincing. Like Pyysiäinen (2006: 483), they reason that Bering needs to distinguish his existential psychology not only from normative theory of mind reasoning but also from intuitive conceptions of origins and agency if he wants his thesis to be plausible and not just derivative of ordinary theory of mind skills.

Wellman and Evans accentuate that the few experiments that do chart the advent of existential concerns are not only tenuous in terms of design they are also contradictory. They observe discordant correlations in Bering's own experiments. In the 'Princess Alice' experiments, existential reasoning appears to depend on the onset of theory of mind, as only the oldest children (seven-years and older) reliably inferred communicative intent behind natural events, while the youngest children struggled to reason in this way. Yet this is in contrast to the key findings of the 'Mouse and Alligator' experiment, which implies that before the onset of a

representational understanding of mind, children appear to grant mental functions to dead agents (Evan and Wellman, 2006: 471).

Moreover, Evan's own research (with Poling: 2002), as well as Clark Barrett and Behne's (2005), suggests that four to five-year-olds cease to project mental attributes onto the deceased. Similarly, Flavell and Green et al. (2000) found that five-year-olds do not attribute thinking behaviour to waking persons; they actually seem to downplay the mentalistic activity of people engaged in mundane tasks. Wellman and Evans advise that because his finding are at odds with the extant, though clearly still meagre, findings in the related literatures Bering should be cautious of the claim that children universally project mentalist properties onto dead agents and that this ascription is the causal building blocks of existential cum prosocial reasoning.

Evans argues that 'creationist' beliefs about animal origins may inform the development of an existential understanding of mortality as this correlates to knowledge that humans are responsible for the construction of artefacts without biological preconditions. Evans proposes that children, when pressured, transfer their knowledge of human intentionality in the construction of artefacts to origin considerations. Prior to an appropriate understanding of human intentionality, children cannot, and do not, sense a superhuman designer. In contrast to both Barrett and Bering, Evans and Wellman reason that god and/or afterlife concepts require cognitive effort, necessitating the onset of knowledge about human intentionality, artifice, fallibility and the entertainment of existential questions about mortality and existence. They conclude that Bering has offered an evolutionary theory without offering a developmental one. This is a problem because Bering's evolutionary theory depends on his developmental research. Without this, it is probable that existential concern is contingent on a developing theory of mind.

Evans also notes that Bering misrepresents her own research on species origins. She takes particular issue with his claim that there are significant associations between belief in intelligent design and belief in immortal souls. In fact, Evan's work emphasises contextual

factors and shows that children from Christian backgrounds prefer creationist accounts of origins, while young children from non-fundamentalist backgrounds are equally prone to spontaneous generation (in Aristotle's classic example: dung makes flies) accounts as they are to creationist ones. She found that it was only once they were eight-years-old that children, regardless of their schooling or their parents' religious affiliations, preferred creationist explanations of origins to alternatives (Evans and Wellman, 2006: 471). These finding's lead Evans to propose that children younger than this age are unable to appreciate origin concepts because they have not developed the requisite existential knowledge about death and human transience.

In response, Bering admits that a robust developmental trajectory for the 'existential theory of mind' is currently unavailable due to a lack of systematic experimental research on the questions that the model raises. He accepts that until the experimental work is undertaken, the theory must remain hypothetical. However, he does not believe his two experiments are contradictory, as they are focussing on different reasoning behaviours and are not directly comparable.

For example, the 'Princess Alice' experiments examined whether, and if so at what age, children begin to infer meaningful communicative messages in causally unrelated events, while the 'Mouse and Alligator' experiments examined whether children separate biological and psychological states when reasoning about dead agents. While the 'folk psychology of souls' does bundle the two types of intuitive beliefs into a single adaptive system it is misleading to directly compare and contrast them.

Bering also contends that Evans and Wellman are mistaken to compare his 'Mouse and Alligator' experiments with studies by Barrett and Behne (2005). He argues that the two sets of studies are not comparable because they are motivated by different research questions. In particular, Barrett and Behne's study did not focus on afterlife beliefs but on children's understanding of death and sleeping. He states:

The fact that the youngest children answered "no" in reference to the dead animal, but "yes" in reference to the sleeping animal, is hardly prima facie evidence against my argument that belief in the afterlife is a cognitive default. In fact, if belief in the afterlife is a cognitive default, then we would actually predict the pattern of findings reported by Barrett and Behne (2005). That is, preschoolers should answer "no" to questions about the bodies of dead animals (notice the key word "it" in the questions posed to children) if indeed they view the mind as being liberated from the body at death (Bering, 2006: 491).

Brian Hughes (2006: 477) argues that there are major validity issues in Bering and collaborators' experimental studies. Construct validity issues arise because of potential participant-experimenter biases. This is notable in the much-documented problem that the age and status of the experimenters influence the answers children give. Through the questions asked of them, children infer what the experimenters would like them to answer then respond accordingly. Appropriate designs need to put appropriate checks in place before asserting that children normatively believe something.[18]

Hughes also contends that the validity of the experiments is questionable because they lack a control condition. He suggests that a control condition could have examined continuity reasoning about inanimate objects, which may have confounded Bering and collaborator's results. If, as Barrett and Johnson found (2003), children readily project agency onto inanimate objects then it would become difficult to know whether children's continuity reasoning is any more profound than the ubiquitous adult tendency to project animacy onto cars and computers.

Finally, he believes external validity issues exist because it is not clear how a child's belief that a fictional dead mouse continues to have psychological and affective mental states is generalisable to a belief in immortal souls. He states: '(c)hildren's well established capacity to

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[18] Hughes believes that a participant-experimenter bias may also feature in the college students experiments. The response delays that Bering codes as evidence of a processing difficultly may in fact result from social consideration on behalf of participants who may be thinking 'Is this a trick question?' or 'How do I respond to this question without upsetting the experimenter who appears to believe in the afterlife?' (Hughes: 2006: 477).

engage in counterfactual thinking which underlies the ability to engage in pretend play, may lead them to think differently about dead mice in experimental vignettes compared to dead people in real life' (Hughes, 2006: 477). Maurice Bloch offers a similar, though overly dismissive complaint: 'As far as I am aware, most religious systems are not much concerned with the survival of the souls of rodents' (Bloch, 2006: 465).

The fact that Bering and Barrett's experimental findings are highly contested and in some instances, even directly refuted, must encourage us to approach Intuitive Model claims with caution. Undeniably, these conflicting findings are conspicuous in a field of research that locates its empirical rigour in its experimental findings. It is also especially important given that the experimental evidence is the backbone of the metathesis. This point is also significant to my larger thesis argument because, given the ambivalence of results, and the contradictory nature of alternative experimental evidence, It needs to be explained why hypotheses drawn from the Intuitive Model have not accommodated theory from other areas of the CSR, which may help resolve the current limitations of the experimental evidence. I discuss the ways in which the Intuitive Model depends upon broader CSR and ethnographic research in the next section.

- o **The Universality of Theory is Debatable**

The second objection relates to the universal relevance of the beliefs examined in the experimental studies. Critics, with knowledge of the ethnographic record, focus on the presumption of universal beliefs across religious traditions. They argue that Bering and Barrett imply universality without appropriate ethnographic or experimental evidence. More seriously, these critics reason that the Intuitive Model appears to universalise a uniquely modern and 'American' understanding of religion and religious belief (Whitehouse, 2006: 485; Bloch 2006: 465; see also Roth 2008).

For example, there is uncertainty about the cross-cultural salience of Barrett and collaborators' work on 'god concepts.' Barrett himself is ambiguous about the universal applicability of his

theory. He acknowledges that the majority of his experimental research is only of immediate relevance to high modern Western contexts familiar with Christian traditions (Barrett, 2008: 2). He notes that his work has focused on the advent of monotheistic 'god concepts' and therefore may not account for cultures without deities with similar characteristics. Even so, he does contend that monotheistic 'god concepts' should exhibit a cognitive advantage over other deity concepts, though he leaves this as a resolved hypothetical question. By limiting his study to Westerners' beliefs in God, Barrett has little issue with the fact that most of his participants are from such populations (Barrett, 2004b, 89ff). He also notes that the anthropomorphic bias uncovered in the 'theological correctness hypothesis' may be partially due to the intrinsically anthropomorphic character of Christianity: God is believed to manifest himself as a human and is worshipped in human form. He leaves the question of whether believers from other faiths show a more muted anthropomorphic tendency, or whether non-believers have a tacit god concept, to further empirical study (Barrett, 2008: 2).

Yet even with the above questions unresolved, Barrett's understanding of the tight relationship between cognitive processes and maturationally natural non-reflective beliefs engenders universal propositions. However, even if the processes of conceptual development are relatively similar, supernatural agent concepts may not be. Barrett would not see this as an immediate problem because the 'preparedness hypothesis' does not rely on universal similarities in supernatural concepts. All it suggests is that the cultures that do feature omnipotent gods do so, in part, because they grow in minds with minimal cognitive effort.

Nevertheless, we have seen that Barrett does not exactly mean 'god' concepts but rather supernatural agent concepts more generally. Barrett's definition of 'deity' is on the surface so basic that it does not consider dispositional characteristics (such as Spilka, Armatas and Nussbaum's classic factorial distinction between 'Benevolent Ruler', 'Harsh God', 'Impersonal God' or 'Psalmist's God' (1964). It also does not accommodate event significance or the contextual and situational factors that alternative cognitive-cultural theories emphasise.[19]

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[19] Some of these alternative models are discussed in depth in chapter three.

However, even in such a skeletal form, Barrett's universal deity template does necessitate a cognitive bias toward agents that hold three characteristics: omnipotence, omnipresence, and omniscience, even if the distribution and relative strength of each characteristic varies across cultures and developmental periods. Barrett's experiments suggest that all children implicitly imbue *all* agents with such characteristics, whether the agent is another child, a house rat, emu, *taniwha*, ghost, or an adult. Barrett and collaborators crosschecked the posited characteristics of basic agency with an Indian sample. Despite correlations with the Western studies, the Indian study has major limitations. Barrett himself admits: 'this study has a restricted age range, and may mask important cohort effects [therefore] interpretations must be made tentatively' (Barrett, 1998: 616).

Barrett contends that it is only through experience and the onset of higher order cognitive capabilities that children learn to separate 'kinds of minds,' constructing and applying concepts of deeper range and understanding. Yet because children already have these rudimentary, though erroneous, understandings of agency in place, they are cognitively prepared to process and accept postulated beings that have these characteristics. It is not so much that they *believe* in them but rather that such beings make intuitive sense because of the generic agency template.

Critics also object to Bering's universal definition of afterlife beliefs. The hypothesised universal relevance of his existential folk psychology demands species-wide confirmation. This is because the bundle of 'inference illusions' that comprise the folk psychological cognitive system require the presence of universality before it can be considered a true adaptation (Bering, 2006: 490). This is why his research seeks evidence in non-believing populations. Seeking cross-cultural evidence, Bering and Blasi et al. crosschecked young children's continuity scores in psychological reasoning about death with a Spanish sample of children from secular and religious backgrounds (2005). They found similar results to the initial American Study (2004).

However, the anthropologists Bloch (2006: 465) and CSR scholar Harvey Whitehouse (2006: 486) contend that the larger framework of the 'folk psychology of souls' is not supported by the ethnographic record. Bloch believes that Bering is universalising a uniquely American form of religion via his correlation of religion with existential concerns about individual purpose and his assertion that religion encourages prosocial behaviours. He is critical of the universal characterisation of supernatural agents and ancestors as morally concerned about the actions of the living. He points to Malinowski's research on the Trobriand Islanders who appear to have rich afterlife beliefs but morally indifferent gods. This lack of interest with the moral dimension of the living is also notable in the gods of the *Iliad*, while Catholic Christianity evidences little concern about deceased descendants' souls (Bloch, 2006: 465).

Bloch also questions Bering's assumption that supernatural agents are always on the side of 'good' ('good' for Bering meaning behaviours which promote prosocial cohesion). Again, in his reading, the ethnographic literature does not support this claim. He cites Meyer Fortes' research that finds that the behaviours ancestors expect of believers are often highly self-serving and only incidentally related to altruistic concerns. He argues that supernatural agents, are often indifferent to moral concerns and many are dedicated to causing distress in the lives of believers. For example, African nature spirits, the spirits of aborted foetuses in Japan and witches and devils in Western traditions are all antisocial. He concludes that Bering's belief in the universal supernatural moral police is unproven. Whitehouse (2006: 486) also advises that in many instances supernatural agents are not high-moral agents. He notes that in Melanesian traditions the gods wantonly cause homicidal behaviour. Many gods or supernatural beings seek to harm believers regardless of the believer's action. He also questions whether notions of a purposeful life are atypical to traditions outside of highly individualistic modern Western cultures.

Correspondingly, Whitehouse also wonders if 'offline' social cognitions are less common in small hunter gather communities where evolutionary psychology argues that social cognitions were developed and refined. In this normative environment, physical separation is limited and

probably infrequent. Thus, it is perhaps harder to stop thinking about the implications of the death of familiar people.

Adam Cohen and Douglas Kenrick et al. (2006: 468) also stress cross-cultural variability in beliefs about supernatural agents and the afterlife. Cohen and Kenrick et al. propose that variations in afterlife beliefs are explainable through a close analysis of variations in physical and social ecologies. For example, they wonder if resource scarcity and hostile or unpredictable environments enhance the moral capacities of supernatural agents.

Superficially, the above ethnographic concerns with posited religious universals trouble Intuitive Model research. However, it is likely that Bering and Barrett would dismiss some of the arguments in this section. The ethnographic evidence Whitehouse and Bloch present are examples of reflective beliefs. As noted, Barrett is not interested in causally explaining explicit reflective beliefs in terms of intuitive latencies. Nevertheless, the 'folk psychology of souls' must take heed of these findings because of the theory's tight relationship between intuitive and reflective beliefs.

Bering may respond that it does not matter how the supernatural agent acts, what is in important is that they do, and that believers' assume that they have access to a person's socially hidden motivations and desires. The moral properties and interests of the believed agent are distinct from the cognitive biases that encourage belief in such agents. This strategic access is the critical emphasis of the 'folk psychology of souls' as agents with such access override theory of mind reasoning.

 Importantly, however, because Intuitive Model research attempts to explain universal patterns of belief, it is significant when ethnographic data calls into question postulated beliefs. This highlights the critical role that anthropologists and scholars of religion play in ensuring that psychologists are studying truly prolific beliefs. Furthermore, it demands cross-cultural

experimental testing to examine how people from different cultures and faith traditions implicitly imbue such agents.

In summary, the concerns about the explanatory reach of isolated studies conducted predominantly on Western children are important because of the close relationship the Intuitive Model posits between the universal cognitive processing of the mind-brain and the probabilistic recurrence of certain religious beliefs. The criticisms in this section highlight three things. Firstly, that Bering and Barrett need to explain in detail the beliefs that they are examining. Secondly, that they need to begin to account for why these beliefs do not appear in some cultures and finally, that they need to obtain a wider pool of participants for their experiments.

These criticisms are also relevant to my larger thesis aim because they articulate the difficulties with generalising universal beliefs across cultures and thus encourage my redefinition of the Intuitive Model's treatment of beliefs in chapter three. Furthermore, they document the difficulty in universalising intuitions through reflective beliefs.

I now review an alternative developmental theory and the problems it presents to the Intuitive Model.

- ○ **The Intuitive Model ignores Sociocultural Causations**

Paul Harris and collaborators present an alternative developmental theory that downplays the Intuitive Model's focus on specific intuitions. It is the most robust developmental alternative to the Intuitive Model. I present the theory below to highlight the persuasive alternatives to the Intuitive Model.

Harris and Richert place especial importance on the role of testimony in establishing and normalising children's religious beliefs. In particular, they question Kelemen and Bering's claim

that dedicated cognitive systems promote casual reasoning biases that compel belief in unobservable forces. Harris and Richert argue that it is hard to see how one dedicated mechanism could account for such a heterodox and pervasive phenomenon (Harris and Richet, 2008: 547). While the cross-cultural belief in a property akin to the soul appears to support a bias toward assuming hidden essences, they reason that 'other examples of religious and non-secular beliefs in unobservables seem too ornate and narrative-like to rest on such a pared down mechanism. They ask if a belief in the Virgin Birth, the caste system, or the power of witchcraft all to be attributed to a localised capacity for thinking about hidden mechanisms?' (Harris and Richert, 2008: 547).

Harris' experimental work (Harris, 2007; Harris & Giménez, 2005; Harris and Pasquini et al., 2006; Harris & Koenig, 2006) uncovers that children readily distinguish between real and imagined entities. This research suggests children only confuse ontological distinctions between the 'make believe' and the 'real' in extraordinary circumstances. While children frequently exhibit emotional reactions to their own pretence (such as fear at the imagined presence of a witch in a wardrobe), they are still able to maintain a distinction between reality and fantasy. Harris suggests that pretence emotions are not, as William James claimed, an example of confusion about the 'real' and 'imagined,' but stem from the same emotional reactions that adults entertain when engaging with fictional media, such as a willing suspension of disbelief through engrossment. Both children and adults respond emotionally to the content of pretences though are able to remain aware they are responding to them as 'fictions' (Harris and Richert, 2008: 537). For example, experimental research suggests that children who invent 'imaginary friends' and engage in sustained interaction with them are aware that the imagined friend does not exist (Goy and Harris, 1990).[20]

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[20] Maurice Bloch's (2008) ethnographic research has established that people assume the visual perceiving of an entity or events is the most reliable way to ascertain its reality. Wellman and Estes (1986) have also found that children favour direct sensory perceptions for verification (1986). Children rely on first hand observations to draw conclusion about the veracity of an entity. Wellman and Estes asked children questions such as: 'Have you ever seen an ant crawling on the ground?' or 'an ant riding a bicycle?' If a negative answer was given for one of the questions (such as an ant on a bicycle), the children were asked 'Are there any ants on bicycles? They found that children readily separate imaginary items and the fictitious ones, with prior first hand observation the primary empirical means through which the children distinguished between the two entity types.

The question for Harris is then: Why do children so readily believe in things they cannot directly perceive? This is a broader though similar question to the one that motivates Bering: why do people believe in the psychological existence of a soul?

While Harris acknowledges that first-hand observation is the fundamental empirical strategy to distinguish between the real and the fictitious, it is certainly not the only one. Instead of a narrow empirical strategy, Harris posits that children employ a broad one. He thinks that an equally powerful strategy is the reliance on adult, especially parental, testimony.   Deference to testimony frequently overrides empirical observation. Children rely on testimony to construct reliable and coherent conceptualisation of entities and processes they are unable to perceive themselves. This departs from Piaget's argument, echoed in core knowledge theory and highlights that in certain domains (e.g., those involving invisible forces and agencies) children assimilate evidence primarily from another person's testimony (Harris and Koenig, 2006: 505).

Harris and his collaborators' research on the childhood acquisition of scientific beliefs is important because it conflicts with Intuitive Model hypotheses. The Intuitive Model asserts that religious beliefs are cognitively effortless because they gel with intuitive expectations, whereas scientific beliefs must routinely compete with intuitive biases (McCauley, 2000). As Bering states: 'It is clear that when it comes to the big questions in life, our brains have evolved so that science eludes us but religion comes naturally' (Bering, 2006: 149).

Intuitive Model theorists agree that testimony is critical to the acceptance of secular scientific truths, such as the earth revolves around the sun and the brain is for thinking. It is Harris alone however, that contends that the very same deference to testimony encourages children to accept empirically unverifiable religious ideas.

Harris and Koenig (2006) argue that children do not hold experiential motivations about the existence of gods and souls. In direct contrast to the Intuitive Model, Harris and Koenig contend

that knowledge of these supernatural forces come to children not through inferences and automatic intuitions but at a conceptual level as acquired mental representations. The phenomenological enrichment and communicative experiences of these concepts develop significantly after the initial conceptual awareness. In contrast to the cognitive isolationism of Barrett and Bering's theories, Harris proposes that adults versed in particular religious communities are responsible for children's understanding of, for example, 'God' and his characteristic properties, such as omnipotence and immortality (Harris and Koenig, 2006: 511). It is adult testimony that compels belief in 'invisible' agents:

> On this account, children's faith in what they are told about the secular world, is not so dissimilar to the faith of religious believers when they are told about the spiritual world. Testimony to the effect that soul endures, that there is an afterlife, and the world of the ancestors truly exist need not be assigned to the mental box marked 'pending.' That testimony can simply be regarded as a true description of an unobserved hinterland, eventually accessible perhaps but for the moment to be taken on trust (Harris and Richert, 2008: 547).

Importantly, Harris and collaborators' experiments provide the strongest experimental challenge to Bering's work on childhood continuity scores about the mind after death. These findings also implicate Barrett's acultural findings. Like Evans, they suggest that the developmental pattern is more complex than Barrett and Bering allow (Harris and Astuti, 2006: 475), especially because Barrett and Bering suppress the crucial role that religious tutelage and exposure to cultural norms play in belief formation.

In fact, Rita Astuti and Harris' studies on *Vezo* children from Madagascar directly challenge Bering's afterlife belief hypotheses. For example, Harris and Astuti's research found, in direct contrast to the 'Princess Alice' studies, that continuity claims increase rather decrease with age (2008). Atsuti and Harris believe this increase is explicable in reference to the religious context in which the experimenters asked their questions (if the experimenters included words like 'God' or 'Priest' then the children were more likely to assert psychological continuation after death). They argue that very young children display no judgment about which processes continue to function after death and by the age of seven the majority of children stated that

most functions, including psychological ones, cease at death (2008: 734 see also Slaughter et al. 1999). Critically, children's professed afterlife beliefs are sensitive to priming.

In accordance with Gimenez's earlier research on Spanish subjects, Harris and Astuti note that it is only older children and adults that state, regardless of the context in which the questions are asked, that mental processes continue after death. Harris and Astuti propose that older children and adults have developed a dual understanding of death. The second conceptualisation is the product of saturation in normative religio-cultural environments:

> Although such different conceptions might be regarded as objectively incompatible with one another, it is unlikely that Vezo experience tension or inconsistency. Each conception is likely to be activated in different, non-overlapping circumstances. For example, when people are confronted with a dead person, they will consider it at one moment as a corpse and at another moment as an ancestor, behaving accordingly. When they wash and prepare the corpse, Vezo treat it as a non-sentient entity. The body is washed with cold water because "it can't feel anything," and the entangled hair is pulled and yanked because "she no longer feels any pain." But when the children are shown the face of their dead parent for the last time and told never to call his or her name again, the dead person is treated as a sentient being capable of returning to, and interfering with, the everyday life of the community (Harris and Astuti, 2008: 733/734).

Astuti and Harris dismiss Bering's key claim that beliefs in psychological immortality are a cognitive default. Astuti and Harris believe Bering's findings merely highlight the development of an awareness that humans and animals have different fates (2006: 476). They argue that in the case of the Vezo, children have exposure to the realities of biological death through witnessing the slaughtering of animals and funerals complete 'with the stench of decomposition' (2006: 476). This exposure explains the seven-year-olds' strongly mortalist understanding of death. Astuti and Harris also dismiss the 'simulation constraint' findings. They argue that it conflicts with research by Flavell who found that children find it easy to envisage the state of non-thought. Finally, as the above research highlights, children's beliefs and non-beliefs are highly sensitive to context.

Certainly, Bering and Barrett would not deny the importance of tutelage in stabilising and enriching the content of specific religious beliefs. However, they would fault Harris and collaborators for ignoring research into cognitively optimal representations as well as cognitive constraints. By positioning religious beliefs outside of mundane folk understandings of biology and mortality, Harris is really just reenacting a truism in sociocultural research about religious beliefs. However, this 'truth' is obvious to Intuitive Model theory. Bering and Barrett are more interested in the less studied cognitive processes that specifically prepare and bias the acquisition of religious beliefs. Harris and Astuti offer no discussion of this, focusing instead on learned conceptions of biological morality (through experience) and religious beliefs in the afterlife (through tutelage).

Barrett could plausibly claim that children reject 'impossible agents' not because of a lack of supportive testimony but because such representations are maximally counterintuitive, losing credibility because they depart too radically from foundational ontological moorings. The fact that 'impossible agents' such as flying pigs and barking cats have little cultural support lends credence to Boyer's theory of the cognitive sweet spot where minimally counterintuitive agents, like Santa Claus and God are located.

Furthermore, because Harris and Astuti's research only studied reflective statements by children and adults it is not comparable to Intuitive Model research which is seeking rapid intuitive responses. It is plausible to claim that Atsuti and Harris are not studying intuitive religion because their task designs do not suppress idiosyncratic cultural cues and grant children time to reflect on their answers. To be a true study of intuitive religion, Intuitive Model theory would want Harris to look at the non-explicit role of testimony in encouraging beliefs. Furthermore, the 'theological correctness hypothesis' already expects the dual conceptions of death that Harris and Astuti propose.

 Bering also questions how exactly Harris and Astuti's experiments correspond to his own (2006; 491). The youngest children he and Bjorklund tested were three-year-olds, whereas the

youngest children in the Spanish study were seven-year-olds and in the *Vezo* study, five-year-olds. The 'nativist' claim rests with the three-year-olds, not with the seven-year-olds. He contends that at most, Harris and Astuti's study gives further evidence to the expected role that cultural saturation places in constraining or enhancing certain beliefs. Bering suggests that these studies may also suffer from coding problems, which may have encouraged distortions. For example, Harris and Astuti did not ask follow up questions. Yet, Bering and Bjorklund found that these often clarified the children's initially ambiguous 'yes' or 'no' response.

Harris' alternative developmental model is of immediate importance to the aim of this chapter. Firstly, it introduces the tension in the 'developmental psychology of religious belief' between core competences and the role of tutelage in shaping religious beliefs. Secondly, by encouraging the Intuitive Model to look beyond psychological nativism, Harris and collaborators preempt the discussion that dominates the rest of this thesis. In chapter four, I explain why the Intuitive Model and Harris' research are unnecessarily oppositional.

However, the research of Harris and his collaborators, while again providing contradictory experimental evidence to challenge key Intuitive Model claims, is unable to undermine Intuitive Model explanations, because by favouring the role of tutelage it is already beyond the scope of Intuitive Model research. Harris and collaborators deny the causal relevance of Intuitive Model theories; like Standard Model theorists, they study the stabilisation and endurance of acquired beliefs. Crucially though, they have empirically undercut the Intuitive Model's naturalness thesis.

The tension between Intuitive Model theory and Harris' framework highlights the critical fact that we still do not know exactly where children obtain their religious beliefs.

Conclusion

This chapter is an essential step in my reformulation of Intuitive Model theory. I have documented the motivations and theoretical assumptions of Intuitive Model research and clarified the key terms behind the theory, allowing these to serve as a template for examination throughout the remainder of the thesis.

I have also shown that, even without taking into account the methodological and explanatory parameters of their research, which is the key concern of this thesis, Bering and Barrett's work is controversial, with the major developmental hypotheses of each experimenter contested, and in Barrett's case, directly refuted by subsequent research.

The ambivalence of the experimental data is tied to a concern for the cross-cultural feasibility of proposed implicit beliefs and the absence of the seemingly obvious role of tutelage in the establishment of religious beliefs. Together, these three critical themes burden Intuitive Model hypotheses. They points to the fragility of individual experimental data and must encourage us to approach the explanatory metathesis with some caution. These tensions must call us to question the veracity of the metathesis itself, because, currently, the experimental evidence is unable to support it. This fact need not denigrate the Intuitive Model but must caution against strong statements on behalf of the evidence.

The problem is not with cognitive developmental methodology. The internal criticisms express a more local concern about the experimental designs and what they purport to test, for example, whether forced reasoning about the mental attributes of a dead puppet correspond to real-time theorising about biological and human agents, or whether the standard false belief task is an appropriate means to test theories of multiple minds.

It is not surprising that there are ambivalent findings. The Intuitive Model has set itself the extremely difficult of trying to locate the origins of religious beliefs in children's mental

development itself. The Intuitive Model must also justify the process by which naïve beliefs inform reflective religious beliefs. Problematically, Bering and Barrett have chosen to do this through a methodology that restricts the role of tutelage and other sociocultural forces.

The critical literature and the tensions between the Intuitive Model and Harris' research highlights that the 'developmental psychology of religious belief' is still uncertain as to where religious beliefs arise from, nor is it certain of the variations in belief between cultures and contexts. Building on these facts, I propose that the shared criticisms of Barrett and Bering's theories may suggest certain problems and limitations with Intuitive Model's 'naturalness of religious beliefs' metathesis. The ambivalent and contradictory findings suggest that there is potential for a revision of the metathesis to accommodate differing frameworks within the 'developmental psychology of religious belief' and the ethnographic record of postulated religious beliefs.

Yet before I address this concern, we must address a more obvious issue. Namely, because the experimental evidence is so partial and conflicting, we must question if nomothetic developmental psychology really is the best method in which to study the advent of religious beliefs. In the next chapter, I examine theory that says it is not.

Chapter Two: The Humanities and the CSR: Consilience or Criticism?

'In field research there is too much [complexity] to allow for definite conclusions, whereas in laboratory research there is too little complexity to allow for interesting conclusions (Brehmer and Dörner, 1993: 172).

This chapter builds upon the critical themes discussed in the previous chapter. I examine Barrett and Bering's theories from the vantage point of humanities' criticisms of the CSR. The critics I discuss focus on the CSR in general, I apply their criticisms to Intuitive Model perspectives. The inclusion of external critical perspectives requires a broader and more general analysis than found throughout the rest of this thesis.

I also examine consilience theorising within the CSR. Consilience theorising has sought to make some areas of CSR research less tied to the study of evolved cognitive constraints. Because the critical literature on the CSR is quite extensive, attempting to reconcile nomothetic perspectives with idiographic approaches may offer the clearest path to resolving the lingering problems with the Intuitive Model presented in the first chapter. I query whether the introduction of perspectives from the humanities and/or consilience theorising in the CSR enriches developmental research on religion.

Indeed, there are notable correspondences between the external criticisms of the CSR and the internal criticisms of theorists working within the Intuitive Model and related fields of research. This association is interesting because the critics discussed in the previous chapter are largely working within the same causal reductive frameworks as Bering and Barrett.

While tensions between 'interpretive' and 'explanatory' approaches in anthropological and comparative religious studies feature prominently in the discussion below, they do not emerge explicitly in internal criticisms of the psychological models. Yet, the charge of 'negative

reduction,[21]' which dominates the external critiques, also permeates the internal literature though in more subtle ways. For example, few of the internal critiques argue that the experimental method itself invariably produces artificial results, though there is widespread concern that the *misuse* of experimental design is encouraged by constricted methodological and conceptual reductions. Both bodies of criticisms agree that the Intuitive Model's methodological reduction destabilises the explanatory power of tested hypotheses.

I highlight why the external critiques are important to Intuitive model hypotheses, even though broad level consilience between the two projects is not. I argue that macro-level consilience between humanistic and natural science approaches is theoretically and pragmatically limited concerning developmental research into religious intuitions and the wider CSR (See Visala, 2008 for an alternative perspective). All too readily, it results in confusion and distortion. As I show below, this is because the goals, aims and emphases are very different. Even so, humanities based criticisms of the CSR are of interest because they present a novel vantage point from which to examine the Intuitive Model.

2.1 Criticism and Consilience

E.O. Wilson (1998) argues that consilience represents an attempt to reconcile the perceived 'culture war' between the natural sciences and the humanities.   Wilson's consilience seeks to synthesise the natural and human sciences (See Dupré, 2003; Rosenberg, 1994; for alternative arguments). Wilson suggests that the methods previously employed to amalgamate the natural sciences may eventually unify the humanities and the sciences. Whereas Sperber (1975) and Lawson and McCauley (1990) make the more muted claim that cultural realities are amenable to naturalistic and experimental study.[22] Wilson's argument for consilience places traditional humanities' subjects within naturalistic explanatory paradigms. Wilson believes the humanities

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[21] I discuss the definition and suggested implications of 'negative reduction' below. Concisely, 'negative reduction' houses the contention that the reduction, for example of 'human beliefs' results in distortions and unwarranted explanations of the subject that is reduced. I describe this as 'negative reduction' to distinguish it from necessary reduction, which most critics do not have an *ipso facto* problem.

[22] Wilson also provides a 'selectionist' account of culture derived from Dawkin and Dennett's memetic theory.

and the special sciences (such as political science, psychology, and economics) have become theoretically impoverished because of their collective resistance to knowledge from the hard sciences of physics, biology, genetics, and belatedly cognitive science. Like Edward Slingerland (2008b: xiii), he contends that the natural sciences can enrich research in the humanities. More forcefully than Slingerland, Wilson believes that even without consilience, the natural sciences will replace humanities' scholarship as the preeminent space to study human beings, their motivations, and their cultures.

Ultimately, consilience involves addressing the questions that concern the humanities and social sciences from a viewpoint informed by the natural sciences. This includes ethical, moral, sociological and political questions that inform public policy (see D.S Wilson and O'Brien et al., 2009; Atran and Axelroad, 2008 for such attempts). Wilson believes this is achievable because the sciences and humanities have the same fundamental aspiration: 'to give purpose to understanding the details, to lend to all inquirers a conviction, far deeper than a mere working proposition that the world is orderly and can be explained by a small number of natural laws' (Wilson, 1998: 4).

The CSR is not a consilience project in the manner outlined by Wilson. As Lawson and McCauley note, the CSR is an attempt to correct an *imbalance* in research on religions (1990: 22). It does not seek to suppliant alternative theories and method in the study of religion, even though Lawson and McCauley's 'interactionism' offers a sustained critique of humanistic methods.

In return, many humanities' scholars are sceptical of the CSR project. The critiques I overview present a defence of the full application of traditional humanistic approaches to the study of religion. Indeed, this defence invariably involves criticism of the perceived 'negative reductionism' argued to be evident in the CSR. To date, humanistic writings remain critical evaluations rather than propositions for constructive investigative models. True, there have been a number of attempts to integrate cognitive theory with humanistic studies, with Whitehouse's 'mode's theory' currently the most prominent example. However, the full

constructive application of traditional humanities' perspectives such as Husserlian phenomenology (e.g., Kamppien, 2001) remains very rare.

In this section, I examine and evaluate some recent humanities' critiques of the CSR project before applying these directly to Intuitive Model theory. I investigate criticisms advanced by the philosopher of religion Lluís Oviedo, and the social anthropologists James Laidlaw and Tim Ingold.[23] These three critiques present a defence within comparative religious studies and cultural/social anthropology for a 'special' or 'interpretive' (aka: non-natural-scientific) set of methods in the analysis of religion.[24]

 I apply these criticisms directly to the Intuitive Model. I consider the rebuttals offered by CSR scholars and emphasise that these criticisms and counter-criticisms predominantly stem from misunderstandings about the scope, reach and goals of distinctive theoretical investigations into the why, how, ifs and buts of a cognitive-developmental religious studies. This discussion of the critical literature will highlight why neither the CSR nor theory from the humanities will benefit from broad consilience even though humanities' perspectives offer important emendations to Intuitive Model isolationism.

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[23]Ingold's chapter examines Sperber's epidemiology of representation, not the CSR directly. Because this features in Standard Model theories (Boyer was Sperber's thesis student) I believe his inclusion in a discussion of CSR metatheory is appropriate.

[24] Of course, it is the validity of, and need for, a special methodology, which the CSR challenges.

Critical Perspectives

Humanities' Criticisms of the CSR	CSR reply to Humanities' Criticisms
The 'bottom up' cognitive approach massively simplifies religion and results in generalisations that are inconsequential or inappropriate for analysing religion.	The humanities ignore the important influence biology and psychology play in causing, constraining, and transmitting religious phenomena.
Religion is best studied from a first person (insider, subjective) perspective. This is achieved through the detailed analysis of texts, practices, and ethnographic research, which gives the voice/ authority to the believers themselves. The study of religion is an interpretive one geared toward understanding.	Specific religious phenomena should be studied from third person (outsider, objective) perspectives because believers have no special insight into the cognitive mechanisms that shape and constrain religious thought and behaviour. Theories of religion require natural-scientific methodologies geared toward causal explanations
The aim of analysis should be to reach a deeper and clearer understanding of why people hold certain beliefs in particular cultural settings. It is a search for 'reasons' not so much 'causes.'	Standard theory on religion unjustifiably excludes knowledge from the natural sciences. The study of religion needs to integrate with the sciences. The humanities can be analysed from the perspectives of the sciences
The CSR's conceptualisation of universal religious phenomena is a template derived from a Western, high modern academic setting. Thus, CSR universals are not actual universals but are relative to the sociocultural origins of these conceptualisations. There can be no context free study of religion.	Humanities' scholars belong to an ideological tradition that sees humans as autonomous, individualistic and 'irrational,' nature as something menacing and alien and science and technology as dangerous and corrupting
Religious traditions are massively diverse and shaped by the interplay of specific political, social, historical, cultural, and geographical forces. Locating universals or 'fundamentals' is next to impossible; if discovered universals are often so general that they are meaningless or self-evident.	Despite surface diversity, religious traditions share many foundational features. The study of religion requires analysis of these core features before any downstream discussion of the higher order cultural expressions of religion can be meaningful.
Religion is *sui generis*. To be understood it requires specialised knowledge of particular religious traditions. It needs to be appreciated as a complex and largely autonomous domain of reality and experience.	Religion does not exist. It is an abstract heuristic construct that can be done away with. It is necessary to examine 'religious' phenomena individually in a piecemeal fashion.

A debate about the most appropriate way to study human beings and their cultures long presages the advent of the CSR. Its endurance pinpoints the difficulties involved in consilience theorising. Classically, the debate is between 'explanation' and 'interpretation.' Jeppe Jensen locates the contemporary divide within the academic study of religion historically. He believes it stems from the classic distinction made by Wilhelm Dilthey and Johann Droysen (Jensen, 2009: 334). Dilthey distinguished between the empirically based natural sciences (*Naturwissenschaften*) and the human sciences (*Geisteswissenschaften*). Recall, that in Dilthey's view, the human sciences seek v*erstehen* – understanding through 'reasons' while the natural sciences strive for explanation through 'causes.' 'Reasons' can be studied by attempting to understand the subjective worlds and experiences of human beings. Interpretation in this classic sense strives towards empathic understanding and is more akin to an art than a science. Jensen argues that these ideas shaped the early academic study of religion, leading to an implicit meta-methodological paradigm, which still permeates the academy and is most prominent in hermeneutical analysis (Jensen, 2009).

Despite foundational claims for 'interactionism' CSR scholars maintain a distinction between 'reasons' and 'causes,' with Axu Visula going as far as stating 'the basic ideas of the Cognitive Science of Religion have been formed in contrast to the interpretative or hermeneutical anthropology of religion' (Visala, 2008: 111). Lawson and McCauley also argue that it was hermeneutical exclusivism and not natural scientific approaches, which asserted the boundary line between explanation and interpretation. Early CSR consilience, in line with Sperber's 'minimal material' ontological framework, demands that experimental realism constrains interpretive approaches:

> We maintain at the *metatheoretical* level not only that explanations of religious behaviour are possible, but also that the theories which motivate them can productively constrain interpretive efforts (Lawson and McCauley, 1990: 8).

Sperber (1975, 1996), along with Lawson and McCauley (1990), argues that the incorporation of cognitive theory and empirical methodologies grants anthropology a research programme that allows for the naturalistic study of cultures. Cognitive psychology allows anthropologists to test

and revise hypotheses about cultural patterns through systematic empirical studies and comparison with other natural-scientific domains.

Noticeably, a critique of Clifford Geertz's anthropological theories and Durkheimian sociological theories are at the centre of cognitive science critiques of 'mind-blind' anthropology (Slone, 2005; Sperber, 1975; Pyysiäinen, 2005; Lawson and McCauley, 1990). The key problem cited is that anthropology and sociology lack empirical accountability because they use a 'special' and independent set of interpretive methods. CSR scholar Pyysiäinen expresses his personal lamentation about such methods clearly:

> I used to be interested in mystical theories of religion and related phenomena. I studied phenomenology and hermeneutics and read Eliade. Religion is mysterious because I could not understand it. What happens when someone converted to Christianity? What does it feel like to believe in God? How can people actually believe in Heaven and Hell? How on earth can people waste their time attending church services...What is enlightenment and have Buddhist's really achieved it? Question after question but only a very few answers...
>
> I was educated in comparative religion, but it taught me next to nothing. There are five 'world religions.' Buddhism 'denies the soul;' these were the things I learnt. But I did not gain any understanding. It was like memorising shopping lists. Some of my teachers explained that we have to look at things the way believers see them. But this was no answer as it was the very question: How can I get to look at things through the eyes of a believer? Converting and 'going native' surely could not constitute a scientific method (Pyysiäinen, 2004 xiii).

Pyysiäinen believes that anthropology and comparative religious studies need cognitive science for empirical traction, explanatory relevance, and intertheoretic compatibility. Thus, the sciences of the mind hold explanatory superiority in CSR research. Within cognitive anthropology, the emphasis is on what the sciences of the mind can teach anthropology and religious studies scholars about the causal affects of memory systems, attentional constraints, and reasoning bias that impinge on the individual processing of cultural information. The developmental psychologist Susan Carey expresses the didactic role of the mind sciences vividly:

> I apologise to the psychologists present, who will all be familiar with this information. My goal is to show the anthropologists in the audience the current development research on the mind as this is what they will be most interested in (Carey, 2010).

Correspondingly, the desire to ground cognitive theory in evolutionary theory represents an attempt to deepen the scientific-materialist strength of CSR research. This is noticeable in the theoretical concern with *ultimate* explanations of *proximate* cognitions and their – empirically tractable - behavioural effects. This is overt in Bering's work, where the causal evolutionary framework is discussed in detail while cultural causations, hardly at all. More generally, it reflects the central and enduring debate about whether religious belief is a by-product of adaptive processes, an ex-adaptation, or an adaptation in its own right (See Boyer and Bergstrom, 2008; Bulbulia, 2004; Sjöblom, 2007). Similarly, it appears in the use of evolutionary modelled 'selectionist' theory to account for the spread of ideas in populations. The aim is to increase the empirical rigour of the field and to provide a means for theories to be empirically tested, refined, and re-tested. The Achilles' heel of such research, as recurrently expressed in the critical literature, is that striving to make CSR research more scientific or grounded in biological theory has led to the impoverishment of ethnographic social level research (Ingold, 2001, 2010; Toren, 2001; Laidlaw, 2007; Whitehouse, 2004; Day, 2005, 2009). The main problem theorists from the humanities have with the CSR is that, in their reading, the nature-sciences are neither epistemologically precise nor pertinent enough to dictate the methodological terms of engagement.

External critiques[25] of the CSR echo a general, humanities-wide scepticism of scientific reduction and the naturalistic investigation into experiential and cultural realities. For the

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[25] The humanities critiques do not distinguish between, and on occasion, conflate, the Standard Model and the Intuitive Model. We can expect this lack of specificity in attempts to analyse the discipline as a methodological whole. Indeed, it is accurate from their vantage point that there are more points of methodological and metatheoretical similarities than differences between the Standard Model and the Intuitive Model. Certainly, these criticisms remain as pertinent to Barrett and Bering's research as they are to Boyer and Atran's research. Indeed, some of the criticisms become even more relevant in regards to the purely psychology based Intuitive Model.

purposes of this thesis, I describe this as a concern for 'negative reduction.' More specifically, critiques of the field conform to the humanities' critiques of nomothetic psychology and social science. These argue that psychology stifles the object under investigation through the barrenness of the exploratory method itself (See Mary Midgely, 2003 for one such ethically motivated critique). They question whether variants of an intellectually dubious form of Enlightenment positivism, as expressed in logical empiricism, are latent in attempts to explain human mentation through underlying cognitive bias and psychological traits (see Lawson and McCauley, 1990: 24ff for clarification on this point). Many humanities' critiques express a concern for the implicit 'dehumanisation' found in third person 'mechanical' accounts of people. The results of such research is that subjective, active, and discrete individuals are reduced to generic and autonomous information processing devices rather than holistic Heideggerian 'beings in the world' (Dreyfus, 1991).

It is this concern that leads to the common conflation of the CSR with the 'dehumanising' exemplar: sociobiology and its perceived politically contentious scholarly transgressions, which are popularly (but not factually) believed to normalise pernicious human behaviours such as rape and xenophobia (see Cohen and Lanman et al., 2008: 112 for discussion and clarification). In a postmodern reading, the natural scientific study of human experiences reflects disparate power relations inherent in observer-object relations and encourages socio-politically dubious understandings of people and their motivations (See Day, 2010; Carrette, 2007 for such critiques and Slone, 2004; Slingerland, 2008, 2008b for rebuttals). Hence, as a corrective, the common aim in academic religious and ethnographic cultural studies is to make the 'subject' or religious culture the 'text' and the central 'voice' in any analysis, thus partially pacifying this perhaps permanent imbalance.

Despite the insistence by CSR scholars that the humanities' critics are flogging a dead horse, the 'reductive' dimension of the CSR project remains central to every external critique of the project (Cohen and Lanman et al., 2008). The recurrence of this criticism demands reflection. Indeed, concerns about 'negative-reduction' motivate most 'traditional' (hermeneutical,

phenomenological, and postmodern[26]) critiques. These critiques begin by noting what CSR explanations purportedly miss. The three theorists I consider argue that the theoretical and methodological reduction of the programme destabilise the significance of the CSR, rendering the accommodation of, or dialogue with, alterative research programmes difficult, if not impossible. For example, Laidlaw accentuates that biocognitive accounts of religion will never supersede or integrate humanities' research because they are fundamentally different enterprises with little commonality despite ostensibly similar subject matter. He focuses on the consequences of this exclusion, namely 'negative reduction':

> My argument is not that actual religions are complex and scientific explanations must simplify. The right kind of simplification is generally a necessary part of explanation, whether scientific or otherwise. The point is rather that no single kind of simplification is in this sense right for any and every question or interest (Laidlaw, 2007: 230).

Oviedo and Ingold express similar arguments. Oviedo forcefully contends that the CSR's reductionism encourages sweeping generalisations and questionable assumptions about human nature, society, and religiosity. [27] Ingold argues that cognitive science approaches need to overcome a false distinction between innate capacities and acquired competences. He also believes that the reductive study of the former (as in the Intuitive Model) produces fallacious explanations of ontogenetic development. He concludes that cognitive studies fail to see humans as self-actualising systems. Laidlaw and Oviedo agree, expressing concerns that the CSR denies the self (in terms of a subjective, volitional, and experientially shaped person) in its research on religion.

All three theorists believe that cognitive studies produce anaemic theoretical abstractions by focusing on religious representations as causal properties of mental information processing and

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[26] It may strike some as bizarre to conflate hermeneutical and postmodern theory. Clearly, these are markedly different critical spaces though I shall highlight how these appear to converge in extant CSR criticisms.

[27] Oviedo makes three other claims, such as the theological relevance of CSR method, the therapeutic implication of cognitive research, and the implicit ideology of the CSR, that are beyond the scope of the critical discussion outlined here.

little else. This is problematic because the methodological reduction employed by the CSR excludes much that social anthropologists mean by religion. More seriously:

> [R]eligion is not an object, such that 'it' can be defined analytically rather than historically, and therefore is not a proper object for the kind of explanations cognitive science can provide (Laidlaw, 2007: 212).

From their perspective, the general, probabilistic and experience-distant methodology of the CSR means that the CSR does not so much explain religion away; it actually misses the basic elements that constitute a believer's religion. It is not that all reduction is conceptually pernicious (reduction is required for clear analysis in any and every academic discipline) but that the reduction that the CSR employs results in a double negative. Firstly, CSR reduction inappropriately fragments religious phenomena and secondly, these can lead to conceptual distortions and warrantless explanations about religious beliefs.

2.2 How Consilience Alienates the Intuitive Model

Indeed, the recurrent criticism by the external critics is that CSR explanations of religion are products of the methodological reductions put in place at the outset and have little basis or relevance to how minds and agents 'work in the real world.' Certainly, in Barrett and Bering's research the pendulum seems to have swung too far into abstraction, justifying *a*historical, *a*contextual and culture-blind theories in the face of the rich differentiation of cultural belief expressions, commitments, and developmental onsets *despite* the appearance of very basic regularities.

Normatively, developmental psychology rejects consilience with the humanities and the social sciences, finding explanatory space only for the experimental study of causal hypotheses. There is no place for interpretations in this analysis because children, while wilful and unpredictable, are not fully reasoned cultural actors. Questions composed in experimental designs are limited to the consideration of one or two key variables, which are present *despite the radical*

suppression of other variables. Proposed hypotheses are disputed through experimentation not through interpretive argumentation as in anthropology and non-cognitive religious studies.

Barrett isolates cognitive developmental psychology from different domains of investigation in the CSR, such as the evolutionary theories that feature in Bering's work, the cultural level analysis that Sperber encourages, as well as findings about the human-mind brain from cognitive neuroscience (Barrett, 2007). Correspondingly, Barrett never engages in consilience discussions, simply because, as he sees it, this discussion has no immediate methodological relevance to his experimental work. He believes that consilience is a redundant proposition at the level of purely psychological investigations.

Indeed, theorising about cross-domain consilience is superficially irrelevant in the Intuitive Model as the Intuitive Model seeks to suppress the influence of conscious deliberations and sociocultural forces. Centre stage in Intuitive Model theory are simulated task experiments conducted on children, which both theorists argue provide strong empirical support of their wider 'naturalness of religious beliefs' metathesis. Bering proposes consilience between natural science methodological domains while Barrett believes developmental psychology findings are sufficient for his explanatory aspirations.

Nowhere in the contemporary research is the self-sufficiency of psychology expressed with greater clarity than in the 'developmental psychology of religious belief.' To a degree, this is as it should be, as the latter is by definition an autonomous field of psychological research with a (however contestable) methodology dedicated to exposing *a*cultural cognitions. Yet what the rest of cognitive anthropology and other theorists in the CSR are increasingly emphasising, and what many social anthropologists have known all along, is that cultural settings interact and interfere with any and every part of basic human psychology, from basic perceptions such as 'seeing' through to complex 'just world' philosophies. Humanistic explanatory attempts seek holism over reduction, accepting and striving to account for the complexity and cultural

peculiarity of any and every religious belief. The religious studies scholar Charles Paden captures the argument perfectly:

> Engagement with superhuman objects takes place at every cognitive level of human consciousness and in every cognitive domain, in every form of social dynamic and causality, in every conceivable historical environment and cultural context, in every type of mythological discourse, and meaning-attribution, in every imaginable form of ritual performance and sensory environment – in short, through every genre of human behaviour. It would be religious to maintain fidelity to divinely endowed moral precepts. It would be religious to exercise altruistic care for others, in the name of the teachings of their faith and also religious to abandon social attachments to others in order to seek other-worldly communion. For those under threat of chaos, it may be religious to see the "superhuman" as absolute order and stability, but those bound and suppressed by their social identities, it may appear in the form of liberation from a given, corrupt order. Religion then may either bind or unbind, separate or bring together, invite ascetic constraint or ecstatic dance. It draws on many trajectories or basic behaviours – like territorial marking, submission to authority, bonding, offering and gift-giving, atoning for offences, sacrificing, communal sharing, and acts of loyalty. Even what seems like a specific categorical theme like sacrifice turns out to not be unitary but quickly breaks down into quite different modalities and collocations. The reason we have dozens of fairly reasonable theories of religion, myth, ritual and gods, is because each addresses an important aspect of the subject (Paden, 1998: 92).

Thus, the holistic study of religion cannot occur after the fact of 'reductive' Intuitive Model hypotheses (See Toren, 2001 for a similar argument). More specifically, the Intuitive Model's separation of culture and core cognition is not possible in such holistic research.

Oviedo's argument that the CSR should introduce the hermeneutical or phenomenological studies of personhood is not problematic at a rhetorical level for Bering and Barrett. The limitation of Oviedo's argument that he does not clearly show how this is achieved within established psychological methodologies or more pertinently, why these would be of interest to developmental psychologists who are not studying the mature believers that Oviedo focuses. Ingold attempts to present such a dynamitic explanatory model. However, his holistic approach collapses the importance of natural scientific approaches in the process, alienating the CSR.

Both Laidlaw and Oviedo would reject Lawson and McCauley's model of 'interactionism' (which is repeated in various guises through the CSR literature (see Pyysiäinen, 2004; Whitehouse, 2004, 2007; Jensen 2009). They disagree that causal explanations can and should constrain interpretive projects and assert that the CSR massively biases causal explanation over interpretive approaches. Oviedo and Laidlaw emphasise the non-causal nature of social and cultural phenomena. As we have seen, they reason that the CSR's reductionism to causal processes has led the CSR to try to answer questions of meaning and interpretation, not appropriate in reductive natural-scientific analysis. They would locate major conceptual inadequacy in Lawson and McCauley's claim that 'neither [religious] texts nor traditions (in the sense most commonly associated with the most popular religions of the world) are necessary features of religious systems. Their interpretation and study may well contribute to a richer understanding of the body of phenomena in question, but both are ultimately incidental to its explanation' (Lawson and McCauley, 1990: 6). Thus, what Lawson and McCauley see as 'ad hoc,' Oviedo and Laidlaw see as foundational to both the subject matter and the study of it.

Laidlaw and Oviedo argue that consilience theorising is impossible because the CSR brackets humanistic perspectives in exactly the areas that matter. Laidlaw and Oviedo argue that CSR theory is akin to a sentence comprised solely of nouns and conjunctions – ignoring all the features of a sentence, such as tense, verb, and punctuation, which make it comprehensible and give it 'meaning.' Furthermore, humanities' criticisms of natural scientific approaches contend that the bracketing of the historical, experiential, emotional, ideological, socio-economic, and political dimensions of religious realities, while still seeking causal reduction of skeletal concepts in psychological, biological and or neurocognitive mechanisms, is deeply problematic. The exclusion of basic and obvious features of religious belief denies the reality of what Laidlaw describes broadly as human 'reason, imagination and will' (Laidlaw, 2007: 214).

However, it is noticeable that it is scholars from outside of the CSR who invest the most energy policing an artificial boundary line between complete versus partial theories in the study of

religion. It is possible that the fixation on the failure of the CSR to offer a comprehensive theory of religion stems from the projection of the explanatory idealisms of humanities' investigations themselves.

Whitehouse would agree, noting that 'scholars trained in grand theoretical traditions, such as Marxism, psychoanalysis, or phenomenology tend to assume that theories of religion *must be general theories of religion as a whole'* (Whitehouse, 2007: 51 Italics in original). Certainly, a desire for comprehensive and non-exclusive understandings of studied phenomena seems characteristic of the humanities' project, reflected even in the postmodern lamentation of this impossibility. This has encouraged Laidlaw, Ingold and Oviedo to frame the reductionist method of the CSR (with the best work self-consciously partial and incomplete) in contrast to the ideal (though terminally unreachable) pursuit of holism. Nevertheless, as Whitehouse states of Ingold's criticisms:

> The details of what an alternative program may look like, however, are not elaborately or precisely defined. Ingold...makes only general suggestions of how we might proceed [and he] tends to collapse developmental processes into an undifferentiated bundle of elements. As the dichotomies between evolution and history, genes and environment, nature and nurture, competence and performance and planning and implementation come down, no structures appear to be left among the rubble (Whitehouse, 2001: 204).

In my reading, the real problem is not the classic CSR's explanatory boundary lines but rather its failure to engage with the critical perspectives offered in divergent methodological disciplines. The perceived irrelevance of theoretical developments in alternative programmes is conspicuous.[28] Arguably, the lack of critical methodological discussion by either Bering or Barrett leads to overconfidence in findings and the intrusion of perspectives long suspect in cognitive anthropology.

Whereas the Standard Model seeks validation through the translation of its theoretical claims

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[28] In the next chapter how recent work in the CSR represents an attempt to come to grips with these criticisms while still providing a sound natural-scientific basis for cognitive-cultural investigations.

into testable psychological experiments, Bering and Barrett utilise well established and what they believe are hardly contentious research models. All that distinguishes Intuitive Model task designs from long established task designs is that religious beliefs are their subject matter. Bering and Barrett assume that the epistemological foundations of their research are firmly established. This leads to the absence of critical reflection and the rejection of the philosophically 'speculative' considerations of religious studies theorists, ethnologists, and neuroscientists. Again, the problem with this, as anthropologists point out is that 'religion' and 'belief' are historicised and intrinsically socioculturally mediated categories that cannot be neatly separated into abstract, dehistoricised, and autonomous variables.

Minimal Consilience: Mode's Theory

An awareness that the psychological investigation of individuals embedded in cultural systems will suffer without including basic elements of humanities' research has encouraged a number of CSR scholars to incorporate some sociocultural variables. Such minimal consilience models strive to overcome the explanatory limitations of classic cognitive exclusivism (See Pyysiäinen, 2004, 2009; Saler, Whitehouse, 2001, 2007 for examples). However, to date, the CSR's modest methodological consilience enriches the CSR project but does not and will never be a Wilsonian Milvian bridge between the two enterprises. Whitehouse's recent writing on the role and function of the cognitive sciences in anthropology express this clearly.

Whitehouse's chapter in *Religion, Anthropology and Cognitive Science* updates Lawson and McCauley's call for 'interactionism' by re-emphasising sociocultural variables in his cognitive study of memory systems and religious concepts. Challenging Laidlaw, he does not see interpretive and scientific explanatory accounts as incommensurate because scientific psychology is 'interested in fundamentally the same problems that perplex interpretive anthropologists, as well as historians and others' (Whitehouse, 2007: 247). An alternative to both cognitivist and interpretive extremes (Whitehouse sees the Standard Model as an example

of the first) is available through compromise and 'a large dose of messy real world empirical inquiry' (Whitehouse, 2007: 249).[29]

He argues that cognitive and interpretive frameworks are able to complement each other provided a less rigid conception of cognition is established and if, as Lawson and McCauley argue, interpretive methodology is itself directed by cognitive empiricism.

Whitehouse contends that the classic CSR's account of cognition has hindered cross discipline collaborations. Like Laidlaw, he argues that implicit cognitive causality is too narrow a frame of reference to account for many aspects of the religious spectrum. In particular, it ignores the creative aspects of cognition behind variations in different cultural and situational contexts.[30] His solution is to relax the CSR's reductionist model. He believes some of the limitations (that Laidlaw and Oviedo pinpoint) can be overcome if the CSR's conception of religion is expanded to encompass processes 'that are often conscious and always historical' (Whitehouse, 2007: 260). Pragmatically, this means that the cognitive study of beliefs must also include the implicit, reflective, and spontaneous dimension of beliefs as well as the role of sociocultural forces and institutions in mediating such beliefs. Crucially, Whitehouse believes that interpretive anthropologists need to abandon their intractable understanding of culture as an 'unstable continuously contested, mediated, disrupted network of meaning and inter-subjective states

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[29] Whitehouse's own criticism of the Standard Model stems from his research on the Mali Baining of Papua New Guinea. He found that while a number of Mali Baining's religious concepts conformed to the Boyerian schema; a significant portion were also versatile, maximally counterintuitive and appeared to involve great computational loading. The Standard Model was unable to account for the incidence of these concepts because this second set of concepts were clearly difficult to acquire and transmit. They appear, in this cognitive sense, to be strikingly 'unnatural.'

Whitehouse's insight was to propose that the recall and acquisition of such cognitively difficult concepts was made possible by 'man made' sociocultural processes that acted on two types of memory mechanisms (semantic and episodic) creating a ratchet effect between culture and cognition. He argues that pedagogic ritual processes that are frequent and repetitive ensure the uptake of difficult non-reflective, easily muddled and forgotten 'unnatural' concepts. 'Mode's theory' offers a dynamic account of the transmission of religious ideas and behaviours and thus begins to account for sociocultural variation in religious structure and why some religious concepts are prolific in some settings and not others. In sum, Whitehouse argues that the CSR needs to address the 'unnatural' beliefs prolific in religious activity and unaccounted for in the Standard Model (see Whitehouse, 2004, 2005).

[30] Barrett and Lanman have outlined how the Intuitive Model and 'modes theory' correlate (see Barrett and Lanman, 2008)

that hover somewhere mysteriously [and irreducibly] above (or at least beyond) all other ontological levels of reality (e.g., the psychological and biological)' (Whitehouse, 2007: 261).

On occasion, Whitehouse positions experimental psychology as the methodological bridge between explanatory and interpretive approaches. If a theory (when reframed as a specific hypothesis) is significant then it will prove itself experimentally or if the occasion necessitates through naturalistic testing. A key pursuit of cognitive research should be to translate anthropological and social science theories into hypotheses that are experimentally testable. By doing this experimental psychology can separate the strong from the weak theories about religious phenomena. Whitehouse believes ethnographers and historians can provide the details of specific cultural meanings and contexts. By providing rich case studies, their research will make cognitive generalisations richer and increase future predications. Whitehouse maintains that cognitive theory answers a unique set of questions, for example, how do evolved mechanisms come into play in reflections on deity and how do these mechanisms relate to the transmission of these reflections between minds?

Nonetheless, Whitehouse's cognitive consilience does not bypass Oviedo, Ingold and Laidlaw's concern that cognitive psychology is of limited relevance to the study of human relationships and meanings. Whitehouse partially concedes this, noting that 'experimental psychology is just a fraction of the evidence needed to understand such processes' (Whitehouse, 2007: 250). Yet, while Whitehouse has strived for consilience between ethnography and cognitive science, like most CSR theory, his theory still favours a focus on the causal constraints of a universal mind brain. Laidlaw and Oviedo's criticism of the dominance of cognitive psychology is not an instance of special pleading because both have elucidated the ways in which causal analysis constrains and distorts religious subject matter. Oviedo and Laidlaw would argue that true interaction involves the inclusion of non-cognitive methodological perspectives; a position not afforded in either Lawson and McCauley's 'interactionism' or Whitehouse's 'cognitive consilience.'

Whitehouse's synthesis is unlikely to appease Laidlaw. Laidlaw would query whether it is appropriate to label explanations that scientific psychology and the experimental method cannot measure, depreciatingly as mere 'interpretations.' The humanities' scholars would respond that it remains unclear why cognitive science is the soundest method to analyse culture, especially since Whitehouse sees cognitive science as a partially autonomous enterprise, reliable because of the experimental method, rather than the mind-brain and evolutionary theories, which link it to the natural sciences. Laidlaw, in particular, would see this as an example of the CSR conflating the real with the measurable.

More seriously, Laidlaw believes that the humanities are interested in exactly those areas where cognitive psychology is irrelevant or at best peripheral. He would commend Whitehouse's attempt to flesh out the cognitive approach but would remain sceptical whether a 'bottom up' approach is of direct relevance to the complex cultural questions that concern him.

While 'mode's theory' is a step in the right direction, I remain sceptical of the methodological need for direct consilience. I see this ambition as pragmatically unprofitable for either explanatory or interpretive ventures. As we have seen, humanistic studies can and frequently do offer important critical clarifications of cognitive studies, though they promote confusion when attempting to offer broad-spectrum evaluative commentary. It is questionable whether the inherent disunity in the study of religion needs to be resolved.

The problem remains that methodological consilience, while enriching the cognitive project, does not really integrate the humanities in a way that would satisfy the interests of humanities' scholars. This is at the heart of Laidlaw and Oviedo's critique. Wilson notes that the humanities address questions about how humans ought to be and act, how they should live, and where they should locate existential meaning. Yet, these are questions not fit for Intuitive Model study

and only incidentally relevant to CSR scholarship.[31] Even if reformed, cognitive anthropology cannot answer the evaluative questions that feature in humanities' research. Mode's theory and other alternative theories of cognitive-cultural relations may make cognitive theory of slightly greater relevance to alternative programmes. Yet even Whitehouse admits that scientific understandings cannot map the complexity expected in humanities' studies. Scientific research is still in its infancy and it is uncertain how to measure the relative importance of implicit and explicit cognitions in patterns of social behaviour and cultural efflorescence (Whitehouse, 2007: 250).

Because the 'developmental psychology of religious belief' and the humanities approach the subjects they study through different methodologies, they also draw different conclusions. The enduring difficulty in aligning 'reasons' with 'causes' means that consilience projects still do not offer pragmatic solutions to the disunity of the investigative domains. This does not mean that the humanities have no role to play in the CSR. In the next section, I develop the important, though peripheral, role of interpretive research in Intuitive Model theory.

2.3 The Role of Humanities' Criticism in Intuitive Model Research

Humanities' critiques are important to the Intuitive Model because they address foundational assumptions and, on occasion, pinpoint methodological shortfalls in the 'naturalness of religious beliefs' metathesis. They are significant in this thesis, because of the role they play in conceptual house cleaning and in highlighting what the Intuitive Model does not, and cannot explain. Certainly, correspondence between humanities based meta-theoretical critiques and the three major internal critical themes of Bering and Barrett's work is suggestive. While Oviedo, Laidlaw, and Ingold address many of the same themes as the internal critics, they distinctly propose that the major problem is nomothetic reduction and only consequently, the

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[31] The CSR does not need to answer such questions. Theories would enter the realm of human discourse, which as the above critiques have underlined, it is not fit to do because of its studied partiality (though see: Atran 2008 for a successful blend).

task designs themselves. In my reading, humanities' scholars would express the following concerns with Bering and Barrett's hypotheses and the developmental psychology of religion generally:

• Assuming direct correlations between the generic behaviour and beliefs of children and culturally embedded, religiously peculiar, mature believers is conceptually and empirically erroneous. Examining religion as an 'implicit belief system' is equally problematic.

• Psychological experiments on children are not reliable templates for explaining human psychological processing across the life course.

• The experimental method cannot grasp the complexities and idiosyncrasies of religious realities. There are simply too many variables with many critical ones emerging later in life.

• The 'naturalness of religion' metathesis is a suspect metatheoretical position. Bering, in particular, is not just deflating religion but also actively eliminating it. The Intuitive Model's radical methodological and conceptual reductions mean that neither theorist can claim they are actually explaining religion and religious belief as understood by social scientists, religious studies scholars, and religious believers.[32]

I now turn to some of the key issues humanities' theorists discuss in relation to the 'negative reduction' perceived to be inherent to the CSR and by inference, the Intuitive Model. I suggest that these criticisms align with the criticisms introduced in chapter one. The first humanities' criticism contests the methodological realism of the Intuitive Model, the second the Intuitive Model's conceptual understanding of key terms such as 'belief' and 'religion,' and the third, the artificial   narrative constructs of the 'naturalness of religious beliefs' metathesis.

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[32] See footnote about evolutionary psychology on page 38.

o **Negative Reduction**

Scholars versed in the humanities contest are psychological realism of the Intuitive Model's methodology and task designs. These criticisms directly correspond to the section in the last chapter because like these, Bering and Barrett's empirical evidence is rejected because of unsuitable task designs.

Humanities' scholars question the claim that the experimental method offers the best means to test particular theories. Humanities' scholars are sceptical about how closely the experiments mimic psychological processes in real life. They observe that theorists use experiments inductively to prove metatheoretical claims even though one experiment can tell us little beyond its immediate findings. Furthermore, experimental studies undermine complex and nuanced anthropological theory because of the need to constrain such theories in terms of simple variables. Oviedo, Ingold, and Laidlaw's shared concern for ontological realism would lead them to query the psychological realism of Barrett and Bering's theories. We have already seen that Laidlaw and Ingold's ontological concern suggests that the CSR's methodological reduction denies basic ontological realities about human beings. To separate the reasoned (the theologically correct) from the instinctive, unjustifiably castrates hardly contestable ontological assumptions about the human subject.

Laidlaw stresses that explaining religion exclusively in terms of selection pressures, causal mechanisms and the like suppresses the central focus of research on religion. It ignores the fact that religious traditions are socio-historical embedded processes and thus denies the foundational examination of how the particular ideals and values of particular religious traditions and practices come to be.

Recall that the internal critical literature questioned the artificially of the Intuitive Model's causal restrictions. Theorists noted a number of validity issues in Barrett and Bering's

experimental designs. Laidlaw and Oviedo's claim is more radical. They believe that experimental designs simplify religious beliefs to the point of eliminating them. Both allege that CSR experimental designs are rhetorical devices, confirming abstract metaphors rather than reliable data about religious believers and religious phenomena. Importantly, hermeneutical and postmodern theories are also theories about what is objectively knowable. In the present instance, these perspectives raise questions about the reliability of 'objective' knowledge about other humans' minds. Both theoretical strains emphasise that the pursuit of holism is unachievable.

Laidlaw is also critical of the CSR's cynicism about believers' self-reports. We have seen that this is because of the experimental finding that a person's reflective beliefs rarely match up with their implicit 'beliefs.' Implicit beliefs appear only in some circumstances when a person is under cognitive pressure. To remove reflective beliefs from methodological analysis does not serve to remove them from human thought and thus cognitive scientists should avoid conflating the real with the measurable (Laidlaw, 2007: 241)

All three theorists suggest that in isolation, and without serious revision, the CSR explains 'a constructed entity, a sort of research tool, or mental experiment, with almost no contact with reality' (Oviedo, 2008b: 392). This is a bold claim because if it is accurate, then the actual science behind the CSR (Barrett, 2008b) is no more persuasive than the method of argumentation typical to studies of religions that the CSR seeks to differentiate itself.

Intuitive Model theorists would reject many of the above claims. They would point to the reliability of the task designs like the false belief task: very simple experiments present rich and compelling evidence. Because of the artificially of the lab environments and isolated focus on one or two key variables Barrett and Bering's experiments present significant and compelling results. It is the ability of the psychological method to abstract from and systemically study human beliefs, in spite of the complexity and variability of such beliefs, which highlights the importance of psychological methodologies. The results are consistent in spite of the 'essential'

features that humanities' scholars demand. Furthermore, while the humanities encourage multiple perspectives they are unable to document the very implicit processes that the Intuitive Model focuses on. The humanities can offer 'reasons' but not 'causes.'

The above discussion about psychological realism is clearly an important one. Even when only considered through the gaze of critical writings, this discussion highlights that realism is relative to the theoretical apparatuses employed to investigate the subject under investigation.

   o **Artificial Conceptual Frameworks**

Laidlaw is especially critical of cognitive scientific definitions of 'religion' and 'religious beliefs.' He contends that such conceptual terminology imposes limits on CSR explanations.   For example, Laidlaw asserts that the CSR's object of study is not religion but what seventeenth and eighteenth century scholars defined as 'natural religion.' Like CSR researchers, scholars of 'natural religion' sought to answer the question: 'What did human reason, or nature, require or incline man to believe?' (Laidlaw, 2007: 228) He argues that the CSR studies human superstition rather than religion proper. No discussion in the CSR, as Laidlaw understands it, makes any mention of how humans intentionally shape their religions. Because of this, it can never get past explaining cognitive errors that result in basic superstitions or at best, precursor religious beliefs.

Laidlaw questions the validity of operationalising religion as a 'belief in supernatural agents.' He would similarly question Bering's focus on 'afterlife beliefs.' Introducing his own research on Jain and Theravada Buddhist soteriological traditions he notes that such an intellectual definition of religious belief struggles to capture the basic ingredients of these traditions. He argues that while Barrett's theory of implicit anthropomorphism may feature in lay and expert non-reflective reasoning, one cannot escape the fact that in the case of Buddhism 'no remotely reflective Buddhist, including those who spend time and resources participating in such rites, would confuse them for a moment with the teachings of the Buddha. And whatever Buddhism

is, it surely must include that' (Laidlaw, 2007: 221). Buddhist and Jain believers may 'catch' cognitively optimal religious representations but this is not what they are about or even remotely concerned. Furthermore, religions are clearly more than beliefs, involving institutions, roles and relationships, embodied practices, and material cultures. To analyse religion adequately these features should be included. Moreover:

> Each religious tradition has its own distinctive way of describing, judging and shaping character in relation to historically created and developing conceptions of human wellbeing and worth. It is through instituted religious practices – forms of worship, confession, celebration, interaction, ecstasy and so on – that people come to have emotions and self-understandings that make them Christian, Muslim, Buddhist, Jain or whatever. And just as it is not possible to be a Jain, or to feel 'disgust (with the world)' without the language needed to form the self interpretation, so the language and emotion could not exist without the tradition and the institutions and practices through which it is cultivated and experienced (Laidlaw, 2007: 225).

Laidlaw argues that the CSR's treatment of religion as an artefact of 'beliefs' is a product of a Western post-enlightenment Christian framework, and is anachronistic if applied elsewhere. He cites Talal Asad (2003) who has argued that many Muslims find questions such as 'Do you believe in Allah?' odd; belief is something you do rather than actively reflect on. He argues that belief is a culturally inescapable product of Cartesian dualism and a post-Christian bias toward the category of believing (Laidlaw, 2007: 234). The search for a stable, causal, and generic basis of belief rests on a category error because 'the changing history of how the word is used is inseparable to the history of it changing' (Laidlaw, 2007: 227).

He also takes issue with the methodological assumption that observed behaviours can be accounted for by postulating beliefs as causal forces, especially when there is no evidence for the belief other than the observed behaviour itself. Laidlaw argues that not only is this circular it becomes highly tenuous when it is acknowledged that an observed behaviour can be explained through startlingly different sets of beliefs and intentions (Laidlaw, 2007: 238). Ultimately, the methodological exclusion of 'reasons' and the singular focus on 'causes' results in distortion and a 'radical partiality' in the CSR's operationalising of the concept 'belief'

(Laidlaw, 2007: 234), especially when it is the reflective dimension of belief that appears to be the most vital.

Laidlaw thinks that it is unhelpful to extend the concept of 'beliefs' to implicit processes as this promotes conceptual confusions about what beliefs are. Like Harris in the previous chapter, he wonders how cognitive science could accommodate belief pretension or the suspension of disbelief common to anyone who has engaged with a stirring fictional text. He celebrates Sperber, Barrett and recently Astuti's attempts to account for the different kinds of beliefs that people hold, but concludes these still miss the empirical complexity of different modalities of belief. As an example, Laidlaw cites Barrett's discussion of the widespread propensity to 'believe' racial stereotypes. In his reading, Barrett is not so much describing a belief as a statistical tendency (2007:233). Barrett is stating that this actual belief has propositional content based on a generic understanding of race. Yet, Laidlaw questions where the idea of race comes from in the first place. Furthermore, Barrett says nothing about variations in magnitude in individuals or how beliefs are reshaped through experience, or how they affect people differently in different circumstances.   Laidlaw maintains that it is essential to study context, cultural processes, and local behavioural practices before we can begin to uncover the complexity of different types of belief.

Laidlaw believes that the CSR needs to explain why trait characteristics of human culture and experience do not impinge on the isolated objects of investigation. Just because the CSR cannot causally account for the reflective variations of belief (which for Laidlaw all belief types must involve), this does not mean that they can, or should be, neatly carved at their 'natural joints.'

Critically, he asserts that one cannot talk about beliefs without talking about how humans reason about the experiences that confront them. Bering appears to agree with Laidlaw on this, introducing the self and assuming close correlates between implicit and reasoned assumptions. Laidlaw would commend Bering for taking seriously the reflective dimension of belief though would criticise the ethnographic inconsequentiality of his research. Even without contesting the

experimental evidence, Laidlaw would remain unhappy with the causal power Bering grants to intuitions structured by default reasoning bias. He would see that Bering's synchronistic theory still errs on the side of 'causes' over 'reasons,' with the methodological insistence of naturalist experimentation making a bridge into thick explanations impossible.

Laidlaw's reflection on the conceptual basis of the CSR is very important to the themes of this chapter. He exposes the ways in which Intuitive Model conceptual terminology is exclusionary, encouraging special concepts that are unique to cognitive psychology and in conflict with definitions in other domains of experience and research. As such, the overarching 'naturalness of religious belief' metathesis normatively transcends the domain of its own causal reductive methodology and intrudes into domains where it is inappropriate and/or fallacious. This overextension introduces some of the key critical questions discussed in the remainder of the thesis. For example, if the conceptual terminology is so distinctive to cognitive developmental psychology that it conflicts with conceptualisation in other fields, should Intuitive Model theorists limit the metathesis to evidence in its own domain of enquiry rather than attempt to influence other domains of enquiry?

For example, Laidlaw would question whether children's beliefs really bypass the complex psychological and cultural processes that humanities' research takes as its staple. He would wonder whether what Bering explains is appropriate for children and adolescents but not for adult believers. Corresponding to the argument presented earlier by Evans and Wellman, Oviedo, Ingold, and Laidlaw would argue that children and adults entertain markedly divergent existential questions. The problem lies in the operational correspondence of mature human qualities with proto-potentialities in children. Barrett and Bering's hypotheses are only persuasive if the implicit beliefs of children and adults are locatable within the same trajectory. Greenberg and Sullivan et al. echo Laidlaw's concerns. They argue that reflective adult beliefs are qualitatively different from children's beliefs, both in content and in substance (2006: 474). They note that maturity involves dropping childish assumptions, which prove to be experientially mistaken. Developmental shifts of this kind highlight the tenuous relevance of

universalistic evolutionary and cognitive psychology to culturally bounded, interpersonal experience.

It is clearly erroneous to seek exemplar religious experiences like mystical states in children's worlds (though some have tried, e.g., Harms, 1944). Yet, given the implausibility of looking for religious experiences (even prototypical religious experiences) in children, it is equally questionable whether prototypical beliefs, at least as mature folk believers may entertain, are present in children's minds.

Bering and Barrett may respond that charting the insider subjective perspectives of children is difficult, children have not developed the linguistic, social cognitive and or motor skills to express themselves, and thus the nomothetic approach is highly appropriate.

Bering and Barrett have also pointed out that this is misrepresentative of what Intuitive Model research examines. Concepts, and for Bering actual non-reflective intuitions, may be maturationally innate. However, a child's belief and an adult's belief are associated only structurally, with semantic content reshaped throughout the life course.

- o **Metathesis as Narrative**

The most significant criticism of the CSR focuses on the 'naturalness of religious belief' metathesis. This criticism extends the issues with methodological reduction, isolation of critical variables and the distorting role of conceptual terminology. Laidlaw, Ingold, and Oviedo emphasise the partiality of CSR perspectives. While humanities' scholars are off target in their contention that the CSR desires to offer a complete explanation of religion, they are on target when they pinpoint the overextension and narrative overreach of the programme.

Interestingly, the interpretive nature of the metathesis engenders the relevance of interpretive methods and theory. Indeed, it is this 'explanatory metanarrative' which humanities' scholars

have implicitly directed their criticism, noting the tenuous data, exclusionism, and conceptual issues behind such generalist comparative assertions. It is here, and arguably, only here, that Oviedo and Laidlaw's interest in a biocognitive 'complete' account of religion makes sense (Oviedo, 2008a; Laidlaw, 2001: 212).

Certainly, the 'naturalness of religion' metathesis does not strive to be a complete explanation of religion, as Laidlaw and Oviedo incorrectly presume. This assumption is radically at odds with the CSR empirical claim that theorists should fractionate and deflate religion. Even so, the 'naturalness of religion' metathesis does have major rhetorical force well beyond the empirical data in support of it. While charting the causal mechanisms behind a given religious phenomena in the manner akin to the natural sciences, the Intuitive Model simultaneously utilises what may be termed a humanesque 'narrative imagination' to tie experimental findings and theoretical intuitions together into a plausible general account of intuitive religion in diverse cultural spaces. As a science the CSR is not unique in the use of guiding narratives, many disciplines such as evolutionary biology and particle physics utilise plausible and reliable meta-narratives to predict outcomes and generate further hypotheses.

However, the tension between the conceptual unity presented in the 'naturalness of religious belief' metathesis and the distinctive facet-specific hypotheses of individual authors is evident throughout the literature.

Compare:

> Explaining religion it is not a matter of accounting for a single trait; it involves explaining a very complex and interconnected repertoire of patterns of thinking and behaviour (Whitehouse, 2008: 19).

With:

> By virtue of our biological endowment as human beings and our environmental endowment from living in this world, people all over the world have similar minds. Regardless of culture, people tend to have minds with many basic structures that perform numerous mundane tasks, such as discerning the objects

around us, defining those objects, and observing how those objects causally interact. Operating largely without our awareness mental 'tools' encourage us to think similarly about many banal features of the world around us. These mental tools also encourage people to think about and believe in gods, the Judeo-Christian God enjoying particularly favourable treatment, especially during child development. Once introduced into a population, belief in the existence of a supreme god with properties such as being super knowing, superpowerful, and immortal is highly contagious and a hard habit to break. The way our minds are structured and develop makes these beliefs very attractive (Barrett, 2004: viii).

I have placed the two quotes beside each other because they pinpoint a major explanatory tension in the CSR. The first quote, as outlined in the previous section, is anti-reductionistic; it acknowledges the impossibility of any singular systemic explanation of all facets of religion, while the second presents the explanatory coherence, bold reach, and deceptive simplicity of many central CSR hypotheses, particularly when these are articulated through the 'naturalness of religion' metathesis.

External scholars are in the best position to analyse this recurrent tension between individual hypotheses and the wider metanarrative. Indeed, the tension between the metatheoretical narrative and individual hypotheses is only observable through the gaze of humanities' perspectives. Crucially, the fact that the CSR exhibits a narrative construct behind its explanations has not been addressed by CSR theorists, who typically try to defend the viability of naturalistic explanations of religion and the methods used to empirically ground data.[33] However, from the vantage point of Laidlaw and Oviedo, the issue is not the specific nature of the hypotheses but the broader framework, which explains so much in spite of so limited empirical evidence.

Narratives are arguably ubiquitous in scientific discourse (Sheehan and Robe, 1999). Their role is to organise disparate hypotheses and ultimately to placate the 'strangeness of reality.'

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[33] Citing the narrative construct in a scientific project is not an intrinsically derogatory act nor does it suggest that the 'naturalness of religious belief' metathesis is just another ad hoc 'just so' story. Similarly, discussion of an explanatory narrative is not same as a postmodern concern for modes of discourse, although this does inform the scepticism witnessed in the writings of Laidlaw and Oviedo.

Similarly, narrative explanations seem to offer a robustness and depth unavailable in a truly causal science of human realities:

> Complex adaptive systems, out of which intentions emerge, have behavioral trajectories that are in principle unique, contingent, and nondeterministic even in stable states and unpredictable across phase transitions. Given such unpredictability, the only explanation can be an interpretive story that retrospectively retraces the actual changes in dynamics. Without narrative, personality traits and human actions are incomprehensible (Teske, 2010: 91).

The 'naturalness of religious belief' metathesis acts as a summary of observations and a springboard to locate further evidence. It also contains the wider sociocultural implications of cognitive research. Arguably, the overextension inherent to the metathesis grants the CSR explanatory consequence. As Boyer admits:

> One could not be content with theories of religion that explain the attraction of supernatural agency but have nothing to say about why people spend time and effort in rituals, why many people in the world are so concerned about other people's beliefs, and why some are prepared to oppress or massacre others on apparently religious grounds (Boyer, 2005: 8).

The claim that only experimental evidence can contest the Intuitive Model's hypotheses is mistaken because Intuitive Model theories do not restrict their explanations to the empirical data alone. [34] Yet, as Cohen and Lanman et al.'s (2008) reply to the common criticisms of the CSR shows clearly, CSR scholars deflect these kinds of criticisms by locating the explanatory methodology in the particular methodologies of individual theories and not in the guiding metathesis itself. Humanities' perspectives, correctly, challenge Barrett's claim that '(t)his piecemeal approach makes the field complementary to the activities of other religion scholars from many disciplinary perspectives, [through] a stance of explanatory non-exclusivity' (Barrett, 2007: 2).

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[34] This fact is especially important. In the next chapter, I discuss how the Intuitive Model protects itself from intrusion by alternative theories of cognition and culture.

In contrast, Oviedo, Ingold, and Laidlaw argue that explanatory exclusivism is apparent in the theoretical justifications of the metathesis itself. They worry that the narrative explains cross-cultural macro-historical processes by way of the micro-processes of cognition. From this perspective, the CSR can be seen as a modern grand narrative of religion, similar to the long troubled theories of Marx, Taylor, and Freud. Laidlaw and Oviedo are correct to assert that such narratives may encourage interesting hypotheses in experimental science but are not appropriate as a general explanation of the science itself. It also highlights the role of humanities' research in evaluating the metatheoretical claims of the CSR.

At the very least, my review of the external literature presents challenges to the domineering paternalism of cognitive psychology in cognitive-cultural research. Whitehouse, Day and Jesse Jensen have sought to reconcile cognitive and evolutionary science and humanistic research, though many remain sceptical (most notably, Boyer 2005, and Pyysiäinen, 2005) of incorporating these.

2.4 The Constructive role of Humanities' Criticisms

The above critical discussions, sparked by criticisms of the CSR's methodology from scholars who are sceptical of cognitive perspectives are important. While addressing some of the same themes discussed in the internal criticisms their wide-angle vantage point introduces perspectives not previously discussed. Of most relevance is the discussion on the narrativity of the 'naturalness of religious belief' metathesis, as well as the limitations of the Intuitive Model's definition of beliefs. At the very least these criticisms must encourage reflection on the implicit assumptions underlying Intuitive model research, such as the centrality of propositional beliefs in non Christian religions and the differing ways 'believing' manifests in different cultures.

Crucially, all of these criticisms are resolvable internally, without needing to destabilise the Intuitive Model by accommodating the radically different metatheoretical positions of hermeneutics and social anthropology. These criticisms also highlight the dependence of

Intuitive Model research on ethnographic research and the ways in which CSR perspectives compete with non-scientific perspectives.

The questions raised here take us much further than the minimal cognitive consilience proposed by Whitehouse. To be sure, Oviedo, Laidlaw, and Ingold encourage CSR theorists to consider sociocultural variables in their task designs and explanations. Barrett and Lanman's application of the Intuitive Model to 'mode's theory' is one such example. However, we have seen that the Oviedo, Laidlaw, and Ingold would encourage Intuitive Model theorists to consider even broader influences. Bering's interest in the advent of existential awareness ensures that a discussion of personhood, competence, and identity are relevant to his work. Both Barrett and Bering need to acknowledge the narrative overreach of the 'naturalness of religious belief' metathesis and consider how to present experimental research without recourse to an abstracted and still unverified grand narrative.

In the next chapter, I examine the contemporary application of alternative theories of cognition to the CSR. Interestingly these theories work through the same critical themes that dominate this chapter.

Conclusion

The criticisms outlined above, even when overstated, and on occasion misrepresentative, are significant to Intuitive Model theory. We can surmise that the major unresolved charge against Intuitive Model theories is that the 'naturalness of religious belief' metathesis is dubious because of its reliance on non-inclusive methodological restrictions. This does not just make the metathesis too general to be consequential but too partial to be empirically sound. With the exception of Ingold, humanities scholars contend that the legitimisation of the metathesis requires the integration of humanistic approaches directly into CSR research. However, Bering and Barrett, like most in the CSR, do not see this as necessary. As Laidlaw himself admits, the introduction of humanistic frameworks into nomothetic research would only result in the ability

to construct predictive experimental design based on one or two variables (Laidlaw, 2007: 232). Yet humanistic theory posits multiple variables and qualitative perspectives that trouble nomothetic research. As I show in the instance of 'mode's theory,' Whitehouse's revised theory of consilience fails to resolve the most persistent questions found in both the humanistic criticisms and the internal criticisms.

As such, the most appropriate role for humanistic research is the presentation of a set of critical questions that encourage self-reflection by CSR theorists. Laidlaw is certainly correct to view the cognitive-scientific and humanistic study of religion as different enterprises; the attempt to unify these can only result in confusion because of the methodological boundaries of the CSR project itself. Even so, Oviedo, Laidlaw, and Ingold do outline significant issues that some CSR scholars have attempted to resolve. In the following chapters, I develop these questions in relations to the frameworks of 'distributed' and 'extended cognition.'

Chapter Three: Alternative Theories of Cognition

This chapter examines some of the ways alternative theories of cognition and culture accommodate recurrent criticisms of the Intuitive Model and the 'naturalness of religious belief' metathesis. A perceived need to clarify why Intuitive Model theorists are not incorporating theoretical advancements in the mainstream CSR, particularly those stemming from the employment of alternative theories of cognition, motivates my examination.

I evaluate two critical approaches with direct relevance to Intuitive Model theories: Mathew Day's employment of 'extended mind' perspectives and Geertz and Markússon's utilisation of 'distributed' and biosemiotic approaches. I highlight how these conceptually resolve some of the recurrent issues with Intuitive Model theory, though also emphasise why they remain problematic for core knowledge developmental psychologists, even in the absence of the constraining influence of the Intuitive Model's metathesis.

Indeed, the motivation for this chapter in relation to the larger aims of the thesis is to show that contemporary models of the mind address many of the problems with the Intuitive Model discussed in previous chapters. Still, I argue that they do not go far enough. With the exception of Day's most recent writings, my examples continue to present culture and socialisation processes as 'appendages' to Intuitive Model theories. A side effect of this is that the autonomy and isolation of Intuitive Model research is maintained. I stress how interactions between Intuitive Model theories and contemporary theories of cognitive-cultural consilience require much more than theoretical plausibility to convince Bering and Barrett of their relevance to the study of intuitive religion.

For present purposes, two recent applications of contemporary cognitive-cultural theories to classic CSR theory are illuminating. Despite the use of different guiding theorists and different conclusions arising from these, the theorists I discuss address the very questions I placed centre stage in my analysis of the Intuitive Model in the previous two chapters. Day, Geertz and

Markússon offer two different paths for a materialist study of religion and agree that alternative theories of cognition will place the scientific study of religion on a more realistic conceptual platform, overcoming some of the entrenched binaries established by classic cognitive and evolutionary psychology theorising. Importantly, I show how alternative theories of cognition work through the critical perspectives of the humanities' scholars by way of contemporary natural-scientific studies of mind and cognition. Focussing on this element of the literature instead of the philosophical discussion concerning the soundness of the evolutionary theories presents a novel access point to align the immediate critical literature with the criticisms discussed in the previous chapter. The implicit and more radical claim of this chapter is that evolutionary studies of religion need to accommodate the stronger perspectives in the critical literature and not simply exclude these by claiming they are beyond the scope of naturalistic theory. Addressing the critical literature on its own terms is how recurrent criticisms can be resolved.

A selective unification of psychosocial theory with Dan Sperber's re-conceptualisation of 'belief' resolves many recurrent criticisms of the project. The incorporation of this new framework demands a major conceptual reworking of the Intuitive Model and ultimately requires the rejection of the 'naturalness of religious belief' metathesis.

3.1 Brains, Bodies, and Causal Worlds

Alternative models of cognition challenge key suppositions in classic CSR theory. The contemporary revisitation of CSR theory via alternative theories of cognition is encouraged by research in neuroscience. Utilising technological advances in brain mapping, cognitive neuroscience strives to show 'exactly how the mind works, rather than how it might or could work' in the manner of earlier 'speculative' cognitive science and psychology (Barrs and Cage, 2007; though see Weisberg and Keil, 2008; and Barrett and Bering below for sceptical appraisals). Indeed, recent findings from cognitive neuroscience challenge computational/connectivist models of the mind-brain. Noticeably, the brain's modularity is not

as static or encapsulated as previously thought. Neuroscience highlights the neuronal interdependence of affect and cognition, the significance of motivation and experience in cognition and the influence of an organism's entire body in cognitive processing and appraisal. Traditionally such associations were of peripheral interest to cognitive psychology because it focused predominantly on the mind's information processing of representations.

Neuroscience has also introduced new theory into the CSR. Pyysiäinen incorporates the neuroscience literature on affect and cognition into the Standard Model (Pyysiäinen, 2004). Lisdorf has proposed a re-conceptualisation of cognitive devices like Barrett's HADD to gel with data from neuroscience (2007), while Barsalou and Barbey et al. (2005) argue that the CSR needs to regard cognition as 'embodied' and examine ritual and belief in relation to this embodiment (Schjødt, 2007; Slingerland, 2008b; Bulbulia and Schjødt, In Press).

A number of scholars have begun to use the tools of neuroscience to test their hypotheses. Boyer has christened this the 'cognitive neuroscience of religion' (Boyer, 2003) and while very much in its infancy, it is likely to be of increasing importance to scientific explanations of religion. Crucially, the tools of neuroscience offer a means to study relationships between experience and cognition. A recent example is Uffe Schjødt and Hans Stødkilde-Jørgensen et al.'s use of functional magnetic resonance imaging (fMRI) on Danish Christians to test whether the brain areas involved in social cognition are activated when praying (Schjødt and Stokilde-Jorgensen, 2009).

Neuroscience has also encouraged the advent of research on 'distributed' and/or 'situated' cognition. 'Distributed theory' emphasises the causal influence that diverse social cultural niches have on the development of normative cognition. The theoretical similarity between Geertz and Markússon and Day stems from the application of 'distributed cognitive theory.'

Day employs George Lakoff's, Mark Johnson's (1999) and Andy Clark's (1997) 'extended mind' thesis to problematise the search for religion in 'detached' (bodiless, 'brainless' and acultural)

cognition. Cognition, from their perspective, is dependent on environments and social worlds because human thinking extends far beyond the confines of the brain. Distributed models collapse the nature/nurture binaries by suggesting that in terms of human cognition, nature and nurture are the same. This perspective also addresses apparent differences in cultural niches, which may also account for evolutionary based variations in cross-cultural cognition (for explicitly evolutionary perspectives on niche construction see Sterelny, 2004; Sjöblom, 2007). Matthew Day, citing Paul Griffith, summarises this critique nicely, arguing that the classic CSR studies 'the ant without the distorting influence of the ant nest' (Day, 2009: 721).

Geertz and Markússon's guides are the psychologist Merlin Donald's variant of 'distributed cognition' theory and Terrance Deacon's biosemotic theory. Their perspectives are very similar to Clark and Lakoff's. Donald and Deacon propose alternative theories on the origins of human language. In the *Symbolic Species* and subsequent writing Deacon argues that humans are innately endowed with the adaptive ability to apprehend symbols and to reason symbolically. This ability is adaptive because it allows humans to offload memory.

Donald's biocultural theory asserts that 'distributed cognition' presents a more realistic model for the maintenance and transmission of conceptual information: 'brains fit into the environment as parts of a distributed web' (Donald, 2001: 284). He argues that minds interact with, offload onto, and utilise symbolic cultural storehouses, which contain information that no individual mind could ever completely know or remember. Individuals, or groups of individuals, require cultural frameworks for the normative functioning of individual mind-brains:

> External mnemonics, especially texts, further entail that they can be carried ''silently'' through generations without being interacted with, much like so-called junk DNA in biological lineages. Historical contingencies can then lead to their sudden reapplication and reinterpretation, thus leading to novel concepts (or approximate recreations of forgotten ones) in response to unexpected circumstances. Just as distributed cognition is a parsimonious strategy to store and transmit conceptual knowledge, so would the possibility to reapply 'junk text' in novel situations increase the adaptability of religious and ideological systems (Geertz and Markússon, 2010: 162).

Alternative theories of cognition blend research in anthropology and the social sciences with the cognitive sciences. For example, Geertz and Markússon revive semiotic theory, while Day revives a social constructivist perspective that questions the universal applicability of the *a*cultural 'naturalness of religion' metathesis (Day, 2005, 2009). Furthermore, though Day would likely disagree, his argument echoes Oviedo's transcendentalist claim that science is unable to capture the full breadth of the experiential and natural world. Day would acknowledge that no one, least of all CSR scholars, believes that science could ever track such a complete picture of reality. Day's concern, the same as Laidlaw's and Oviedo's, is that the CSR acts *as if* it could, presenting the search for a complete or unified science of religion as the soundest meta-method to achieve reliable answers about religion. Like Laidlaw, Oviedo, and Ingold, Day focuses on the explanatory consequences of radical reductionism and his writings are primarily a critique of the centrality of the psychological method in the scientific study of religion. Day's evaluation of the CSR project appears damning until we remind ourselves that he is, like Oviedo and Laidlaw, arguing against an improbable construct of CSR theory in the first place: that the goal of the CSR is to offer a complete and exclusive explanation of religion.

Like Laidlaw, Oviedo, and Ingold, Day is concerned with the most realistic and inclusive way to study religion. His work addresses the explanatory consequences of CSR reduction and questions the evidence presented in support of particular hypotheses. Like all three humanities scholars, he asserts that human intentionality corrupts attempts to explain human beings mechanistically and/or probabilistically. In even more forceful terms than Laidlaw uses, Day argues that psychology and the experimental method are inadequate means through which to study religion.[35]

Geertz and Markússon's blend of distributed and biosemiotic approaches have similar ties to the criticisms in the previous section. By treating the mind and symbolic-cultural systems as

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[35] Day raises a number of other problems with CSR theory that fall outside the scope of this thesis, such as statistical probability and ontological realism (Day, 2007: 58ff) See also Laidlaw, 2007: 233)

interdependent and interactive, they echo Laidlaw's claim, as well as the criticisms of task designs in chapter one, that religious beliefs are not explainable by way of psychology alone. Within Geertz and Markússon's explanatory framework, cognitive science's methodological reductions are unable to provide adequate information about human psychology. In tandem with the Laidlaw, Oviedo, and Ingold, Geertz and Markússon place human meaning making (distinctively from Bering's interest in individual subjectivities) at the foundation of their investigations. By doing this, they begin to naturalise 'reason, imagination and will.' Deacon's synchronistic biosemiotic theory rejects the core knowledge model and strives for a scientifically robust semiotic theory that accounts for socialised subjectivities.

I will now consider the implications of these alternative cognitive perspectives for Intuitive Model research through a detailed application and revision of Day and Geertz and Markússon's theories.

3.2 The Naturalness of Religious Beliefs Revisited

A metatheoretical debate about the 'naturalness of religious belief' metathesis is at the heart of Day, Geertz, and Markússon's writings. While they arrive at dissimilar conclusions about the 'naturalness' of religious belief they all agree that the Standard and Intuitive Models need to 'rethink' their theories of naturalness (Day, 2005). Day thinks the CSR needs to abandon the conceit of naturalness because no cognition is meaningfully 'natural,' while Geertz and Markússon, like Bloch (2008) argue that the examination of cognitive naturalness should also include other dimensions of human cognitive skill adapted to respond to sociocultural contexts. They define this natural from of cognition as 'our *symbolic* and *systematic* cognitive style' (2010: 159, Italics in original).

Like Whitehouse before them, Day, Geertz, and Markússon contend that the problem with the 'naturalness of religion' metathesis is that it rejects the obvious causal role that culture plays in cognition. They slight classic CSR for ignoring the role of social and ecological inputs in the

development of human cognitive skill. The sidelining of ecological and social inputs encourages a false dichotomy. Day notes that the CSR has tended to treat the broad spectrum of rituals, music, relics, scriptures, ceremonies and physical representations typically associated with religious traditions as features that are more of less irrelevant to biologically fixed cognitive system (Day, 2009: 721).

For Day (2005) and Geertz and Markússon (2010) the entrenchment of cognition in different sociocultural and historical niches disintegrates the predictive power of the Intuitive Model's metathesis. They agree that Whitehouse's 'mode's theory' has gone a long way to account for how cultures transcend the cognitively optimal anchors that the classic CSR argues are constrained by panhuman cognitive mechanisms. However, both assert that 'mode's theory' is insufficient. For Geertz and Markússon biosemiotic approaches need to be integrated because they think Whitehouse's implicit argument that individuals learn and recall large chunks of theological information is implausible (Geertz and Markússon, 2010: 161). While Day believes a rounded analysis needs to abandon the focus on psychological constraints altogether.

The key differences between Day, Geertz, and Markússon's theories are more than a conceptual one. For example, Day would view Geertz and Markússon's use of 'distributed theory' as conservative and still tied to epistemologically unsound treatment of religiosity as 'natural.' Day, unlike Geertz and Markússon, also recognises that talk of hierarchical cognition as a 'systemic web' almost turns cognitive theory full circle back to the cultural hermeneutics that Lawson and McCauley formulated the CSR in opposition (Day, 2010). Day's non-hierarchical theory, which avoids transcendental considerations, is radically different. In fact, it has major implications for cognitive-inspired studies of religion. Still, Geertz and Markússon offer something Day does not: a case study.

o   **Mathew Day's Criticisms of the CSR**

Despite his disfavour in CSR circles, Day's rich body of writing on CSR theory and method is the most relevant to the themes of this chapter. Day's points are as pertinent when shifted from the cognitive anthropology of the Standard Model to the domain of experimental psychology where the Intuitive Model is located. Given the force of Day's increasingly relentless and polemic criticisms of the CSR project, it is highly conspicuous that his most recent writings have received no systematic response from the theorists whose work he analyses. This obvious silence is perhaps as important as his writing itself. I attempt to address and respond to his criticisms here, separating, so to speak, the wheat from the chaff and locating constructive relevance to the Intuitive Model. I argue that Day's conclusions are habitually overstated, invested in equal part in alienating the CSR as much as clarifying it. Day's thesis and the recent proposition of a 'unified science of religion' stems from the infiltration of an highly problematic humanities' reading of the metathesis, which encourages a distortion of expectations about scientific (particularly psychological) explanation both by critics, and often by CSR theorists, alike.

To locate the constructive relevance of Day's work we need to distinguish between his writings in 2005 and his writings in 2010. I begin by discussing his early theory and its limited relevance to the Intuitive Model.

Day proposes that ecologically sensitive theories destabilise the generic universalism of standard theory, corrupting correlations between the maturationally natural acquisition of 'religion' and the acquisition of language. He regrets that Whitehouse's introduction of sociocultural variables still defers to the 'naturalness of religion' metathesis' inherent reliance on a universal understanding of cognition through a language acquisition analogy. Day suggests that religion is more cognitively 'unnatural' than Whitehouse assumes. While Whitehouse presents 'mode's theory' as a corrective to the unipolar (implicit vs. explicit beliefs) cognitively optimal theory of religious representations, Day advances a more radical reading.

He states that the 'naturalness of religion' (and by my own extension the 'naturalness of religious belief') metathesis is not an analogue of Chomsky's theory of generative grammar (Pinker, 1997: 15; Tremlin, 2006; Whitehouse, 2004). Quite simply, the analogy is empirically erroneous, as religious structures are not cross culturally stable, in the way that language development appears to be.[36]

Day emphasises contextual and performance based variations in religious representations. The presence of these undermines an association between religious representations and language. He argues that the acquisition of religious ideas may in fact be analogously closer to the acquisition of numeracy, which Pinker (who broadened the generative grammar thesis to include religious ideas) initially contrasted with language acquisition. Unlike language, numeracy requires a great degree of specific sociocultural scaffolding. While the developmental literature suggest that humans may be pre-equipped with basic mechanisms for calculating numerical quantities, the ethnographic and historical-sociological data highlights the massive variation that this 'innate' sensitivity produces. In addition, unlike language, abstract numerical ability shows substantial deviation between different societies and generations, signifying that it is a product, in large part, of cultural invention. For Pinker, paraphrased by Day, the innate cognitive sensitivity to numeracy is at best a computational skeleton that cannot account for differences in the complexity of numerical symbol knowledge and its application. Yet, hyperbolically:

> In a community where the numerical concepts consist of one, two, many, and a lot, for example, problems like $\sqrt{-1}$ or entities such as π are cognitively invisible. But in a richly structured sociocultural world stocked with the necessary mind tools, the same innate but limited mechanism for numerosity can be transformed into an arithmetical dynamo capable of solving $\sqrt{-1}$ or tracing π to the millionth decimal point. Appreciating this dramatic transformation gives new life to Bo Dahlbonand and Lars-Erik Janlert's apercu

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[36] See Deacon 1997; Sterelny, 2003, Daniel Hutto, 2008, 2009 for similar criticisms.

that "Just as you cannot do much carpentry with your bare hands, there is not much thinking you can do with your bare brain" (Day, 2005: 100).

Mathematics is therefore neither 'natural' nor 'unnatural.' Referencing Andy Clark, Day proposes that the development of mathematical ability requires the interdependence of biological, cultural, and technological properties.   He suggests that the development of religious beliefs occurs in an analogous way. Whitehouse's 'mode's theory' proves this, it highlights that religious cognitions are readily manipulated by sociocultural processes and that all religious systems present varying degrees of complexity in their conceptual arrangements. Without environments dedicated to the production of complex mathematical and religious cognition, mathematics and religion would not be possible.   Accordingly, mathematics and religion are products of the ratchet effect between culture and cognition. Just as developmentally innate numerical predilections are necessary for the computation of π , belief-desire folk psychology buttresses belief in unseen agentives. However, both may be nothing more than key preconditions:

> [T]o figure out how we get from there to religion in the round – that is to say, to the beliefs and practices that really matter to people – we must understand how the ratchet effect's ability to generate increasing levels of complexity has worked in particular sociocultural conditions to produce particular religious systems – a move…that depends on our willingness to stop thinking of religion as a feature of our lives that is as natural as language and finally comes to terms with the peculiarities of place (Day, 2005: 101).

By exposing the tenuous relationship between language acquisition and the acquisition of religious concepts, Day reduces the reach of the 'naturalness of religion' metathesis. He concludes that without ecological and sociocultural grounding, the CSR will be condemned to describing generic preconditions but unable to map the important questions about religions' variation and complexity.

Day's desire to explain 'religion in the round' necessitates overcoming arbitrary 'natural' and 'non-natural' conceptual boundaries. What is of most interest to us here is his insistence that there is an underlying conceptual inadequacy with the standard CSR's metathesis; he laments

that not only does this make the CSR theoretically flawed it hinders it from presenting hypotheses beyond the level of general truisms. As such, cognitive research on religious beliefs is of little relevance outside the CSR. Recalling the humanities' critics, he argues that the explanatory blinkers that the 'reductive isolationism' engenders represents a major methodological deficiency. He also rejects the generic universalism and lack of plasticity in the massive modularity thesis, which features in early CSR theories of mind. He asserts that scholars need to examine religious phenomena in terms of the 'cognitive niches' that encompass them. He contends that the continued prevalence of the universally standardised and isolated conception of the mind-brain has hindered the CSR from explaining anything of any real import and may present a foundational distortion in theory:

> [B]y treating the cumulative effects of social structures, cultural practices, material artefacts, and historical trends as extraneous features of a biologically fixed cognitive system we may actually end up with an abnormal portrait of what a normal human mind actually is (Day, 2005: 88).

The above quote neatly reflects the charge of 'negative reduction' levelled by humanities scholars of religion. However, his critique remains focused on methodology and not the tensions between idiographic and holistic perspectives advertised in humanities study (though see Day, 2010). His issue is that the classic CSR's reduction of mind rests on an unsound theoretical footing and commits the CSR to explanatory triviality because of the anaemic predictive power of the 'naturalness of religion' metathesis.

More forcefully, and again, like Laidlaw, and Oviedo and the criticisms of Intuitive Model task designs in the first chapter, he worries that the CSR describes and explains hypothetical constructs of its own devising. Unlike Ingold and Laidlaw's sceptical appraisal of the relevance of the natural sciences to understanding higher order cultural phenomena like religion, Day affirms the relevancy of Darwinian inspired explanatory models of human cognition. His concern is that evolutionary models need to accommodate a cognitive model that includes the causal relevance of ecological, historical, and sociocultural particulars.

His argument is that the CSR needs a 'rounded' rather than thin (cf., Geertz, 1973) investigative model. He concludes that the CSR needs 1) to present a 'rounded' conceptual theory of religion and how to study it, which allows for finer grained, contextually detailed analysis and 2) to ensure that the models of mind that ground theory are contemporaneous with the latest research.

However, Day's criticisms do an injustice to Intuitive Model theory when the Intuitive Model is examined in isolation from the rest of the CSR. For example, Barrett and Bering's focus *is* on the cognitive preconditions of religion. Theorists do make probabilistic claims and in Bering case, actually undertake further research on the cultural effects of these causal preconditions. However, the developmental studies and the broader explanatory investigations are two separate projects. Day is right, as are theorists who focus on narrative constructs in the metathesis to demand that broader explanatory theory requires the inclusion of many perspectives if a rounded explanation is sought.

However, foundationally, the Intuitive Model studies these preconditions. Like findings in social psychology, these preconditions may have the ring of truisms to them but this does not undermine the empirical value of their discovery. In fact, Bering and Barrett's experimental findings challenge some truisms expressed in earlier experimental research. For example, human concepts require a radical reworking of early emerging assumptions about intentionality, while 'god concepts' merely mesh with a generic agency temple. Bering's research uncovers that children begin life with a bias towards commonsense dualism but this bias decreases with age. The empirical discovery of these counterintuitive facts establishes the importance of Intuitive Model theory.

Day's analogy between mathematics and religion is suspect. The intuitive Model expects complexity in theological discourse and regardless, this is beyond the purview of the Intuitive Model. I have already discussed how Barrett and Bering do not exactly rely on the language analogy but on the broader claim, derived from developmental research into core competences

that basic inferences and biases compel adaptive solutions for human beings. They would respond to Day's analogy of religion and language by suggesting that complex mathematics is an outlier whereas intuitive religion and complex theologies appear to have arisen spontaneously in a piecemeal fashion in diverse cultural communities, undermining the very analogy Day is constructing.

Furthermore, the Intuitive Model does not downplay the effects of culture on the developmental modification of core competences. The 'naturalness of religious belief' metathesis represents the Intuitive Model's specific and narrow area of research interests. Thus, Bering and Barrett will read Day's thesis as an interesting extension of CSR research but not immediately applicable to the Intuitive Model's study of implicit cognition.

The strength of Day's thesis is expressed in his critique of classical cognitive psychology. His writing directly challenges the acultural cognitive universalism of the Intuitive Model and the naturalness metathesis. However, at this stage in his writing, Day is unable to present a constructive model to synthesise the 'extended mind' perspectives and Intuitive Model theory.

Geertz and Markússon's writing on atheism extends Day's criticism and introduces constructive bridges that are lacking in Day's own. I turn to their theory below.

- o **The 'Naturalness' of Atheism**

Geertz and Markússon (2010) introduce a cognitive-cultural framework for analysing religiosity and atheism that shares similarities with Day's thesis. Geertz and Markússon defend a revised 'naturalness of religious belief' metathesis by explaining atheistic belief via 'distributed cognition' theory. [37]

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[37] While they fail to state so, the 'naturalness of religion' metathesis they analyse is the Intuitive Model's 'naturalness of religious belief' metathesis and not the whole CSR, nor even the Boyerian inspired Standard Model as they claim. Arguably, Geertz and Markússon have downplayed the centrality of epidemiological theory to the Standard Model, to clear the way for their unification of memetic theory and the Intuitive Model's insistence on

Geertz and Markússon question the Intuitive Model's theory of atheism. They believe it relies on a mere inversion of the 'naturalness of religious belief' metathesis and has no conclusive experimental evidence in support of it. The motivation for their analysis is the sociologist Phil Zuckman's utilisation of population statistics on atheism to discredit the CSR's foundational claim about the universality of religious beliefs.[38] Geertz and Markússon reject Zuckman's argument because it ignores the majority of theory in the CSR. Yet in doing so, they argue that extant CSR writing on atheism needs to be substantially revised.

Intuitive Model theory asserts that religious concepts and ideas are easier to acquire, transmit, and recall than atheistic concepts. Both Barrett and Bering argue that intuitive religion is a hard habit to break even for those versed in highly materialist ideologies. Elaborate cultural scaffolding (e.g., secular education, institutional support) is required for atheistic beliefs to grow in minds.

According to the Intuitive Model, atheistic beliefs need to compete with and suppress a suite of cognitive mechanisms (hyper-agency detection, theory of mind), intuitive assumptions about causal relations (promiscuous teleology, moral realism) and existential experiences (death of loved ones) that foster 'religious' beliefs.[39] In contrast, atheistic beliefs are necessarily a reflective 'overcoming' of panhuman cognitive biases and are always tenuously entertained in spite of these intuitions. This is why the prevalence of atheistic beliefs is an exceptional product of modern, Westernised, highly urbanised societies. In such cultural environments, naturalistic explanations are easily accessible, while the artefactual nature of the urban environment lessens the tendency to infer non-human agency as it provides less space for thinking about non-natural causality (Barrett, 2004a: 107ff).

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panhuman cognitive constraints. In saying this, Geertz and Markússon are certainly right to note that memetic theory, as opposed to epidemiological theory, asserts a greater causal responsibility to cultural processes.

[38] Zuckerman's survey of 50 countries suggests that 'Atheism' (500 – 700 million) is the fourth largest belief systems after Christianity (2 billion), Islam (1.2 billion) and Hinduism (900 million).

[39] See Barrett, 2004b and (2010) for an outline of the Intuitive Model's theory of atheism.

Geertz and Markússon begin by rejecting the Intuitive Model's claim that non-theism is thoroughly modern, citing similarities in beliefs between the new atheistic movement and the Ancient Indian Carvākā heterodox movement (Geertz and Markússon, 2010: 158). They also question why non-belief is harder to acquire than belief. For example, they reason that HADD false alarms should encourage non-belief as often as it does religious belief. They reason that if HADD produces enough false alarms, surely it would be natural and less burdensome to assume that the trigger is not caused by an invisible agent but by some more mundane natural cause?

Similarly, they note that experimental evidence on naïve theism is suspect, with the results, as Evans and Wellman note (2006), readily able to support the exact opposite hypothesis; children become teleological naturalists, only after they have had sustained cultural experience. They argue that the lack of cross-cultural evidence in support of Bering's theories should also encourage him to avoid universal statements. In sum, Geertz and Markússon reason that Bering and Barrett routinely make unsupported claims about the psychology of atheists through an overextension of the metathesis.

Through Deacon's semiotic theory, Donald's writing on 'distributed cognition', and Dawkin's 'memetic theory,' they propose that a robust account of atheism must consider niche specific 'cultural scaffolding,' which interacts with, magnifies and/or suppresses intuitive 'theistic' biases. Thus, their thesis is not restricted to atheism. It has implications for all hypotheses concerning the 'naturalness of religious belief' metathesis. Like Day, they want to make cognition and culture interactive through discussing the causal role that culture plays in shaping 'natural' cognitions.

All three theorists challenge the Intuitive Model at a conceptual level, arguing, much like Laidlaw and Oviedo that the study of panhuman implicit religion marginalises 'religion' and 'religious beliefs' and thus weakens the relevance of such restricted explanations. Geertz and Markússon point out how this can encourage the interpretive overextension of the metathesis.

Finally, they argue that the metathesis appears to rely on narrative persuasion rather than appropriate experimental data.

In contrast to the mono-dimensional focus of the Intuitive Model, Geertz and Markússon introduce a hierarchy of interactive causations that place cognition in a 'web of ecological and cultural scaffolding' (2010: 10). Through this interactive gaze, they propose that atheism draws directly on the same natural cognitive processes that inspire religious ideations. If this is true then atheism is no less natural than theism, becoming a *'reasonable interpretive response and a natural strategy'* (2010: 11, italics in original).

The 'naturalness of religion' metathesis has failed to acknowledge this because a central feature of human cognitive style is missing:

> This cognitive style revolves around learning signs and relating them systematically to one another. Thus to echo, neuroscientist and biosemitotician Terrance Deacon and his theory of humans as a symbolic species, we are perpetual systemisers: all things in our natural and cultural environment can, potentially, be put into symbolic-systemic relations to any other thing (Deacon, 1997, 92ff, 433ff). This systemic quality not only enables us to use language, it further enables us to learn, navigate and maintain systems of ideas, making us the purveyors and peddlers of ideologies, morals, norms, philosophies, science, fiction, sense and non sense (Geertz and Markússon, 2010: 159)

This 'strikingly natural' aspect of atheism means it is no less 'natural' than religiosity. Intuitive Model theories may be correct in stating that cognitive mechanisms, normative experiences, and intuitive inference encourage recurrent supernatural beliefs but this will only ever be part of the story. The explanations given about these intuitions are predominantly doctrinal issues prescribed by cultures through norms, ideologies, and institutional frameworks.

3.3 Problems with Alternative Models of Cognition

Barrett and Bering cite a number of misrepresentations of the Intuitive Model in Geertz and Markússon's theory. Because Geertz and Markússon acknowledge a foundational theoretical similarity with Day's early research on the 'extended mind,' we can assume that the responses outlined by Barrett and Bering correspond, at least in some instances, with Day's theory of religion as it stood in 2005. Barrett and Bering's replies to Geertz and Markússon clearly establish the difficulties they see with alternative theories of cognition and the subtle way their developmental theory protects itself from criticisms in alternative methodologies of research.

In chapter one, I noted that Intuitive Model theorists argue that there are two ways non-reflective beliefs are established. They arise either through 'maturational' or through 'practiced' naturalness. Barrett argues that Geertz and Markússon fail to distinguish cogently between the two and thus their thesis misrepresents Intuitive Model theories of atheism (Barrett, 2010). In conflating the two types of beliefs, Barrett contends that Geertz and Markússon have constructed the false dichotomy they accuse the Intuitive Model of promoting. While Intuitive Model theories are interested in the maturationally natural basis of some non-reflective beliefs, Geertz and Markússon's thesis addresses practiced natural beliefs, and, as such, Geertz and Markússon's conclusion, by way of an unnecessarily complex and abstract theory, is practically the same as Intuitive Model conclusions about atheism in the first place.

The Intuitive Model's understanding of practiced naturalness readily recognises that cultural norms dictate forms of practiced natural beliefs and this is thus not in conflict with basic CSR theory (for example: Whitehouse, 2004; Boyer, 2001; McCauley and Lawson, 2002). Practiced naturalness already integrates the cognitive props 'distributed' theory sees as central, including literacy, artefacts, social structures, ritualised actions, and technological mnemonic devices. Intuitive Model theories acknowledge that cultures provide the dominant frameworks for interpreting, magnifying, and suppressing normative intuitions. However, the 'naturalness of

religious belief' metathesis makes no direct claim about cultural variations, because this is not the target of study.

Undeniably, the cultural and sociopolitical environment a person lives amongst encourages modifications, magnifications and/or the suppression of intuitive beliefs. It is particular cultural variations, not intuitive cognitions, which are responsible for the non-appearance and under-representation of religious belief in some cultures. Bering sees atheism as the result of downstream economic, sociological, and political forces and not a default intuitive preference; it is a learned, practiced, exegetical reflection (2010: 167). Despite questioning the empirical basis of this claim, Geertz and Markússon do agree that it is likely that atheism requires more scaffolding than religious beliefs (2010: 163). The metathesis applies to implicit, automatic, reflexive intuitions that are recurrent *despite* distinctive cultural variations and crucially, cultures do not determine these intuitions themselves. The 'naturalness of religious belief' metathesis says little about how cultures mediate, suppress, and/or encourage the reflective expression of these ideas. To particularise religious beliefs in cognitively scaffolded cultural and social niches, damages the attempt to explain cross-cultural regularities encouraged by panhuman cognitive mechanisms.

Concisely, the Intuitive Model's theory of atheism is a claim about the maturational naturalness of religious belief over non-belief. Bering reasons that the key error in Geertz and Markússon's analysis is that while they correctly point out that religious beliefs are not cognitively determined, they do not do justice to the probabilistic nature of the metathesis (Bering, 2010). In probabilistic terms, religious beliefs are simply more likely, *ceteris paribus,* than irreligion. According to the Intuitive Model, the maturational naturalness of human cognitive biases, interests and constraints prepare minds to entertain religious beliefs; they have a natural cognitive advantage over non-theistic beliefs.

Atheism, on the other hand, has little to do with intuitive cognition, even when presented in the cognition writ-large framework that Geertz and Markússon implant their claim for the

culturally scripted 'naturalness' of atheistic beliefs. Bering argues that through biosemiotic and 'distributed cognition' theory Geertz and Markússon have conflated religiosity with intuitive religion; incorrectly correlating the metatheoretical claim that atheism is cognitively unnatural with the unsupported claim that it must also be culturally non-normative. Yet research in the study of religion has shown how cultures and beliefs systems are distinct. The Intuitive Model does not deny this rather it elaborates on the role of cognition in influencing cultural forms and describes how these cultural forms are relative to the consistency of cognition (Lawson and McCauley 1990).

Barrett fears that 'distributed' theory uses the metaphor of expansive cognition to promote an empirical vacuum. Ignoring the central insight of CSR theory, the arguments put forth by Geertz and Markússon seem to flirt dangerously with the very tautology that the CSR formulised itself in opposition to. As Barrett states:

> Recurrent cultural expression seems to require recurrent causes such as undergirding cognitive systems or environmental regularities. That people tend to be religious is not adequately explained by the fact that people are born into religious cultures. Religion doesn't explain religion (Barrett, 2010: 3).

Bering faults Geertz and Markússon for relying on socio-demographic data. He argues that reflective propositional statements are an unreliable source of data about intuitive beliefs. Bering reasons that such data is undependable and can tell us little about implicit, non-reflective, psychological processes. By deferring to such data, Geertz and Markússon ignore relevant experimental research, which suggests that professed atheists are prone to 'religious' intuitions.

The Intuitive Model's empirical claim rests on controlled experimental work that bypasses the problem that people's reflective statements are unreliable sources of information about the psychological underpinnings of religion (Bering, 2010: 2). Reliance on population-level data derived from self-classification is an error, as this cannot tell us anything about the underlying implicit dispositions that these people have. The most reliable data needs to locate what people

believe intuitively rather than reflectively. In terms of intuitive psychology, culture does matter but only so far as it gives 'a naked intuition a personality and a name' (Bering, In Press: 2). Bering highlights this through reference to his early experiments, which found that self-declared atheists on occasion commit theistic indiscretions. Both atheists and believers express intuitive religion implicitly. Intuitive Model task designs have shown this experimentally.

While the data remains controversial, Bering is right to claim that Geertz and Markússon have not taken into account the full breadth of data. They fail to address Barrett's 'preparedness hypothesis,' nor Deborah Kelemen's rich body of work on 'promiscuous teleology.' Geertz and Markússon cite Evan's and Wellman's critical writing on the 'Mouse and Alligator' experiments even though this experiment is not representative of work within the Intuitive Model in general and there is no reason to favour Evans and Wellman's perspective over Bering's.

While Bering and Barrett do make some valid points, of more interest to us here is how their responses show how the Intuitive Model deflects intrusions from alternative theories of cognition. Bering and Barrett's responses provide a neat summary of both the problems developmental psychologists have with alternative models of cognition and the ways in which they protect the 'naturalness of religious beliefs' metathesis from contradictory theoretical intrusions.

3.4 The Intuitive Model's Protective Strategies

When confronted with alternative theories of cognition, Bering and Barrett rely on the rhetorical power of the 'naturalness of religious belief' metathesis and enact a narrative overextension of the thesis in such a way that it deflects alternative cognitive proposals. This is the very scenario Laidlaw and Oviedo observed in the previous chapter. What is critically different in this case is that the alternative theories of cognition are debating the Intuitive Model directly on natural-scientific terms. Through their defence of the metathesis, Bering and

Barrett have cosseted Intuitive Model theories of religion and protected the autonomy of the psychological models that compel the evidence for them.

Because Day, Geertz, and Markússon present a metatheoretical critique, Barrett and Bering's initial strategy is to separate experimental findings and conceptual terminology from the exploratory reach of the metathesis. The aim is to establish methodological self-sufficiency in relation to the developmental evidence itself. Yet, as I have shown in the last chapters, this is a circular strategy, as the separation of maturationally natural cognition and culturally mediated practiced naturalness is justified through Intuitive Model conceptual terminology and the metathesis itself. Furthermore, the experimental evidence remains ambiguous and controversial and thus deference to the experimental evidence is an unreliable form of theoretical defence.

However, by demanding that critics engage exclusively with the experimental evidence, Intuitive Model theorists assert that it is only evidence that uses the same psychological methodologies for argumentation purposes, and only those claims from scholars trained in how to interpret such knowledge that are reliable, that can destabilise the metatheoretical claims of the metathesis. This is still the case even when, as Geertz and Markússon highlight, Intuitive Model theories of atheism are based on the theoretical inversion of the metathesis, rather than a result of systematic experimental evidence. Bering and Barrett would argue that because Day, Geertz and Markússon's 'distributed cognition' theories are theoretical in nature the strength of their claims to 'realism' is weaker. Thus, Intuitive Model theories sidestep the recurrent criticism expressed in all three bodies of criticisms that they study an artificial construct through an isolated methodological reduction. Intuitive Model theories deflect conceptual considerations, by ignoring the very existence of these in their own task designs. As such, Barrett and Bering formalise alternative theories of cognition as 'interpretive' frameworks rather than sound natural scientific ones.

Noticeably and compellingly, the assumed autonomy of cognitive psychology is evident in Barrett and Bering's joint critiques of neuroscience. Their shared problem with this research is that it remains questionable whether it really offers more precise heuristic findings than methods in traditional cognitive psychology. Bering argues that scholars who engage with neuroscience incorrectly treat this data as an alternative rather than a complimentary field of research:

> We must be exceedingly careful when applying neuroanatomical reasoning to the area of religion, else we shall find ourselves promoting the right frontal cortex as something like the modern-day pineal gland as the rightful holder of the soul. It must be remembered that no definite consensus has been reached in relation to the correspondence between cognitive modules and their regionalized appearance in the brain; organized, rule-based structures of information processing have been postulated as arising through either extraordinarily complicated networks of neural pathways or via compartmentalized bundles of neurons devoted to specific domains. Not surprisingly, there is evidence to support both sides (see contributions in Gazzaniga, 2000).
>
> Given the current state of affairs, then, it is questionable that neuroanatomical mapping is any more heuristic an approach to studying the cognitive underpinnings of theism than the behavioral framework I have outlined' (Bering, 2002).

In a recent right of reply to John Dunne's argument for a closer relationship between the study of religion and neuroscience, Barrett refines Bering's argument. Barrett is equally sceptical that neuroscience is currently able to enrich the cognitive study of religion.

Barrett reminds his critics that psychology's cognitive revolution was as much a break from behaviourism as it was from neurophysiology. Initially, cognitive psychology was formalised as an autonomous level of analysis charting the information processing of the biological mind. In Barrett's research, this assumption endures. While neuroscience is going to be of increasing relevance to the study of religious belief and experiences, it is currently very limited because the technical apparatuses of neuroscience, such as Fmri mean that only very restricted behaviours such as stationary thinking can be analysed. This is because the technology is still

too cumbersome to track behaviours in real life interactions, even in the artificial capacity of psychology's experimental labs. The current state of technology is simply too intrusive and restrictive, encouraging him to wonder if cheaper, simpler technologies such as galvanic skin responses are of better service (Barrett, 2009).

Furthermore, neuroscientists need to answer a set of critical questions before neuroscience perspectives will offer fertile insights for the study of religion. Unanswered questions include how exactly do complex activations map onto behaviourally or phenomenologically meaningful behaviour and affects? Similarly, how can neuroscience account for the 'genres of experience' and do the same brain areas predict certain experiences? Another question relates to how neuroscience can account for correlations between contextual activations and non-contextual future activations (Barrett, 2009). Until such questions are answered, he doubts that neuroscience can really describe the role that experiences play in mediating cognitions and perceptions.

Bering and Barrett's criticisms of neuroscience tell us much about how Intuitive Model theory protects itself against explanatory intrusion from alternative methodologies. While calling for and engaging in theoretical 'interactionism' Bering and Barrett demand the explanatory superiority of the methods they employ. Yet, as I show below, it is these methods which have to open up to alternative theories of cognition and culture if it is, as critics worry, these methods and/or metatheorical perspectives themselves which hinder the plausibility of Intuitive Model theories. It is now necessary to describe the second protective strategy before developing this claim further.

The second strategy is to accommodate cognitive cultural theories while simultaneously isolating maturational cognition. Again, this strategy is dependent on a division between 'practiced' and 'maturational' naturalness. The division shifts the 'naturalness of religious belief' metathesis from a predictive developmental model to a model that merely studies immediate core knowledge and competences. This minimal application of the 'naturalness of

religious belief' metathesis only explains how competences and bias develop and stabilise; it does not account for developmental shifts throughout the life course. The probabilistic claim is only a plausible theoretical claim, while the actual experimental research involves a distinct and more limited set of claims.

Reminiscent of Laidlaw's thesis, Day, Geertz, and Markússon accuse Intuitive Model theorists of studying the preconditions of religion, rather than religious beliefs proper. Barrett sees such a claim as bizarre, as methodological reduction through developmental studies necessitates the study of the cognitively elementary forms of religious beliefs. Thus, it is a truism that developmental psychology studies the preconditions of religious belief and superstition. However, by limiting explanations to the preconditions of belief, Intuitive Model scholars leave open, beyond the secondary probabilistic claim, the role of culture in the maturation and normalisation of practiced religious beliefs. Cultural causation may override purely cognitive causation but this does not refute the preparedness claim, as practiced natural beliefs self-evidently interact with maturationally natural beliefs. In fact, the only way the subsidiary role of culture could be destabilised in Intuitive Model theory would be by showing that the most basic mechanisms, causal inferences and experiences are sensitive to the social and cultural niches a person develops within. Alternative theories do not provide evidence of this and Barrett and Bering's use of the insular and autonomous method of classic cognitive psychology ensures that this option is not available, buffering intrusion from alternative theories of cognition and their methodologies.

Critically, Day indirectly addresses this rhetorical defence in his subsequent writings. It is finally in this writing that he begins to introduce important theoretical and empirical insights for Intuitive model theory. His new thesis undercuts the Intuitive Model's protective strategy. It is to this I now turn.

3.5 Consilience Revisited: Psychosocial Theory

In this section, I constructively apply Day's recent writing to Barrett and Bering's work, I analyse the instances where alternative cultural and cognitive theory can offer important revisitations of assumed theory. I take seriously Day's tentative psychosocial theory of religion though I argue against him that this requires the complete abandonment or marginalisation of developmental and/or classic cognitive perspectives. His revised goal is to show how 'extended mind' theory pragmatically re-orientates the study of religion. Day admits that his early propositions for the relevance of 'extended mind' theory maintained a false dichotomy between the inside and outside, the individual and the social, nature and nurture, and cognition and culture. He argues that the CSR ignores the greatest lesson and empirical insight of recent scholarship on religion. This insight is that neither religions nor the phenomena that comprise them are discrete entities. As Laidlaw affirmed, the category of religion and the study of it are thoroughly historicised and socialised.

His writing is another example of consilience theorising. It aims to at bridge 'the tired opposition between the social and the psychological' and provide 'the realistic foundations of religion in the process' (Day, 2009: 734). Following Bloch (2008), Day believes that religion is not a self-referential, isolated reality rather it is one aspect of what has historically been described as the 'transcendental social.' Religion is a small but key part of this and should be examined in relation to the larger social totality. Looking at human social structures holistically debunks explanations by way of evolutionary adaptation because the latter is like trying to explain the function of headlights while ignoring what motorcars are like and for' (Bloch, 2008: 2060, cited in Day, 2010: 6).

Instead of revising the cognitive framework (as Whitehouse, Geertz and Markússon and Day in earlier writings do) Day looks to 'externalist' sociological theory to script an interactional theory, which materially grounds sociological theory and makes it incidentally amenable to the demands of CSR theory.

Day argues that the selective incorporation of the anthropologist Bruno Latour's[40] reworking of Durkheimian theory supports the central 'extended mind' argument that human cognition is radically shaped by the objects, no less than the immaterial ideas and ideals, projected within social environments. Day argues that Durkheim's insight that religion is 'eminently social' is crucial to his own thesis, though it requires the simultaneous rejection of Durkheim's belief in an autonomous 'transcendental social.'

Day contends that classic theory in evolutionary psychology (Cosmides and Tooby, 1992; Pinker, 1997) detrimentally focuses on Durkheim's larger claims. The recurrent argument that Durkheimian theory ignores the causal role of the biologically shaped individual mind reflects this singular focus (Slone, 2004). While the 'mind blind' critiques of the social sciences are sustained and persuasive, Day argues that cognitive-evolutionary theories routinely miss a critical proposition in Durkhiemian theory: the dynamic hybridity and interdependence of all thought.

Day asserts that the most important insight of Durkheim's writing relates to how historical, material, and sociocultural forces determine the categories of understanding. Uniquely, Durkheim provides a hybridised theory of conceptual development. Day notes that Durkheim

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[40] It is necessary to comment on Day's utilisation of Bruno Latour, as reference to Latour can quickly ignite debates between objective natural scientific approaches and postmodern relativism. For example, Edward Slingerland, like Alan Sokal before him (2008) rigorously challenges postmodern theory, seeing Latour as particularly representative of postmodern perspectives and, on occasion, suggests postmodernism is characteristic of the humanities' project as a whole. Our review of Laidlaw, Oviedo, Ingold and now Day, highlight that Slingerland's argument is misrepresentative if applied in this instance because not one of these theorists posits humanistic exclusivism, they merely voice concerns about the unavoidable limitation of cognitive theory and the tendency to oversell findings. Like Ingold and Laidlaw, Day challenges the excess of CSR's thin evidence for thick 'naturalness of religion' narratives. Furthermore, Day's consideration of Latour's perspectives evidences a minimal and selective engagement with his theory. As such, Slingerland and Day are talking about two different 'Latours.' For Slingerland, he is a wayward critic of the objective instrumentalism of science, whereas Day believes some elements of his recent theory offer a potential bridge between psychological and sociological theory. Day's point is that it makes little sense aligning anthropology and psychology with naturalistic science, if by doing so sociocultural factors are stripped down to a reflective skeleton of naturalistic study. By way of 'extended mind' theory he strives to naturalise the very fact overlooked in Intuitive and Standard Model research, that 'agencies' act on 'agencies.' Distinctly, his theory overcomes critical dualism and looks to ways theories can compliment and interact against rhetorical extremes in both positions.

posits a hierarchical developmental model of conceptual classification. He separates first order immediate reflections derived from sensations and perceptions, which encourage assumptions between objects and things, and second and third order reflective categories of 'genus,' 'class' and 'kind' These higher order reflections distinguish initial perceptions. Durkheim reasons that sensations and perceptions are contentless on their own. He writes in the *Elementary Forms*: 'material things can only form collections, heaps or mechanical assemblages without internal unity… A heap of sand or a pile of stones is in no way comparable to the sort of well-defined and organised society that is a genus' (Day, 2009: 723).

'Genus' and 'kind' categories establish the boundary lines of membership and dictate which features form internal consistency and unity with category peers. Categories organise immediate sensations and perceptions and importantly, they place constraint on ordering. Class membership is structured and composed through social orders and is non-random. In Durkheim's theory, objects can be related conceptually in many ways. For example, a dog could correspond to a human because both have eyes or because humans in some locations feel an affinity to these animals. This is because socialised membership categories pick out those features that a society deems prominent and important.   Thus for Durkheim, if you want to seek the origins of kind', 'class' and 'genus', you need to look at the material dimension of social sorting, which is evident in the hierarchical social order itself. It is the social order that organises and composes the shared cognitive categories necessary for communication between minds. Durkheim's thesis challenges theories that support core ontological classifications and more broadly the predictive power of core knowledge theory.

The importance of this thesis is obscured by Durkheim's problematic discussion of the transcendental social. However, Day believes that Latour has reformulated Durkheimian macro-social theory in a way that escapes the long problematic claim that society is a unique, ontologically distinct entity and therefore avoids the tautology inherent to explaining social

collectives in terms of social collectives themselves (Day, 2009: 726).[41] Day reads Latour as employing 'extended mind' theory to encourage the post-social turn in sociological theory.

Latour argues that there is one shared perspective that unites all work in the social sciences: the fact that agency is *overtake*n by other agencies (Latour, cited in Day 2009: 727). The claim is that no 'agent' is ever autonomous; their interactions are affected by and seem to '*overflow* with elements already in the situation coming from some other *time*, some other *place*, and generated by some other *agency'* (Latour, cited in Day, 2009: 727). Both macro-social and micro-social sociological theories are imperfect attempts to make sense of this basic fact. Both theoretical schools attempt to ground agents in contexts or in some larger frame of reference, which constrains the autonomy of individual actors (Day, 2009: 727). Yet the problem with this, despite its empirical plausibility, is that the search for the 'spatial metaphor of context' constructs the same division between insides and outsides (nature and nurture, micro and macro, local and global) that naturalistic theory is prone. The construction of divisions corrupts balanced causal analysis and leads to rhetorical argumentation about which forced choice is more causally 'responsible.' Latour's solution to the Durkheimian Achilles' heel is to flatten normative hierarchical arrangements so that 'causes' are interactive rather than oppositional. This denies the circularity inherent to discussion of the 'transcendental social,' which CSR theorists criticise and Intuitive Model theorists find prolific in criticisms of their research.

Day believes that Latour's abandonment of the transcendental social encourages the application of 'distributed' understandings of human cognition (Day, 2009: 729). Latour's own example of the modern consumer who requires the ability to *calculate* and *choose* is suggestive

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[41] A traditional way in social science to overcome the limitations of Durkheimian top down macro-social theory is through micro-social methodological individualism, Methodological individualism seeks to incrementally explain the large-scale, through examining how human actors are constantly reformulating, contesting, assembling and modifying the groups that surround them. A seminal example is Max Weber's theory of the capitalist social order. According to Latour, micro-social theory commits the same transcendental fallacy as macro-social theory. Both have remained separate fields of inquiry, and Latour contends, are flawed methodological programmes. Latour's proposal is to give up the search for a bridge between micro-social methodological individualism and macro-social methodological holism. In his reading, methodological parsimony requires abandoning and reformulating both projects afresh.

of this application. The traditional binary would align with one of two frameworks. Firstly, the 'nativist' perspective may regard such competences as ingrained and merely exploited in supermarkets and modern institutions of the consumer experience. In a second view, ideological domination of the economic infrastructure shapes such competences. Latour proposes that there is a third way, which sees this competence as the result of 'plug-ins circulating in social space and which the consumer subscribes and downloads on the spot to become locally and provisionally competent' (Day, 2009: 729). Thus, the software analogy shifts from closed to open source.

Day argues that the post-social turn in Latour's theory leads him toward 'distributed cognition' theory because his solution is to direct attention to the 'things' that populate contextual environments. Traditional social theory has focused on invisible, immaterial abstractions such as 'systems,' 'functions' and 'structures.' Yet human environments are rife with objects and 'would be virtually unimaginable without things' (Day, 2009: 730). A focus on the objects that populate communities point to the fragility of the social order as collectives seems to be as frail or durable as the equipment the actors have for assembling it. In fact, society acquires the patina of the permanence from *things* (Day, 2009: 730). The material objects that compose collective spaces ensure that collectives do not have to recreate themselves; the 'transcendental social' is therefore rooted in the material artefacts contained within a given society. The goal then is to trace the associations between agents and elucidate the consequences that these associations have on dependent human actors (Day, 2009: 731). Latour suggests that the larger a collective the greater number of objects that will circulate within it. The size of the collective, and by association the amount of objects in it, informs human subjectivity because the larger the degree of objectivity in a society requires and encourages a much larger degree of subjectivity.

Day believes that Latour's naturalisation of the 'transcendental social' has major practical ramifications for the academic study of religion. Firstly, it suggests that all previous social explanations of religion, through their unwarranted trust in context, have merely substituted

one mysterious thing for another. The frequent treatment of religion as an illusion compelled by various supra-individual social processes encourages this mysteriousness:

> From this perspective, the non-theological study of religion has never existed, because we have yet to distinguish our faith in a pantheon of invisible agents (society, capitalism, power, field, culture, structure) that are actually pulling the strings. Religious Studies is still haunted by ghosts (Day. 2009; 732).

Concisely, Day is seeking to make causal social variables viable in a naturalised study of religion. To overcome the tautology of the transcendental social requires religious studies theorists to treat gods as 'things.' In doing so, theorists can avoid explaining the social in terms of the social itself. Yet, 'extended mind' theory cannot merely be supplanted into existing social theories of religion: 'The academic study will need to take up a methodological principle of symmetry that allows us to explain truth and falsity, rationality and irrationality, even science and religion, in the same basic terms' (Day, 2009: 732).

He argues that studies of religion should avoid generic taxonomic descriptions of religion. Importantly, 'extended mind' theories are able to explain how religious collectives are different from one another, without losing the material bedrock of theory. Unlike CSR universalism, it does not seek universalism at the expense of differentiation:

> One community charts a path of self-creation that includes a history of sumptuous materiality built around their interaction with the gods. Another proceeds to construct and regulate itself in the midst of a god who forbids such ornate (representational) practices. In these cases, it may be more fruitful to think of them as ontologically distinct entities (Day, 2009: 734).

The material dimensions of the collective also build the actors within them, shaping the skills needed to assemble, maintain, modify, preserve, and challenge an established group. Objects are not just cognitive scaffolds but are direct cognitions that shape actors competences. The more 'things' a collective has, the greater the level of interiority: 'just as the durability and scale of a collective seems to increase with the sheer number of things, the subjectivities that are

associated and assembled with these objects seem to grow in complexity and depth' (Day, 2009: 734).

The study of religion should seek to track associations that promote religious competence with regard to piety, prayer, repentance, and sacrifice. The subjects of such investigations should be the most disciplined and competent of believers. This is because it is the same networks of associations that are involved in the production, maintenance and transmission of the 'gods' that are responsible for constructing and stabilising the subjective skills that an actor requires to competently act when intuitions manifest.

We now need to ask whether Day's thesis has any relevance to the Intuitive Model and whether or not it can overcome the Intuitive Model's scepticism of alternative theories of cognition. In the next section, I show how the Intuitive Model can integrate some of Day's psychosocial perspectives in a manner that was not available through the humanities' frameworks and the alternative theories of cognition discussed earlier. Humanities frameworks demand a too radical conceptual shift, while Geertz and Markússon's theory fails to undercut the Intuitive Model's protective strategy. However, the minimal application of Day thesis, which still shares some similarities with the humanities' positions, produces surprisingly fertile results.

3.6 The Psychosocial and the Intuitive Model

I will begin by discussing the pragmatic application of Day's thesis to the Intuitive Model. In line with the constructive nature of my own thesis, I address the areas that I think Day's theory is insightful, before discussing what needs to be excluded for his thesis to be amenable to Intuitive Model theory. Of course, this task is a little counterintuitive. Day makes clear in his recent writing (2007, 2009, 2010) that he has lost faith in the CSR to explain religion. The intended audience of his paper is not the CSR, but religious studies scholars.

Certainly, Barrett and Bering are unlikely to see why a naturalised sociological theory is of any relevance to their own work. Yet, surprisingly, in terms of the critical literature considered in the past chapters, Day's psychosocial theory is the closest to resolving many of these, while offering a means to keep intact the insights of Barrett and Bering's hypotheses.

A direct outcome of dialogue between Intuitive Model and psychosocial perspectives is the resolution of recurrent criticisms of Intuitive Model research. The application of psychosocial theory is akin to a Trojan horse as psychosocial presents the Intuitive Model with the means to resolve persistent criticism and place it on a firmer theoretical footing. However, this gift horse sacks finally, the Intuitive Model's highly problematic guiding metathesis.

o **Breaching the Intuitive Model's Protective Strategy**

Importantly, Day's theory destabilises Intuitive Model protective strategies because it forcefully denies that culture is merely an appendage that magnifies or suppresses core competences. In fact, he would contend that the Intuitive Model is in radical error trying to track the non-cultural causations of religious beliefs. In contrast, Day offers a minimalist perspective on native mentalisers which challenges core knowledge theory relative to religious cognitions. While Geertz and Markússon argue along similar lines, their focus remains on the explanatory paucity of cognitive preconditions to explain recurrent behaviours and belief (e.g., atheistic belief should be seen as just as natural as religious beliefs). Bering and Barrett were able to defend the study of generic intuitions by arguing that the numerous theories of 'cultural evolution' such as the one Geertz and Markússon present are largely autonomous from Intuitive Model research.

Yet, in the instance of Day's theory, developmental psychologists of religion cannot as easily isolate the Intuitive Model from criticism. Day builds a new material theory of religion in direct opposition to the Intuitive Model's 'naturalness of religion' metathesis. I argue that by letting

culture into core cognition, the Intuitive Model may radically increase the empirical strength of its hypotheses.

Day's theory certainly presents a number of challenges to the Intuitive Model. Psychosocial theory contests the isolationism of psychological methodology. Extending the scope of research so that cognitive attractors and culturally determined variables are indistinguishable collapses the predictive power of the Intuitive Model's hypotheses and task designs.

Recall Cosmides and Tooby's distinction between metaculture, evoked culture and epidemiological culture (1992: 115–116). The Intuitive Model strives to account for metacultural beliefs and is heavily criticised for bracketing the developmental and immediate environmental contingences that feature in evoked and epidemiological culture. Day's psychosocial theory would deny the isolated explanatory relevance of generic metacognitive preconditions in all religious beliefs.

In Day's model, it is false to separate inside cognitive causation ('causes') from external cultural causations ('reasons') as the binary distinction does not exist. I agree that by excluding the socialised dimensions of religious belief, the Intuitive Model promotes a conceptual error and an implausible separation of maturationally natural and practiced natural cognitions.

Day's emphasis on agencies acting on agencies requires the extension of psychology and psychological method and the removal of the distorting influence of the 'naturalness of religious belief' metathesis, because the metathesis is a product of artificial experimental evidence. Developmental theories of core competence will remain in error until a theory, which accounts for the variables that influence human belief in their multivariable complexity. Psychosocial theory rejects the isolated focus of individual cognition, which is present even in social psychology, which sees communication as an exchange between individual actors.

The focus should rather be on the *socialisation* of individual cognitions, with religious belief treated as emergent phenomena, which bind the practiced and maturationally natural in specific contexts inclusive of diverse agencies. Day is taking up, if unintentionally, the extremely difficult task of contextualising implicit subjectivities through a naturalistic methodology. Recall that Intuitive Model theories contend that contextually unique subjectivities are forms of practiced naturalness; they become intuitive through prolonged exposure to, and repetition of, behaviours, in response to the ideologies and norms that dominate a sociocultural space. The opposite claim is expressed in psychosocial theory: implicit subjectivities are structured by cultural norms and dominant traditions, not the underlying cognitive apparatuses themselves.

Throughout his writing, he has laboured to show how traditional CSR theory has elevated an artificial dialectic at the expense of the causal influence of the other. Day's aim is to violate the normative antimonies (e.g., subject-object, nature-nurture and individual and society) that he believes feature in CSR research. He does this by arguing that the 'naturalness of religious belief' metathesis is false because all religious beliefs are 'culturally scaffold' and practiced natural intuitions. In his reading of Durkheim, he posits that unreflective intuitions are variant sensory-perceptual inputs or 'cognitive noise,' ordered and shaped by socialised categories. These socialised categories are variable and context specific, and regardless of biases in core cognition cannot be comprehended by individual minds without the ordering process granted by cultural socialisation. This makes sociocultural causations inseparable from core cognitions, because they are an essential ingredient of the core cognitive processes themselves.

Thus, Day would assert that religious beliefs are unavoidably practiced beliefs. As such, Day's blend of psychological and sociological theory leaves little space for linear probabilistic developmental trajectories. Development, Day maintains, occurs in the messy middle ground between these projected antimonies. Willis Overton notes that such forced antimonies resonate throughout psychology:

> In the nature-nurture battles, for example, while virtually all combatants these
> days acknowledge some type of interaction, it is a rare program that promotes

nature and nurture as co-equal reciprocally determined complementary processes (Overton, 2006: 18)

Day would encourage Intuitive Model theorists to consider the situated, contingent and activity dependent aspects of any posited developmental trajectory. He would certainly also reject the Intuitive Model's contention that an agent's environment simply offers distal processes, which distort, supplement, and modify the maturational development of enduring implicit beliefs.

In a psychosocial reading, religious beliefs (with both intuitive and reflective properties) develop through enactive relationship with other people and the thoughts and norms encased in the material artefacts of a believer's cultural worlds. In Day's reading, until Intuitive Model theorists accommodate such perspectives in their task designs, their research is incomplete and fragmentary.

o **Limitations of Psychosocial Theory**

Before I establish a dialogue between Day's theory and the Intuitive Model, we need to consider the problems that Barrett and Bering would express with the psychosocial thesis. Many of these problems echo the Intuitive Model's problems with research undertaken in the humanities. The problems Intuitive Model theorists have with psychosocial theory are as significant as Day's problems with the Intuitive Model. In my reading key problems would include that psychosocial theory:

1) ignores evidence for the recurrence of concepts and intuitions based on generic mechanisms like HADD and theory of mind, as well as experimental evidence in support of cognitive constraints and core knowledge competences. These findings converge to support the thesis that there is a cross-cultural similarity in basic folk psychological thought and this has causal influences on human thinking behaviours;

2) is inadequate as a psychological theory of development. A generic theory of social-cognitive normalisation is a theoretical regression, one in which the Intuitive Model has formalised itself in opposition to;

3) evidences a lack of conceptual clarity about how to distinguish keys terms such as intuitive and semi-propositional religious beliefs;

4) is far too board and thus extremely difficult to operationalise, test and falsify. For example, it is difficult for specific subjective beliefs to be empirically shown to correlate to specific material objects;

5) Is overly theoretical. The Intuitive Model shows that there are more conservative and experimentally grounded means to account for variations in beliefs. Day's treatment of belief and his approach to religious studies is simply beyond the purview of Intuitive Model theory;

6) appears to re-enact a mind-blind tautology: religious beliefs are products of other's religious beliefs mediated by material artefacts that transcend human generations.

Bering and Barrett's immediate concern would be that Day's framework offers no clear conceptualisation of beliefs, which the study of implicit reasoning shows can and do often diverge at a intuitive level. Day's theory also denies the causal efficacy of maturationally natural intuitions, which Intuitive Model theories depend on. Barrett and Bering would require Day to explain how his thesis can accommodate the fact that even the most competent believers revert to generic interpretations at odds with their practiced, disciplined knowledge and which are similar despite radical variations in reflective traditions. Hindu believers, like American Christian believers, anthropomorphise deity, while American children and Romani gypsies exhibit the same teleofunctional bias that also populate soteriological traditions.   Bering and Barrett would note that through Day's rejection of the cognitive isolation of implicit processes, he appears to revive behavioural eliminativism because he cannot explain the psychological operationalisation of his theory other than at some extremely broad level.

Perhaps the biggest problem Intuitive Model theorists are likely to have with the model is that it is extremely hard to see how experimental settings could account for the subtlety of interactions between cognitions and culture posited. It is unclear how reliable developmental task designs could be composed and coded sensitive enough to bridge the development of distinctive subjectivities.

This experimental alienation would fuel Bering and Barrett's rejection of the theory. Barrett would assert that it is symptomatic of the critical problem of experimentally untestable social science theory. If the theory cannot be tested, it cannot be falsified and thus it becomes a rhetorical debate that denies precise, systematic refinement of hypotheses. As such, it falls prey to its own truism: religious beliefs are established by a many number of factors that shape the religious actor. Not only does this not really tell us much but the thesis is simply too large in scope for it to be fractionated into the simple prediction needed for experimental science.

Still, there are claims within the broader theory that do have experimental implications. For example, Day denies a generic platform for beliefs. His implicit hypothesis is that universal core cognitions do not have strong influences in shaping religious beliefs types. Directed task designs and/or meta-analysis could encourage distrust in research on core competences. However, even with this kind of experimental success the theory must compete with the compelling findings of the Intuitive Model. Furthermore, the denial of core competences does not really get us to an experimentally motivated psychosocial theory.

Given the radical differences between the two perspectives, we may ask if it is possible or worthwhile seeking dialogue. I argue that it is indeed possible and in the following section outline a framework for fruitful engagement. I develop a closer relationship between the Intuitive Model and Day's psychosocial theory through a revisitation of key conceptual terms in the Intuitive Model and a highly selective reading of Day's theory.

3.7 The Pragmatics of a Psychosocial theory of Intuitive Religious Belief

Day's theory attempts to integrate psychology and sociology but in the process methodologically alienates the relevance of developmental psychology. Despite Day's incorrect conviction that a generic developmental framework will provide little more than trivial information for the study of religion, I pragmatically attempt to apply some key ingredients of his theory to developmental modelling. By doing so, I hope to address and offer solutions to some of the limitations that developmental psychologists would see in the theory presented above. Interestingly, a contemporary overview of the developmental literature partially foreshadows Day's interests. The authors, Rebekah Richert and Erin Smith, note:

> [A] developmental approach has helped researchers identify the cognitive bases for religious concepts, which can inform discussions about how and why people have acquired and transmitted religious concepts over the course of evolutionary history. However, from a cognitive developmental perspective, there is much more that needs to be explained in regard to individual beliefs in religious concepts. Though research has yet to address at what age and based on which input children begin to question the truth value to the concepts they have received. Without cultural input and support, it is unclear whether religious concepts would disappear or simply relegate to the fantasy realm. However it seems clear that the function of the concepts would drastically change…Although less studied in this area of research, the cultural factors that propagate the content and beliefs in religious concepts will be an important next step to further our understanding in this area (Richert and Smith, 2009: 191).

Barrett acknowledges that classic CSR has not adequately explained practiced naturalness as an independent variable in the study of religion (2009). To address this he has proposed a typology where maturational natural cognitions and general cognitions inform cultural and religious schemata. In turn, practiced religious beliefs and action inform general cognitions. While this is a more robust and interactive model psychosocial theory predicts that the CSR's separation of maturational and practiced cognitions continues to implausibly safe guard maturational features of cognition. Day maintains that a strong theory needs to place the individualisation of belief at the forefront of investigation and ultimately this must corrode the predictive power of broad universal trends.

However, drawing important inferences for Bering and Barrett's respective theories does not require the acceptance of Day's larger hypotheses (e.g., gods are material 'things'). In my reading, a middle ground is possible. If we read Day's theory as a theory about the subjective normalisation of cultural worlds, a space for correspondence arises. Critically, we do not need to deny cognitive universals; clearly, there are universal developmental regularities (such as imitative play, a bias toward anthropomorphism, false belief competence, and folk theories of gravity to name but a few). Thus psychosocial theory, as I present it, does not disregard the Intuitive Model's focus on preconditions. Instead, it asserts that these preconditions (by themselves) are so causally weak to be inconsequential to robust studies of religious intuitions. Importantly, Day is careful not to fall into causally suppressive phenomenological interpretations. Like Sperber, Day believes that when considering why people *'generally tend'* to hold the beliefs they do the cognitive sciences offer some structural insight into human cognitive architectures.

Most importantly, and perhaps problematically, psychosocial theory entrenches practiced naturalness within maturational naturalness, expecting dynamic and interdependent relations between implicit and reflective beliefs. Of course, Intuitive Model theories also expect dynamic relationships, seeing reflective beliefs as constrained and interactive with the former. However, as we have seen in the case of Bering's thesis, the non-maturationally intuitive beliefs that shape reflective beliefs are not analysed. Barrett, for example defers these considerations to broader theories such as 'modes theory.' To put it metaphorically, within the Intuitive Model, maturationally natural intuitions follow reflective beliefs like an ever-present shadow. The key difference is that Day would treat body and shadow as inseparable.

The application of psychosocial theory to the Intuitive Model resolves a number of the recurrent criticisms of the Intuitive Model. By contesting the methodological and conceptual reduction of the 'naturalness of religious beliefs' metathesis it expands the Intuitive Model's investigative interests, accommodating 'causes' and 'reasons' expressed in alternate theory. As

an alternative to the 'naturalness of religious belief' metathesis, the psychosocial theory of intuitive religious beliefs presents a heuristic explanatory model unburdened by questions of core 'naturalness.' Unlike the metathesis, it does not need to exclude obvious variables to maintain tractability with natural scientific research. Importantly however, psychosocial theory can still include Barrett's argument that implicit beliefs are simple and less complex than theological conceptualisations.

 Thus, psychosocial theory would not regard Bering and Harris' research as oppositional. By unifying the two theories more inclusive task designs may be formulated; psychosocial theory predicts that the role of testimony and core competences are interactive and complementary forces in the development of intuitive religious sensibilities. So intertwined the theories offer a richer picture of the development of children's understandings of human death and beliefs in psychological immortality. Day would insist that Bering and Harris' experiments accommodate local variations. Similarly, he would argue that the intuitions of American children and Vezo children remain separate and treated as products of ontologically distinct cultures. As such, we would not necessary expect a 'physic unity' in the two groups reasoning behaviour. This is important as it calls into question direct comparison between Bering's work on American children and Harris and Astuti's on Vezo children.

The most difficult problem for Intuitive Model theorists is Day's argument, shared by William James, that the appropriate subjects for investigations into religion must be the traditions most competent actors. These experts have gained the practiced natural competence that is necessary for Day's entrenchment of subjectivities in social space. Through their close links to the supra-individual and cross-generational objects that compose traditions, competent actors are holders and arbitrators of a tradition's norms and beliefs. Like public representations embodied in objects and rituals these actors are so competent that they are able to bring initiates, without direct maturational compulsion, into the fold.

Like Laidlaw, Day appears to believe that children cannot entertain religious beliefs as such belief requires a degree of reflectivity. 'Competent' believers are invariably adults whose religious subjectivities are the result of a long process of enculturation. Intuitive Model theorists may respond that the problem is perhaps a definitional one, as Laidlaw proposed when claiming that these scholars are not studying religion but human superstitions. Day's psychosocial theory would insist on a development trajectory able to document how a 'scripted person' learns the lines of their particular faith.   This suggests that we should listen and examine more broadly the *reasons* children give for events. In the Intuitive Model, this means that cognitive causations must blend with context based, learned reasons.

Clearly, much work is still required to integrate the Intuitive Model and psychosocial theory. In my reading, the best way to unify Intuitive Model and psychosocial perspectives is through a reworking of the Intuitive Model's conceptualisation of beliefs.

3.8 Revision of the Intuitive Model's Conceptual Terminology

Scratch an intuitive belief and it becomes reflective (Bloch, 2010).

Uniting the 'post-social' theory of religious beliefs with the Intuitive Model requires a reworking of the Intuitive Model's definition of belief. Thankfully, this is available through Sperber's own conceptualisation of belief (1997, 2010). Bringing Sperber into the discussion is encouraged by the fact that Intuitive Model theorists credit Sperber with the foundational distinction between 'intuitive' and 'reflective' beliefs. (Barrett and Lanman, 2008) The full inclusion of Sperber's theory of beliefs means that Day's argument for the inescapable 'hybridity of thought' appears far less drastic.

Sperber contends (2010) that 'religious' beliefs are unavoidably reflective beliefs with semi-propositional[42] content. Recall that Intuitive Model theory defines belief differently as a 'the state of a cognitive system holding information (not necessarily propositional or explicit form) as true in the generation of further thought and behaviour' (Barrett and Lanman, 2008: 110). The Intuitive Model seeks to explain how general intuitive beliefs shape intuitive *religious* behaviour and beliefs. For example, HADD encourages inferences about invisible agentives that affect behavioural responses in ways that appear religious.

Sperber would grant Intuitive Model theories their definition of belief but contest that the Intuitive Model can align generic beliefs and *religious* beliefs in this manner because even if beliefs are 'implicit,' religious beliefs are always propositional at a reflective level. Sperber would maintain that religious behaviours only occur because of communications about *religious* beliefs. As such, the Intuitive Model needs to separate implicit beliefs that are only incidentally related to religious beliefs and intuitive religious beliefs that are.

Sperber's distinction between the two categories of beliefs has further nuance. He argues that there are two types of intuitive beliefs: intuitive beliefs with no propositional content and intuitive beliefs, which include semi-propositional content. The same is true for reflective beliefs, some have no propositional content, while others have semi-propositional content. However, key to Sperber's theory of beliefs is the argument that the category 'intuitive beliefs with semi-propositional content' is an empty category, as no intuitive beliefs can house semi-propositional content because as soon as they contain reflective assumptions they start to involve *reasons* rather than implicit *causes*.

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[42] Sperber alternatively describes lay religious beliefs as' half understood beliefs' (2009, 2010). He argues that beliefs are always partially mysterious to the believer and are open to a variety of exegetical interpretations and reinterpretations. The clearest example of semi-propositional religious beliefs is the belief in the Holy Trinity. Despite high levels of commitment to the concept, lay believers, in ordinary situations, acknowledge only partial understanding of what it presupposes and entails. Beliefs in the Trinity or a guardian angel are reflective in the sense afforded by Intuitive Model theory but only vaguely so. Similarly, it would be inappropriate to describe such beliefs as practiced because, even when explicitly stated, the reasons for the belief often remain obscure and inconclusive to the believer. Sperber, like Harris, contends that the source of many half-understood beliefs is the individual's religious community.

Within the Sperberian framework, semi-propositional beliefs are the most common belief type and are highly variegated. They are not intuitive nor practiced as assumed in the Intuitive Model. Semi-propositional beliefs are beliefs about things, objects and entities partially occluded to the believer and frequently held in the absence of conclusive evidence. A believer holds a belief despite a lack of detailed and fully reasoned knowledge on the subject. Often 'commonsensical' and believed with conviction, semi-propositional beliefs predominantly rely on reflective rather than intuitive plausibility. Examples include Omar's belief, derived from reading secondary scientific sources, that global warming is occurring and is an eminent threat to humankind; Sarah's belief, informed by her doctor, that gluten causes choleric disease; Elton's belief in causal psychic forces encouraged by readings of Alistair Crowley; and Milan's belief, without knowledge of the intricacies of such processes that microwaves heat food. These beliefs are semi-propositional because the believer is unable to know everything about the subject they believe in. Such beliefs, while reflective, do not necessitate declarative expression and certainly do not need to be maturationally implicit.

A focus on semi-propositional beliefs would necessitate that when Intuitive Model scholars consider religious beliefs their hypotheses examine the propositional content as much as the underlying cognitive bias of the belief. Thus, when we talk of intuitive religious beliefs maturational and practiced natural beliefs are interdependent. In this way, a hybridised theory of conceptual development can gain empirical traction without requiring the full application of 'extended mind' theory.

Indeed, Intuitive Model theorists admit that intuitive religious beliefs must involve some propositional content; religious beliefs are not properly innate and varying degrees of cultural scaffolding are necessary. As Barrett and Lanman explain of HADD:

> We are not arguing that HADD experiences are directly responsible for belief in supernatural agents. We are arguing that HADD experiences, belief In MCI

agents and *discourse about such agent*s are mutually reinforcing (Barrett and Lanman, 2008: 116, italics added).

The problem that Day, as well as Geertz and Markússon, and now Sperber have is that the Intuitive Model methodologically separates the former from the latter in the search for implicit preconditions. The methodology encourages conceptual antimony despite the overt awareness that implicit beliefs are naturally nurtured. A robust model must accommodate the role of cultural discourse and the affective dimension of religious beliefs. Psychosocial theory mediated by Sperber's understanding of beliefs offers such a robust model.

The Sperberian conception of belief allows space for the maturational and the practiced natural and thus merely requires a synthesis of the two belief types. So understood, belief is cognitively propelled but culturally mediated. The question then becomes: how do religious beliefs motivate behaviour?

Psychosocial theory disrupts the easy linear association between belief and action that is latent in the Intuitive Model. A solution is to regard folk beliefs as always semi-propositional. This allows the incorporation of features typically positioned outside of a cognitive framework, including affects, habits, attitudes, values, situational constraints and the cognitive props that 'extended mind' theory considers. These infest religious beliefs and account for the motivational features of beliefs. Yet even with the full application of Sperber's theory, we need not lose sight of the inferential platform that the Intuitive Model is uncovering.

With a reshaped theory of belief, Intuitive Model theory is only really mistaken in assuming a standardised universal trajectory for the implicit component of semi-propositional beliefs. This is the fundamental issue raised by Geertz and Markússon and again by Day. It is a by-product of the search for universal regularities in beliefs in the first instance. It is possible to maintain the universal preconditions behind propositional beliefs without assuming the structural similarity of religious beliefs themselves. For example whereas children everywhere develop false belief reasoning between the ages of 4 and 6, the richly variegated beliefs derived from these are not

causally predictable. They are learned and culture-bound in accordance with the lessons of alternative cognitive theory.

Day would point out that the contentless nature of intuitive beliefs is itself corrupted in Intuitive Model experimental designs because implicit task designs encourage children and adults to entertain reflective responses. Unavoidably Intuitive Model experiments push intuitive assumptions into reflective awareness and it is because of this they are correctly semi-propositional. Certainly, as Westh notes, by relying on narrative based task designs developmental psychologists cannot claim to study naked intuitions.

Taking Sperber's typology of beliefs seriously requires Bering and Barrett to abandon a universal developmental model based on generic preconditions. Furthermore, the direct inclusion of cultural variations requires developmental psychologists to localise their findings. This is perhaps what Geertz and Markússon are trying to get at even though they occasionally fall into same antimonies they accuse Bering and Barrett. According to Day, recurrent beliefs share family resembles rather than universal similarities. We may not need to go as far as seeing religions and ideologies as ontologically distinct traditions because within the Intuitive Model, what would be of interest is how beliefs gradually diverge through contextual precedents.   Certainly, Bering and Barrett have not taken the contextual localisation of their hypotheses seriously enough. As Bloch and Whitehouse note, most of the intuitions Bering describes in the 'folk psychology of souls' are conspicuous to modern Western societies (e.g., place error – attempting to call a dead loved one on the phone). Through contextually sensitive models of belief, developmental psychology can consider how children accommodate and normalise cultural particulars and traditions.

Sperber argues that semi-propositional beliefs need to be 'practiced' (or 'used') in some way. Day would also argue that for the very reason we cannot have a universal folk psychology, we are even less likely to have a universal folk psychology of souls. The lesson is that folk competences are powerfully mediated by the propositional and reflective nature of religious

beliefs. As such, cultural variables in experimental settings should also accommodate different exegetical traditions and their respective interpretations of death, faith, and commitment. Even the strongest research, such as Kelemen's research on teleofunctional reasoning bias, when viewed as one causal property in the advent of religious beliefs requires theorists to account for variations in traditions.

Interestingly, when we examine Barrett and Bering's research on children, their findings rest overtly on children's *explicit reasoning* about an event or behaviour they have just witnessed. Thus, reflective propositional content unavoidably mediates implicit expressions. (Sperber, 2010) In Bering's case, children *reason* about the psychological abilities of a dead mouse; in Barrett's research, it is how children *reason* about the abilities of different agent types. The idea is that the task demands of the experiment render these explanations tainted with implicit bias. If cognitive pressures are placed on the children (e.g., they are encouraged to quickly respond to a novel stimuli) then the reasons they proffer are likely to stem from core intuitions, rather than culturally bounded explanations of the behaviour. Intuitive Model task designs treat individuals as isolated reasoning devices. However, the realities of social learning and reasoning often involve interdependence and consensus between minds. Both Bering and Barrett infer greater significance to their experimental findings than are immediately discernable, and as chapter one highlighted, they deny important variations, despite the fact they are discussing these at the level of propositional reasons. 'Reason' explanations are thus central to the explanatory ambitions of the Intuitive Model.

  o **A Psychosocial Approach to the Atheism**

Let us consider a psychosocial theory of atheism. A psychosocial theory of atheism is very different from the theories put forth by Barrett and Bering, and also Geertz and Markússon. Conceptually, psychosocial theory would immediately separate non-belief from atheistic belief. Atheistic belief is motivated belief; non-belief is the absence of belief. Whereas non-belief may be a default stance, atheistic belief can never be.

A psychosocial framework would view atheism as a unique ontological tradition with competent atheists the exemplars of the tradition. Even when conceived of broadly as a set of basic assumptions shared by all atheists regardless of historical or cultural settings, psychosocial theory would demand the explication of the specific variables that flavour such beliefs, expecting for example variations in Chinese atheism and Western secular atheism. As Laidlaw would reminds us, Chinese atheism would be incomprehensible without the geopolitical and domestic contingencies of State Communism. Similarly, the neo-atheist movement is similarly unintelligible without a discussion of September 11 and the threat of religious encroachment on secular spaces. Such ideological variables, as only one of potentially hundreds, ensures the mind of a Chinese villager and the mind of a IPod listening, Nietzsche reading, neo-atheist are very different.

Not only does language (perhaps our peasant is even illiterate, while our Western adolescent is already two years into his philosophy degree) distinguish them so does life experiences, education, cultural norms and family roles. Such variables disrupt easy correspondence between the two beliefs. Furthermore, the beliefs that our two hypothetical participants hold are not practiced in the way that the Intuitive Model predicts, they are 'downloaded' through mere saturation in particular cultural spaces. Certainly, for our Ipod-listening Nietzsche reader atheistic beliefs may be practiced through study and discussion; for the peasant they are the result of the absence of such sociocultural practices. Furthermore, the Chinese atheist's reflective beliefs may share no correlation to his private beliefs. Whereas Western atheism is individualistic, chosen and politically motivated, lay Chinese atheism is a response to communal norms and the active suppression of religious ideology.

Similarly, psychosocial theory would reject Geertz and Markússon's suggestion that atheism has ancient roots. The neo-atheist movement is thoroughly modern, a response to sociocultural and political forces that are historically novel. Again, there may be similarity in perspectives but these are the products of impossibly different social worlds. To strip the neo-atheistic

movement to a set of core propositions is unlikely to correlate to how these beliefs are experienced by the atheist. Without elaborating these differences, the correlation is distortive and implausible. More critically, the Carvākā movement only becomes an atheistic movement through the gaze of contemporary eyes. Psychosocial theory with its insistence on holistic considerations would caution against such radical correlations and demand that studies within the same cultures should not dictate the beliefs located in different historical periods and cultural settings. As Bloch and Whitehouse warned, this may encourage the ascription of unique perspectives onto cultures where the framework is distortive.

This section presented a sketch of what the application of Day's theory to the Intuitive Model might look like. I take seriously criticisms of the Intuitive Model and continue to develop a psychosocial developmental model that is not so constrained by but does not completely abandon cognitive psychological methodology. Through the minimal application of psychosocial theory and Sperber's writings on propositional and semi-propositional beliefs the Intuitive Model can be revised.   This revision encourages the Intuitive Model to include the key psychosocial fact that agencies operate on other agencies.

We can conclude this section by noting three critical points. Firstly, there is space for engagement with Day's psychosocial theory from Intuitive Model perspectives, though currently at a theoretical level and only in the face of Day's scepticism that interaction is possible and the gaps Intuitive Model theorists would see with the theory. However, I have shown that there is space for fruitful dialogue if Day's theory is utilised selectively and if the conceptual typologies of belief are reformulated in the Intuitive Model.

So revised, Intuitive Model theory can now begin to consider questions about the cultural magnification, and even infiltration, of core competences. I have demonstrated that the incorporation of psychosocial perspectives will revitalise the Intuitive Model though this requires a departure from some core assumptions. Secondly, and most importantly, I have shown how interactions between the Intuitive Model and psychosocial theory resolve some of

the lagging objections to Intuitive Model scholarship. Thirdly, the key problem remains that psychosocial theory, while challenging the appendage status of 'cultural evolution' theories, still does not manage to breach the experimental dominance of the Intuitive Model project.

Conclusion

This chapter evaluated a select group of alternative theories of cognition that attempt to correct claims made in classic CSR research. As in the previous chapter, these alternative theories were concerned that the classic CSR encourages a constricted, even erroneous, understanding of the mind. Day, Geertz and Markússon offer as a solution cognitive theories that express dynamic relations between cognition and culture.

Nonetheless, the point of this chapter was to clarify why alternative theories of cognition are problematic from Intuitive Model developmental perspectives. I have shown how Barrett and Bering protect Intuitive Model theories from alternative theories of cognition and culture. They do so by contesting the empirical basis of such claims, contrasting them with their own experimentally supported claims. As such, Barrett and Bering were able to uphold their distinction between maturationally natural and practiced natural beliefs by arguing that cultural normalisation is beyond the purview of Intuitive Model theory.

Day's psychosocial model strives to go deeper. Day's work is of interest because he incorporates theoretical perspectives distinct from those expressed by Ingold, Laidlaw, Ingold, and the task design criticisms. However, his topic is not unique: it is again the explanatory consequences of 'negative reductionism' and the desire to establish dialogue between research domains. His attempt to apply sociological theory to core knowledge theory is potentially a highly fertile ground for further exploration.

In the following chapter, I develop with greater precision how the Intuitive Model and the 'developmental psychology of religious belief' can incorporate some of the lessons of alternative cognitive theories without collapsing the developmental and experimental frameworks themselves. Crucially, I add the *experimental framework* missing from my blended psychosocial theory of intuitive religious beliefs.

Chapter Four: Implicit Cultures: the Development of Religious intuitions

> The social climate in which a child lives is for the child as important as the air it breathes. The group to which the child belongs is the ground on which he stands (K Lewin, cited in Markus and Hamedani, 2007: 7).

In the last chapter, I theoretically demonstrated how the application of psychosocial theory resolves frequent criticisms of the Intuitive Model and may therefore enrich future empirical research. However, I agree with Barrett that theoretical models of cognition are futile if they collapse normative developmental methodologies in the process. I have also established that the major reason Bering and Barrett have not incorporated alternative theories of cognition is due to perceived translation problems that arise when set with the task of constructing experimental designs based on alternative cognitive perspectives.

Yet, the absence of cultural-cognitive experimental findings in Intuitive Model theory has other consequences. Firstly, as we saw in the last chapter, it protects Intuitive Model findings from the insights of alternative cognitive models. It also encourages experimental psychologists to treat such alternative models as 'rhetorical' rather than empirically grounded and therefore less scientifically persuasive than an experimentally driven developmental psychology dedicated to tracing the pre-cultural roots of religious intuitions.

In this chapter, I attempt to make the psychosocial theory of intuitive religion palatable to empirical psychologists. To do this, I expose Bering and Barrett's research to empirical findings from cultural psychology. Cultural psychology achieves the integration of the three bodies of criticism analysed in earlier chapters:

1) It presents and utilises extant psychological methodologies.
2) It incorporates the humanities' interest in 'reason, imagination and will' into scientific research.

3) It seeks to introduce more inclusive and dynamic relationships between core cognition and culture.

However, introducing cultural psychology demands an empirical reworking of the Intuitive Model. In the remainder of the thesis, the question I resolve is how to make the Intuitive Model inclusive of a psychosocial theory without, as the appropriate platitude expresses, 'throwing out the baby with the bathwater.'

4.1 Cultural Psychology: The 'View from Manywheres'

> [C]ulture is not a "thing" out there; rather, it is a loosely organized set of interpersonal and institutional processes driven by people who participate in those processes. By the same token, the psyche is also not a discrete entity packed in the brain. Rather, it is a structure of psychological processes that are shaped by and thus closely attuned to the culture that surrounds them. Accordingly, culture cannot be understood without a deep understanding of the minds of people who make it up and, likewise, the mind cannot be understood without reference to the sociocultural environment to which it is adapted and attuned. In significant ways, the field has since evolved by exploring the nature of the mutual constitution of culture and the psyche (Kitayama and Cohen, 2007, xiii).

Cultural psychology[43] examines the micro-psychological and macro-sociocultural processes that shape an individual's beliefs, bias, talents, habits, interests and identity. It directly correlates the internalisation of culture with the development of the self, arguing that a person comes to 'know' herself through 'knowing' her culture. At the programme's core is a search for mind that is phenomenologically sound (Bruner, 1990). Foundationally, cultural psychology proposes that the sociocultural[44] and the psychological[45] are *mutually constitutive*[46] (Shweder 1990: 24),

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[43] Different theorists use different terminology to describe the same body of research. Cultural psychology is the most exacting way to define research sharing similar theoretical propositions. Alternative names include sociocultural psychology (which is the title Markus and Hamedani employ) and psychological anthropology.

[44] Defined as 'patterns of thought, feeling and action, sometimes also called the mind, the psyche, the self, agency, mentalities, ways of being or modes of operating' (Markus and Hamedani, 2007: 3).

[45] Defined as patterns in the social world, sometimes called socialites, sociocultural contexts, social systems, the environment, social structure or culture.' (Markus and Hamedani, 2007: 3).

unable to be conceptually or empirically isolated from each other.[47] Theory rests on two initial claims:

4) Individuals are inseparable from the social contexts they live in, and

5) Social contexts do not exist apart from, or outside of, people (Markus and Hamedani, 2007: 6).

Key theorist Richard Shweder argues that mental states and many mental processes are by-products of the 'never-ending attempt of particular groups of people to understand themselves and to make manifest their self-understanding through social practices' (Shweder, 2003: 28). Correspondingly, the psychologist Jerome Bruner argues that psychology should base investigations on the fact that mind is shaped both by history and culture, and therefore questions of meaning and reality construction are central (Bruner, 1990, xi).

Robert LeVine notes that the theoretical roots of cultural psychology are present in the anthropological theory of Francis Boas, Edward Sapir, Charles Seligman and Bronisław Malinowski (LeVine, 2007: 40).   He argues that these anthropologists were working through many of the same ideas that feature in cultural psychology, such as the individual or collective

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[46] While cultural psychologists agree about the inseparable correspondence between 'mind' and 'culture' they dispute exactly how it is mutually constitutive, as well as the mechanisms that compel the interaction. Markus and Hamedani's review describes five different research strategies. The first is a *dimensional* approach, which seeks to specify the dimensions of culture that explain differences in attitudes, beliefs, values, and behaviours. The second is a cultural models approach, which seeks to specify models that organise and account for links between sociocultural forces and the self. The third is a 'toolkit' approach, which seeks to specify how cultural meanings and practices can influence basic cognitive tendencies. The fourth is an ecological approach, which focuses on how ecological and sociopolitical forces influence psychological adaptations to a context. The fifth seeks to specify the boundary conditions that govern cultural influence (Markus and Hamedani, 2007, 15-23). These approaches are regularly combined in empirical research because the majority are complimentary perspectives. While all approaches are of potential interest (for example, the fifth approach considers how real time situational constraints can encourage a reliance on implicit culturally acquired intuitions), I limit discussion to the 'toolkit' and 'cultural models' approach because it is these that offer direct correctives to the acultural approaches of Bering and Barrett.

[47] Cultural psychology shares close similarities with indigenous psychology. Indigenous psychologists inductively build psychological theories relative to specific cultural settings (Kim, Yang and Hwang, 2006). There are also similarities between cultural psychology and situated cognition theory (Robbins and Aydede, 2009) but also important differences because cultural psychology has qualitative interests and posits close ties between reason and observation. Furthermore, a muted version of cultural psychology features in a number 'cultural evolution' theories.

role of culture and the methodological divisions between subjective and objective approaches to psychosocial culture. Anthropological theories of personhood are also influential, such as Berger and Luckman's (1966) view that psychological and social formations are co-dependent. The developmental psychology of Leo Vygotsky, who argues that social interactions are the basis of cognitive development, also holds an esteemed place. Michael Cole argues that cultural psychology represents an attempt to develop Wundt's 'second psychology' through a contemporary critique of cross-cultural psychology (Cole, 2006: 98-115). Thus the full extension of cultural psychology runs counter to the explanatory motivations of the classic CSR. Whereas the latter seeks to ground anthropology within material theories of the human-brain, cultural psychology tries to reintroduce anthropology to psychological research because cultural psychologists believe that contemporary psychology is restricted by its focus on cognition. Indeed, the 'interactionist' model of cultural psychology is a straight reversal of both Sperber's argument in *Rethinking Symbolism* (1975) and Lawson and McCauley's in *Rethinking Religion* (1990). Cultural psychology incorporates the anthropological treatment of cognition as a 'state' and cognitive psychology's insistence on cognition as a 'process.'

Many cultural psychologists defend the standard definition of culture put forward by North American cultural anthropologists, like Kroeber and Kluckholin in the 1950's and re-envisioned by Clifford Geertz (1973) and Roy D'Andrade (1984, 1995). Culture is interpreted as a symbolically structured environment wherein the sociocultural and the psychological exist in mutual and irreducible interdependence. Shweder offers the following simple summary, which is in stark contrast to the epidemiological treatment of culture as public representations:

> Culture refers to the community specific ideas about what is true, good, beautiful, and efficient. To be cultural those ideas about truth, goodness, beauty and efficiency must be socially inherited and customary. To be cultural, those socially inherited and customary ideas must be embodied or enactive meaning; they must be constitutive (and therefore revealed in) a way of life (Shweder, 2003: 10).

However, because of the 'causally flattened' psychosocial developmental theory of religious intuitions, we can bypass this transcendent view of culture because it not as important to us as the understanding of how culture's 'work.' Theorists propose a developmental process that expects multi-directional consequences which actively enables the development of 'cultural persons' and which cements the tacit, implicit, and intuitive understandings those members of the same group, to varying degrees, share. As such, like Day's psychosocial theory, cultural psychology collapses oppositional primitives such as self and society, belief and behaviour, nature and nurture, the individual and the environment and the universal and the contextual (Markus and Hamedani, 2007: 6). Conspicuously then, cultural psychology is a consilience model. Yet it is a Consilience model based on what Shweder calls a non-consilient truth:

> [T]he human relationship to knowledge (including knowledge of human beings) is fundamentally non-consilient....The knowable world is incomplete if seen from any one point of view, incoherent if from all particular views at once, and empty if seen from nowhere in particular (Shweder, 2003: 300).

The focus on transactions in contexts is a product of the contention that mind emerges as a mediated activity between people in specific contexts. This is similar to the view expressed by the anthropologist Christian Toren, who characterises the mind as a 'function of the whole person, that is constituted over time in inter-subjective relations with others in an environing world' (Toren, 2001: 155) and Ingold's similarly philosophical contention that 'to learn is to improvise a movement along a way of life' (Ingold, 2010). Critically however, through the employment of the same psychological methods that CSR theory relies on, cultural psychology does not leaves us in the conceptual mess that Whitehouse believes Ingold's and others holistic theories place empirical research.

There are many points of agreement between cultural psychology and psychosocial theory. Like psychosocial theory, cultural psychology rejects the classic cognitive science treatment of a 'person' as an autonomous agent with a bounded interiority. Theorists encourage psychologists to conceive of a more social or transactional model of 'personhood' and 'mind.' The mind from this perspective is a distributed and semiotic entity positioned beyond the confines of biology.

Mind is viewed as an interactive space between one cognate individual and another mediated by local and specific cultural artefacts and spaces.[48] Crucially, theorists note that while individuals are active in their own development, they act in settings and are sensitive to the effects of agencies that are not of their choosing. All of these forces have powerful effects on mental development.

 Such claims present a direct conceptual challenge to normative psychological perspectives present in the Intuitive Model. Cultural psychology requires psychologists to think 'beyond the person' (Shweder, 1996) and attend to 'meaning making processes and how these are manifested and maintained in the worlds people inhabit' (Markus and Hamedani, 2007:7). Thinking 'beyond the person' expresses analogous perspectives proposed in 'distributed cognition' theory. It entails sensitivities to how mind and behaviour are composed and mediated by the social elements of a person's context, necessitating that theorists seeking to explain the individual go beyond the individual (Markus and Hamedani, 2007: 7).

Cultural psychology extends the classic CSR contention that religious beliefs and behaviours stem from the normative operations of human cognition in everyday contexts. Theorists study the mind *in situ*, in relation to and as a response to its immediate everyday contexts. Crucially, cultural psychology strives to integrate qualitative and naturalistic research. Ideally, it obliges theorists to gain qualitative information through an in-depth examination of the phenomenon under investigation (Shweder, 2003: 44). It demands that the search for psychological universals relative to the universal religious repertoire requires a simultaneous search for culture-bound features of psychology and religion. Cultural psychology echoes the framework elaborated by Day with both suggesting that variations go all the way down in human psychological processing.

Like psychosocial theory, cultural psychology does not deny that there are a set of cognitive 'tools' available to everyone (Heine, 2008, 17 - 41). This is an important feature of the

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[48] Notably, despite the emphasis on qualitative analysis, cultural psychology aligns with the relativist sensitivities of evolutionary niche construction and 'extended mind' theory.

theoretical framework as it destabilises charges of relativism. Some less 'interpretive' cultural psychologists, especially those who posit 'cultural evolution' theories find core knowledge theories relatively unproblematic. For example, Heine argues that theory of mind sensitivities develop normatively in all culture groups, as do emulative learning mechanisms (Heine, 2008).

Cultural psychology utilises methods and theory from social psychology, the humanities, and the social sciences, as well as from the biocognitive sciences. The incorporation of interpretive methodologies has major methodological implications, highlighting that while theories of 'cultural evolution' include aspects of cultural psychological theory they rarely include the variables prompted by Vygotsky, Bruner and recently refined by Shweder. In contrast to the theories of Sperber, Lawson and McCauley, cultural psychology downplays cause-effect explanatory science. Cultural psychologists do not dispute nor ignore the causal influence of the evolutionary dimensions (though posit no singular theoretical model) of human cognition:

> From a sociocultural perspective, individuals are biological entities (as well as, genetic, neuronal, chemical and hormonal entities and all behaviour has a biological, as well as an evolutionary foundation. Yet individuals are ineluctably social and cultural phenomena. The option of being *a*social or *a*cultural, that is, living as a neutral being who is not bound to particular practices and socioculturally structured ways of behaving is not available (Markus and Hamedani, 2007: 5)

Crucially, despite the incorporation of qualitative and interpretive frames of reference, cultural psychology remains an experimental science. Through an alignment with cultural psychology, psychosocial theory gains the experimental traction that Bering and Barrett demand. It also provides the precise psychological frameworks that the generality of psychosocial theory currently lacks.

- o **Cultural Psychology's Critique of Mainstream Psychology**

Cultural psychology arose in the 1980s as a reactive discipline dedicated to discovering whether theories posited in mainstream psychology (particularly cognitive and evolutionary psychology)

were generally universal or culture-bound (Kitayama and Cohen, 2007, xiii). It has since emerged as an important alternative metatheoretical discipline that continues to present conceptual and empirical challenges to psychological research by critically assessing the limitations and fragmentariness of theories of universal psychological uniformity (Shweder, 2003: 30[49]). A key goal is to define variations in psychological functioning across contexts and to discover the varied cultural meanings and practices with which they are linked (Markus and Hamedani, 2007: 7). Markus and Hamedani argue that sociocultural perspectives will strengthen psychology as a science.

Significantly, like the alternative theories of cognition discussed in the last chapter, cultural psychology provides an empirical challenge to the reduction of the mind to an abstract processing unit that operates under a set of natural or universal laws, independent of context or content (Shweder, 1991; Cole, 1996; Heine, 2008). Radically, Shweder argues that the 'prevailing Platonism' of scientific psychology (including cross-cultural psychology,[50] which it has developed out of) is based on such a major conceptual error that the whole project needs to be reformulated (Shweder, 1991, 79ff).

Both Shweder (1993) and Bruner (1990) assert that the cognitive revolution encouraged psychologists to study the mind independent of extrinsic environmental properties. Both argue that many of the reductions to expose the hidden workings of cognition are in error. Reducing the 'noise, clutter and messiness of the environmental context isolates the mind from its own mental supports.' Yet, it is this very 'noise' that interests cultural psychologists. Axiomatically, 'the mind left to its own devices is mindless' (Shweder, 1991: 83):

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[49] See Norenzayan and Heine, 2005: 768) for a set of research methods and strategies such as generalising across three cultures and 'the cross cultural survey' to validate psychological universals.

[50] Cultural psychology and cross-cultural psychology are distinct research programmes. Cross-cultural research involves the explicit comparison of a psychological theory in two or more contexts. In contrast, cultural psychology examines how local cultural practices shape and distinguish local psychologies. This is a basic though radical distinction.

> According to the principles of cultural psychology the effects of stuff will not go away, even in the lab, for there is no context-free environment. We are intentional beings who live in an intentional world of constituted and represented particulars – domain specific, concrete, subject dependent artifiactual things. Absolute transcendence is a great and marvellous thing, but not if we want to keep the psyche in psychology.
> The implication is, of course, that genuine success for psychological science will only come once we stop trying to get beyond the 'noise' and start trying to say interesting things about some of the more robust and patterned varieties of it (Shweder, 1996: 84).

The focus on the multi-causality of socialised cognitions and perceptions stems from a contention that psychologists who employ cognitive and evolutionary frameworks are prone to 'universalistic fallacies' by way of the empirically dubious claim that across all historic and cultural divides, human psychologies (bar the physiologically impaired) are foundationally the same. In contrast, cultural psychology argues that human psychologies are not 'fixed' or 'homogenous' in this manner. We have previously seen how the Intuitive Model proposes universal cognitive developmental regularities that compel universal religious beliefs. In contrast, cultural psychologists note that many postulated universals stem from the experimental study of a very limited pool of participants. Henrich and Heine (2010) describe these as WEIRD (Western, Educated, Industrialized, Rich, and Democratic) populations. Cultural psychology contests the assumption that such particularised samples are cross-culturally representative of human psychological processes. Cultural psychology aims to disentangle culture-specific psychological processes from those that all humans share regardless of context (Norenzayan and Heine, 2005: 772).

Cultural psychologists argue that many posited universals have been asserted prematurely. They contend that it is scientifically dubious to speculate universals without rigorous testing in diverse contextual settings. This is distinct from denying the reality of some psychological universals or exclusively focusing on differences between individuals and cultures. Nevertheless, the existence of a universal platform is reliant on sociocultural variation 'because the actual workings…are contingent on and afforded by particular symbolic resources and social systems' (Markus and Hamedani, 2007: 29).

'True' cross-cultural universals are dependent on measures and experimental tests that ensure that people from different cultures derive the same meaning from the questions asked of them and that the experimental setting itself is analogous across cultures (Norenzayan and Heine, 2005: 766). However, from the cultural psychological perspective, these tools, which are not used with the same frequency, or for the same purpose, are the products of the different experiences that people have in different cultures and time-periods.

4.2 Universals in Psychological Research

A foundational problem in cultural psychology is how to relate universal core mental attributes with unique localised cultural variations without separating psychological and cultural influences in the process. This problem is of immediate relevance of the Intuitive Model because cultural psychology has been at pains to analyse the very questions that featured in the critical literature discussed in the previous chapters. Ara Norenzayan and Heine, who blend cultural psychological perspectives with 'cultural evolution' theories, provide the most robust conceptual model to date.

Norenzayan and Heine present a heuristic hierarchical model that is based on a toolbox analogy of mind (cf., Piaget, 1951, Barrett, 2004b), arguing that psychological processes are like tools for thought and behaviour (Norenzayan and Heine, 2005: 772).[51] A toolbox approach begs three critical questions: Are the tools in the cognitive toolbox the same across cultures? If the tools are the same, are they used or are different tools used in the same situation? If people use the same tools in the same situations, do they use them with the same facility or with the same frequency?

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[51] Of course, Bering would not describe the mind in such a way but it suffices as a working model if we minimally employ the toolbox analogy above.

Norenzayan and Heine contend that these questions point to four types of psychological universality:

- o **Accessibility Universals**

'Accessibility universals' are psychological processes that use the same cognitive tools in the same way, with the same frequency across cultures. 'Accessibility universals' are processes that people, regardless of culture, access in the same way. Probable examples include the mere exposure effect and analogue quantity estimation.

- o **Functional Universals**

'Functional universals' are processes that are cognitively available to all people and function in the same way in all cultures. 'Functional universals' exhibit cultural variations at the level of accessibility. Possible candidates for 'functional universals' include the role of negative effect in depression, internal attributions of causality, the similarity-attraction effect, and attachment styles.

- o **Existential Universals**

'Existential universals' are universals that are cognitively available to all mentally unimpaired people. However, 'existential universals' diverge strikingly in terms of their functionality and accessibility across cultural groupings. Even though all humans have access to these typically latent strategies, the conditions under which a strategy is utilised may vary greatly, as will the degree and strength the strategy depending on cultural context. Examples include differences between preferences for individual choice, different effects of talking on reasoning and the use of different reasons strategies; for example, one that relies on family resemblance in contrast to one that is rule based.

○ **Non-Universals**

'Non-universals' are psychological processes that do not meet the threshold for existential universals (and thus also for functional or accessibility universals). These processes are culturally specific and unique. However, like accessibility universals it is difficult to verify whether a phenomenon is unique to one culture. Norenzayan and Heine offer the example of abacus reasoning skills: such skills develop through engagement with the abacus. The necessary reasoning strategies appear to be absent, even latently, in non-abacus users. The abacus example is suggestive of a much larger historical problem for psychology. Numerical reasoning involves elemental and ubiquitous core competences *and* a host of 'cultural tools [that] are exploited every time numbers are manipulated--tools that were invented, modified, and built upon by cultural predecessors'(Norenzayan and Heine 2005: 42).

4.3 Distinguishing Universals in the Intuitive Model

Consider the types four types of psychological universals in relation to Barrett and Bering's research. Norenzayan and Heine's model requires the conceptual separation of the kinds of psychological universals that feature in Intuitive Model research. Furthermore, the universality of each type needs to be established independently. To date this has not been undertaken by either Barrett or Bering. I contend that these different types of universals do need to be distinguished to accommodate psychosocial and cultural psychological perspectives

According to my reading, there are three kinds of universals in Intuitive Model theory. The first relates to elemental cognitive processing activities such as cognitive constraints in online reasoning, simulation constraints in processing information about physically absent people and normative developmental pathways for conceptual knowledge about other people's minds. The second group are generic universals that are normative outcomes of universals systems, such as the teleofunctional reasoning bias and a tendency to anthropomorphise non-human agents as culture specific social agents. Recall that these inferential biases are normative responses to

objects and entities in any environment and are argued to lay dormant throughout the cognitive lifespan. The third set of universals, which build on the previous two, relate directly to intuitive religious beliefs, such as beliefs in strategically relevant and influential invisible agents, psychological immortality, and/or purposeful design.

Chapter one highlighted that Intuitive Model theory has not conclusively established the validity of its studied universals. Currently, the Intuitive Model cannot provide specific evidence of cognitive mechanisms other than general constraint boundaries due to processing limitations. Many postulated theories, even with detailed evolutionary explanations of their adaptive role, must remain hypothetical 'accessibility universals.' The closest candidates in Bering and Barrett's research for 'accessibility universals' are the most elemental cognitive processes themselves. These processes compel the inferential behaviours that the Intuitive Model focuses on. However, until neuroscience is able to grasp the neuronal processes in their entirety these remain hypothetical constructs, derived deductively from the posited inferential biases themselves. This is not a terminal problem in itself because hypothesised cognitive universals such as theory of mind or Bering's 'existential theory of mind' can be empirically examined in relation to their pancultural applicability. Consequently, however, these posited cognitive mechanisms must remain plausible hypothetical constructs rather than established 'accessibility universals.'

Furthermore, our revision of the Intuitive Model in the previous chapter necessitates us to consider the role of 'practice' in the modification of inferences over time. We need to examine these before we know whether Intuitive Model universals are 'accessibility' or 'functional universals.' Quite simply the necessary empirical work needed to test for cultural variations in these elemental processes has yet to be undertaken. A cultural psychological perspective would demand that this is done in the first instance.

It is also unclear if the Intuitive Model's second set of universals are 'accessibly universals.' All things being equal, the postulated generic intuitions and conceptual biases that give rise to

religious belief could be claimed to be accessed in the same manner by all people. Nevertheless, Intuitive Model theorists acknowledge contextual variations in core inferences (see Bering and Basili, 2005) as well as the tendency for the development of contradictory reflective awareness, particularly in cultures where default inferences are mediated by science education (McCauley, 2000). Again, however, in the expectations of the 'preparedness hypothesis' and the childhood continuity scores about psychological immortality we are required to defer to the ambivalent nature of the current findings. Furthermore, a lingering problem is that Intuitive Model theories deny variation at an elemental level.

Norenzayan and Heine's investigative framework cautions against viewing processes of conceptual development or reasoning heuristics as equally accessible and employed in the same way by all humans. It also shed serious doubts on correlating generic inference platforms with 'functional universals' because it is likely that different cultures employ different inferential procedures (Nisbett and Norenzayan, 2002).

When we examine semi-propositional religious beliefs, we are clearly not dealing with either 'accessibility' or 'functional universals.' We are dealing with what Heine and Norenzayan define as 'existential universals'. Yet the religious beliefs that Bering and Barrett assert are encouraged by the meta-cognitive template are not straightforwardly 'existential universals.' Take Bering's interest in the beliefs that feature in human meaning making. While basic patterns are present, these beliefs are highly sensitive to contextual and individual variations with many becoming so culturally idiosyncratic they are closer to 'non-universals' even if initially a product of the same cognitive mechanisms.

In my reading, many of the hypothesised inferences and beliefs in Intuitive Model theory are 'existential universals,' regardless of their maturational naturalness. For example, consider Bering's 'folk psychology of souls.'   The 'simulation constraint hypothesis' locates intuitive beliefs in immortality in the cognitive failure of children to understand death. Even if the claim for inferential dualism is correct, the experimental evidence gets nowhere near the three-step-

claim that 1) simulation constraints 2) encourage implicit beliefs in psychological immortality and 3), which appears culturally as religious dualism.

 The difficulties in establishing the validity of the universal claims of Intuitive Model theory is resolved if the model incorporates psychosocial theory and the empirical findings of cultural psychology. I now discuss the empirical evidence for elemental through to complex cultural variations in implicit-cum-semi propositional reasoning

4.4 Cultural Variations in Basic Cognitions and Perceptions: Experimental Evidence

Despite Shweder and Bruner's insistence that scientific psychology is too restrictive to study human psychologies, Richard Nisbett and collaborators have managed to integrate theories of cultural psychology into scientific psychology. Nisbett's research does not strive to include the full complexity of cultural psychology perspectives. The strength of his research, just like Bering and Barrett's research, is that simple experimental studies iterate the same findings. Nisbett's empirical findings allow us to integrate a psychosocial theory of intuitive religious beliefs within the experimental methods of cultural psychology.

There is now extensive and hardly contestable empirical evidence that people in diverse cultures employ memory processes in different ways, have distinctive attentional frames of reference, different perceptual focuses, differing conceptual categorisation systems, as well as divergent senses of time and space. The evidence suggests that socialisation processes in different cultures lead to divergences in basic psychological skills, which gives credence to Durkheim's conviction that the socialisation processes lead to variation in fundamental psychologies. Indeed, Nisbett believes that Durkheim's theory of the categories has motivated his own research:

> [I]t has to be said that even if Durkheim's sociological explanation of the nature
> of mind and thought is deficient, his typology has proved to be of much use to

those sociologists or comparative historians of culture concerned with the variations among peoples of cultural perception. The perception of time, cause, space, and force does vary immensely among peoples despite fundamental likeness of native mental faculties, and it is in these terms, those of the sociology of knowledge, that Durkheim's treatment of the categories of the mind has proved to be fruitful (Nisbett, 1975: 10).

Nisbett and collaborators' research examines cultural differences in basic cognitions and perceptions. Their work has predominantly compared American subjects with East Asian subjects. Interesting, in light of the earlier claim by Whitehouse and Bloch that Bering and Barrett study a particularly 'American' or 'Western' conception of religion and religious belief, experimental studies suggest that it is American and other Western cultures which are peculiarly idiosyncratic when compared to many other cultures, such as East Asian and Eastern European cultures.

Nisbett and collaborators' research suggests that Americans utilise different reasoning strategies from East Asians. These different cognitive styles have effects on decision making, folk psychology all the way down to fundamental categorisation schemas, perceptions and attentional frames of reference. Nisbett and Peng et al. define these culturally distinctive ways of ways of attending to the world as 'holistic' and 'analytic' reasoning (2001).

 Nisbett and Peng et al. contend that Westerners think in analytical ways. Analytical thinking focuses on objects and their attributes, with objects perceived as detached from their context and categorised in relation to their intrinsic qualities. For example, they tend to view objects and agents as static and separate from other objects and agents. Analytic thinkers tend to understand and predict the behaviour of objects and agents in terms of their intrinsic qualities and/or through the application of abstract rules and principles (Nisbett and Peng et al., 2001).

In contrast, East Asian people appear to reason in a more holistic manner. They pay attention to intimate connections between the contexts in which mutable objects or agents are encountered. Holistic thinkers focus on the relationships of an object to its wider context or on

the points of similarities between objects or entities perceived (See Nisbett, 2003 for extended overview and discussion). Summarising the empirical evidence Nisbett and Norenzayan state:

> Cultural differences in cognitive processes are so tied to cultural differences in basic assumptions about the nature of the world that the traditional distinction between content and process begins to seem somewhat arbitrary.
> ….Cultural practices and cognitive processes constitute one another. Cultural practices encourage and sustain certain kinds of cognitive processes, which then perpetuate the cultural practices (Nisbett and Norenzayan, 2002: 562).

Critically, the empirical research highlights that implicit cognitive processes are sensitive to cultural circumstances, contesting the generic and acultural basis of cognition that Bering and Barrett propose. Furthermore, the empirical research suggests that cultural variations are foundational and involve more than the cultural magnification or suppression of universal core competences. It highlights the need to treat maturational developmental as multi-causal. As Lloyd states:

> Their research shows how cultures structure tacit attention frames, reasoning heuristics and that people rely on and are affected by these when processing spontaneous information. Thus, when we talk of tacit, implicit, spontaneous, or online reasoning, we must also include discussion of cultural norms and socialisation processes as the evidence suggests that there are implicit cultural cognitions built into developing human mind (Lloyd, 2007).

Nisbett and collaborators' empirical findings complement Day's psychosocial perspectives. Through a reassessment of Durkheim's sociology of knowledge, Day has encouraged us to look deep into the structures of conceptual and representational development and to consider their effects on the intuitive and reflective beliefs people entertain. Serendipitously, Nisbett has provided the psychological evidence in support of this task. Nisbett's research has also shown that there are cultural variations in what Bering and Barrett see as basic cognitive universals. This creates a problem for easy correlations between implicit cognitive processing and the probabilistic development of universal folk religious intuitions.

Holistic and Analytic Reasoning Schemas: Experimental Evidence

Attention

East Asian and Western subjects exhibit different frames of attention. The experimental evidence documents that when attending to a scene East Asians focus their attention on the whole scene (field dependence), while analytic thinkers direct their attention to individual components (field independence).

A study by Ji and Peng et al. (2001) found that East Asian participants were better at detecting relations among different events compared to the American participants. In other studies, East Asian subjects performed poorly on the rod and frame test, which requires subjects to separate the 'rod' from background information. In contrast, Americans performed well on this task (Ji and Peng et al., 2000; Kitayama and Duffy et al., 2003).

Other studies examined the cognitive styles in relation to recall. These studies found that East Asian subjects were less likely to remember a particular object amongst a grouping of very similar objects when they were shown the same object with a different background. However when the object was shown with its original background, Japanese participants were better at recalling the object than their American counterparts (Masuda and Nisbett, 2001).

Perception

Experimental evidence supports the claim that cultural contexts influence both low and high level perceptual processes.

It shows that people from Western cultures tend to use context-independent and analytic perceptual processes. Western people focus on a salient object (or person) independent of the context in which it is embedded. On the other hand, people in East Asian cultures tend to engage in context-dependent and holistic perceptual processes by attending to the relationship between the perceived object and the context in which the object is located. Experimental evidence finds that cultural differences are both chronic and temporary. Perceptual differences are derivative of different attentional focuses. Specific evidence includes:

- **Cultural differences in visual awareness:** Masuda and Nisbett (2006) use of the change blindness task found that Japanese subjects are more likely to detect changes to the background. They focus on the whole visual field while Americans are relatively more likely to detect changes in salient objects, ignoring background details (see also: Ji, Peng et al. 2000; Masuda and Nisbett, 2001; Kitayama and Duffy et al. 2003). Masuda and Gonzalez et al. (2008) also found that the cognitive styles influence aesthetic preferences.
- **Perception and memory of social behaviour:** In a free recall task involving written narratives about personal experiences of events that happened to other people, American participants focused on the protagonist of the event in contrast to Taiwanese participants who did not (Chua and Bollard et al., 2005). (See Nisbett and Miyamoto (2005) for overview)

Holistic and Analytic Reasoning Schemas Continued

Categorisation

American and East Asian peoples organise their worlds in strikingly different ways. Evidence suggests that East Asians group objects in accordance with perceived similarities and relationships among the objects. In contrast, Americans tend to group objects in relation to formal categories and rules.

In a word association task, Ji and Nisbett (2000) found that Chinese subjects made strong association if the words had thematic (either functional or contextual) relationships (for example pencil-notebook). Americans were more likely to link words based on category relationships (notebook-magazine).

Other studies (Norenzayan and Nisbett, 2002) required subjects to group objects (such as a schematic flower) either in terms of family resemblance or in relation to a consistent rule (such as a straight stem). East Asians favoured relating the object in terms of family resemblances, while Americans favoured categorising the object in relation to a stable rule.

In another study (Norenzayan and Smith et al., 2002), East Asian subjects exhibited: 'naïve dialecticism.' This confabulated their ability to learn rule based categorisation strategies, interfering with their ability to complete tasks demanding logical strategies.

Folk Psychology

Analytic thinkers tend to focus on internal or abstract dispositional characteristic when making sense of the behaviour of other people. In contrast, East Asian people tend to focus on how situational circumstances and contextual variables influence the behaviour of the observed person.

- **The cultural relativity of the fundamental attribution error:** Experimental evidence is a product of cross-cultural studies on the fundamental attribution error (a bias encouraging people to focus on the internal characteristics rather the external circumstances in explaining another person's behaviour). An early study by Shweder and Bourer (1982) established that Indian participants were less prone to engage in this error. Indian participants accounted for behaviours in situational rather dispositional terms (See Heine, 2008: for overview of complementary research). Importantly, cultural variations between dispositional and situational attributions increase as people age (Miler, 1984; see also Morris and Peng, 1994; Masuda and Nisbett, 2001). The same cultural variations are involved in interpreting emotion (Masuda and Ellsworth et al., 2008)
- **Cultural variation in social inference is context sensitive:** Studies by Norenzayan and Choi et al. (2002) found that Korean subjects rely on dispositional attribution in behavioural predictions as often as American subjects do *if* the experimental task suppresses available situational attributions. Korean participants were also more prone to situational interpretations if situational attributions are salient. **Explicit vs. implicit communication:** Experimental studies indicate chronic cultural variations in Japanese and American sensitivities to nonverbal cues (Ishii and Reyes et al., 2003; Kitayama and Ishii, 2002). In the experiments, American subjects predominantly relied on word meaning rather than the tone in which a word was expressed. Japanese participants displayed the opposite tendency.

Holistic and Analytic Reasoning Schemas Continued

Decision Making and Reasoning Styles

East Asians reason about logical problems in very different ways than Westerners. For example, they are less likely to decontextualise objects. Despite an identical problem, East Asian people employ substantially different decision-making strategies. In comparison to Westerners, they have a greater tolerance for contradiction and regularity display the hindsight bias (Choi and Nisbett, 2000). Importantly, East Asians do not see contradiction as a logical problem. Americans rely on logic based judgments and solutions while East Asians rely on dialectical reasoning strategies. When presented with a perception task, Americans relied on rule based reasoning behaviour, while East Asian participants were more likely to base their reasoning on perceived similarities between the stimuli. When the task presents a conflict between strategies subjects uniformly defer to the dominant cultural strategy (Norenzayan, Smith et al., 2002).

The different reasoning strategies inform preferences for argumentation styles involving contradictory propositions (Peng & Nisbett, 1999) and conflict solutions. East Asians were more likely to say that both sides in an argument had reasonable motivations. They also examined background features before reaching a conclusion (Choi and Dalal et al. 2003).

- **Toleration of Contradiction:** East Asian subjects exhibit a far greater toleration of contradiction than do American subjects. An experimental task required Chinese and American subjects to rate the strength of a short argument. The participants were then presented with a weaker oppositional argument. Overall, both groups stated that the first argument was stronger than the second argument. However, when presented with the oppositional argument, American subjects increased their belief in the plausibility of argument A, while East Asian subjects tended to decrease their preference for the stronger argument and increase preference for the weaker argument. Peng and Nisbett believe that the East Asian toleration of contradiction points to profoundly different ways of perceiving the world (Peng and Nisbett, 1999; Spencer-Rodgers and Peng et al., 2004; Spencer-Rodgers and Williams et al,, 2010).

Linguistic Relativity

The Sapir-Whorf hypothesis proposes that the language people speak shapes their thoughts. There is a lot of experimental evidence to support this claim. For example, evidences includes cultural differences in the cognitive effect of linguistic differences in number marking (Lucy, 1992), the coding of spatial location (Levinson, 1996), and even colour categorisation (Roberson, et al.,2000).

(See Heine, 2006, 355ff detailed overview of this same research)

Research in cultural psychology shows how empirical psychologists can incorporate the theoretical claims of psychosocial theory. Thus cultural psychology strengthens psychosocial theory, as Day offers no plausible developmental theory other than a vague argument for the abstract 'saturation' of children in cultural worlds. Cultural psychology's empirical findings provide a more complex framework than the Intuitive Model, demanding local traction before universal generalisation. In fact, by overcoming the desire for universal theory, the Intuitive Model may begin to tell us precise details about the psychological processes of belief formation in different traditions and cultural locations.

The introduction of cultural psychology credits anthropology and comparative religions a foundational position in the study of religious intuitions without having to collapse the methodological norms of nomothetic psychology. Critically, it is possible to integrate cultural-cognitive theory without losing the science (prediction and testing of implicit assumptions) in the 'developmental psychology of religious belief' that Barrett argues is lost in alternative theories of cognition.

Burdening Intuitive Model hypotheses with Nisbett's body of empirical research dramatically reconfigures the focus of Intuitive Model research. I now examine this newly empirically grounded psychosocial developmental model.

4.5 The Developmental Psychologies of Intuitive Religious Beliefs

> It is important that our theories of development be sufficiently comprehensive to accommodate evidence from the range of communities in which children are raised and the breadth of community-held beliefs that figure in each. This is not simply a call for methodological consistency or for broader and more representative sampling. It is also a petition to consider carefully the contributions of children's culture and experience as they acquire systems for reasoning about the biological world (Medin and Waxman, 2010: 10).

> The developmental process of any individual can only be understood in light of the practices and situations of the cultural community (Roggoff, 2003: 4).

I now construct an alternative metatheoretical perspective based on the psychosocial conceptual model developed in the last chapter. I show that this does some justice to sociological, phenomenological as well as evolutionary and cognitive perspectives in relation to the development of children's religious ideations. It remains a difficult, enduring and open question as to how to best integrate culture and social norms into cognitive developmental psychology. My focus is still quite narrow. I examine how cultural and psychosocial theory complicates the Intuitive Model's search for generative core cognitions.

A psychosocial theory of cognitive development accommodates socialisation processes, cultural traditions, *and* universal core cognitions. As such, the theory is much more inclusive in scope than the Intuitive Model, questioning the need for such extreme methodological reduction in the very first place. A psychosocial developmental model shifts focus from *a*cultural cognitive development to a focus on the processes of acculturation through socialisation.

My earlier re-formulisation of the Intuitive Model from a psychosocial perspective suggests that when we arrive at the level of semi-propositional beliefs it is not possible to isolate the deep cognitive continuities and the contextual influences on cognitive development. To study one we necessarily must study the other. Psychosocial theory expects that it is possible to consider simultaneously core knowledge structures and culturally determined implicit psychologies in making sense of historically shaped, highly socialised and evolutionarily suggestive intuitive beliefs.

The psychosocial viewpoint offered a number of important modifications to the Intuitive Model. Most importantly, psychosocial theory asserts that the Intuitive Model's conception of intuitive belief needs to be changed so that intuitive religious beliefs are conceived of as always reflective and semi-propositional in content. Inferences may themselves be non-reflective but religious beliefs always are. Because of the focus on 'thinking,' the Intuitive Model already

devotes itself to the study of semi-propositional beliefs.[52] Nisbett's research suggests the same thing. Cultural psychology encourages Bering and Barrett to expect that cross-cultural implicit assumptions are not as stable or as bio-cognitively mediated as they have tended to assume.

Crucially, cultural psychologists do not deny that the mind has basic conceptual and motivational primitives. However, they also assert that these are highly plastic and undergo dramatic changes through socialisation. While there is debate about how far cultures go into minds and the inferential forces of these conceptual primitives, cultural psychology predicts that the development of intuitions respond to, are shaped by and ca*nnot be separated* from the cultural norms and socialisation processes that a child is born into. Thus from a cultural psychological perspective the methodological separation of the cognitive and the cultural is in error, especially given the focus is on cultural level representations or reasoning behaviours. Furthermore, cultural psychologists would contest the separation of mental cognitions from the study of affective states, desires, and cultural morals; all interact and are critical to development from a baby to a 'person.'

As Norenzayan and Heine's framework highlights, the Intuitive Model is prone to distortive hypotheses by way of conflating inferential beliefs with intuitive religious beliefs. The four universals also work as developmental model because the path from accessibility universals through to the culturally specific (or non-universal) requires increasing social cultural mediation and the of development cognitive skills needed for such interactions. At each drop on the hierarchical scale, cultural reasons gain greater relevance.

Psychosocial theory insists on the developmental importance of the fact that children grow up in variegated contexts. Development involves the *active* participation of a child in a particular cultural community. A culture's beliefs, behaviours, and norms, mediated by the child's primary

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[52] By acknowledging this fact, Intuitive Model theorists bypass important claims in 'embodied cognition' theory that the origins of non-declarative beliefs lie deeper than the heuristic reasoning behaviours of children (See Hutto, 2009, 2010; Slingerland, 2008b).

caregivers and wider educational apparatuses encourage the development of localised psychological identities. This focus on variegated developmental trajectories contests the universalisation of developmental periods common to any give culture. For example, popularised North American developmental periods such as the 'terrible twos' during which many children of this age present oppositional and noncompliant appear to be largely cultural specific (Heine, 2008, 162ff). Heine notes that studies on this developmental period conducted on the Aka Pygmies of Africa, the Ziancantecan's of Mexico and the Japanese show that their children do not go through this period. Rather Heine supposes this behaviour is a culture bound syndrome derived from parental strategies that try to encourage the child's individuality and self-reliance.[53]

What is crucial to psychosocial research is the proposition that differences in *experiences* account for differences in implicit psychologies. In a culturally sensitive developmental theory experiences such as sleeping arrangements, formal and informal educational practices, attachment styles, the different ways children interact with their parents and the parent's use of different parental strategies are all critical to understanding the development of intuitive religious beliefs. Psychosocial theory expects that there are many developmental pathways.

This framework provides a number of insights. Firstly, the psychosocial perspective expects that there is a psychic diversity in religious intuitions; different traditions will correspond to different religious intuitions. Cultural psychology expects that the developmental route will be different across cultures and that intuitive beliefs will be sensitive to both evolved dispositions and the interests and content of particular cultural environments. This means that some cultures may continue to lie closer to the spontaneous conceptualisations while others diverge markedly. A

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[53] A similar pattern is evident in the tumultuous period of adolescent rebellion. Schlegel and Barry's analysis of the ethnographic database highlighted that while all cultures see adolescence as important and distinctive period of transition, only 44% of cultures assumed that adolescence is marked by a period of antisocial behaviour (with only 13% believing that adolescence encouraged violent behaviour in boys, and 3% that it did for girls). Again, this research does not contest the existence of developmental periods but argues that when we get to behavioural expressions these are culturally determined in what Michael Cole describes as 'developmental niches' (Cole, 1996: 190).

critical task in a psychosocial theory of intuitive religious beliefs is documenting these divergences and accounting for the factors that impinge on them.

Because religious beliefs are always reflective and semi-propositional a robust theory needs to account for local, culture-bound norms and customs. Similarly, we need to know how people come to *believe* in their beliefs.[54] As such, tracing universal preconditions is insufficient to account for religious intuitions and biases as the maturationally natural is always practiced to some degree. Thankfully, despite what Day seems to be suggesting, and as the search for accessibility universals highlights, there is no need to deny the existence of genuinely basic and foundational cognitive and conceptual structures. Pointedly however, this does not mean that there is a 'psychic unity' in human intuitions nor does it mean there is similarity in the intuitive religious beliefs that arise out of them.

A psychosocial theory of cognitive development relative to religious intuitions charts how core competences interact with and constrict the socialisation process. Consider some of the posited inferential causes of religious intuitions. These include anthropomorphism, multiple theories of mind, simulations constraints, belief in the purposeful self, and hyper-agency detection. Yet cultural psychology's focus on 'meaning making' or self-construction requires Bering and Barrett to go beyond the implicit intuitive platform, to see a particular religious belief as part of wider process of meaning making. In fact, Bering argues that his focus on self and meaning distinguishes him in the CSR. Yet, psychosocial theory would argue that Bering is unjustified in universalising features of existential psychology to account for relationships between self and religion.

Awareness of the mutually constitutive nature of religious beliefs demands that new experimental designs are constructed and previous findings reinterpreted. We can expect two basic universals that can guide future research. Future experimental designs need to include normative arrangements within the child's cultural space. For example, puppet shows are

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[54] See Gervais and Henrich (2010) on this topic.

appropriate for children familiar with the representational characteristics of cartoons and dolls, however Vezo children however may require the presence of human actors. Thus, in contrast to the Intuitive Model the aim is to reduce the artificiality of the experimental designs.

Importantly though, a psychosocial revision of the Intuitive Model does not mean that the experimental data that Barrett and Bering have gathered is *ipso facto* invalid. For example, it is reasonable to assume that a division between spontaneous beliefs and beliefs expressed through sustained meditation will diverge as the 'theological correctness hypothesis' predicts. Clearly, spontaneous beliefs are cognitively constrained in ways that reflective beliefs are not. Acknowledging this however, does not demand we also automatically accept Barrett and Keil's claim that spontaneous beliefs are typically anthropomorphic as Medin and Atran (2004) and Medin and Waxman have previously contested (2010). The 'theological correctness hypothesis' as a developmental theory only expects that reflective beliefs will diverge from intuitive, simpler conceptualisations. It asks us to accept that there are powerful constraints on cognition that encourage deference to inferential heuristics. Such a general theory accommodates both cultural psychology and my revised psychosocial theory of religious intuitions. It provides a platform from which to add and test specific variables.

4.6 Empirical Predictions: Analytic vs. Holistic Theological Correctness

It is now time to sketch a simple empirical study that makes explicit the kind of answers that a psychosocial study of intuitive religious beliefs will provide. With this goal in mind, I construct a dialogue between Nisbett's research on cognitive styles and Barrett and Keil's research on 'theological correctness.'

Interesting, Nisbett has not empirically examined how the two types of attendance schema influence religious beliefs. However, he expects major differences in the religious traditions of people with predominantly holistic and analytic cognitive styles. Nisbett speculates that the Greeks were the first to adopt an analytic cognitive style of thinking, while Confucian China

formalised holistic modes of thinking. The enduring presence of analytic and holistic thinking styles informs the religious traditions of both cultures. Heine describes how the holistic tolerance of contradiction informs East Asian religious thought:

> In addition to the holistic view that everything is fundamentally interconnected, East Asians seem also to share a corresponding view that reality is continually in flux. The sense of the ultimate fluidity of reality is chaptered in the Tai Chi, the symbol that encompasses the Yin and Yang. The Yin and Yang represents opposites (literally they mean the moon and the sun), and they indicate that the universe is constantly in flux, moving from one opposite pole to the other and back again…This belief in a fluid and cyclical reality is perhaps evident in the writing of Lao Tzu, the legendary founder of Taoism. In the Tao Te Ching, he said, "To shirk something, you need to expand it first. To weaken something, you need to strengthen it first. To abolish something, you need to flourish it first. To take something, you need to give it first. This view not only highlights that reality is in flux but it also indicates that opposing truth can be simultaneously accepted (Heine, 2008: 378).

It is likely that one of the major reasons Nisbett has not directly conducted experimental research on religious beliefs is the perception that variations between Eastern and Western religious tradition are so well established that psychological studies will not offer much of interest. Indeed, Nisbett may assume that religious beliefs are a result of more basic cultural reasoning behaviour.

It is only when Nisbett's research is considered through the gaze of a psychosocial perspective that focuses on implicit cognitions and perceptions that his research on the attendance schema becomes novel and exciting for the study of religion. The analysis of early emerging variations in intuitive religious beliefs directly compliments Nisbett and collaborators' research on categorisation, perception, and reasoning. For example, unifying Nisbett's research on attendance schemas with Barrett and Keil's research on 'theological correctness' encourages the following predictions:

1) Believers' 'online' tacit responses will diverge from their reflective and expressed beliefs.

2) East Asian and Western believers' intuitive and reflective responses will diverge. This difference will increase as the believer ages.

3) Westerners' semi-propositional intuitive responses will be closer to East Asian reflective responses.

4) Intuitive understandings of supernatural agencies will diverge in significant ways. East Asian believers will focus less on agency characteristics and more on the themes embedded in the narrative recall task.

An interesting developmental question refers to the age that religious thinking accommodates culture specific attendance schema, while another considers whether subtle cultural differences are already evident before children pass the false belief test. Another interesting research question relates to how the two attendance styles influence the religious ideas that are believed and those that are rejected.

Conclusion

This chapter ties to together the goals of this thesis. My aim throughout has been to present a constructive model that is able to resolve some of the conspicuous blind spots in Intuitive Model theory. Extending and reformulating the critical literature, I have argued that Intuitive Model theories must acknowledge that cultures influence core psychological processes such as cognition and perception and that socialisation affects the cognitive behaviours of culturally 'naturalised' people. I provide the bridge between depreciative criticism and the constructive enrichment of Bering and Barrett's hypotheses. Crucially, I separated their experimental work from a contentious metathesis that I argue is the root of the critical problems with Intuitive Model theories. Without the restrictive grasp of the 'naturalness of religious belief' metathesis, Intuitive Model theories are open to the incorporation of alternative models of cognition and culture. Critically, this requires the refinement of developmental models and task designs, without the full-scale demolition of the project that Day and others, like Ingold, have deemed necessary. This also requires the re-assessment of universals in Intuitive Model theory, and the

introduction of perspectives now analogous, rather than contradictory, to developmental research. To emphasise the empirical potential of this reworked developmental model, I blended Nisbett's research on attendance schema with Barrett and Keil's research on 'theological correctness.' This framework offers a fruitful way to begin the psychosocial study of intuitive religious beliefs.

Thesis Conclusion

My thesis deals with some very old through enduring sets of questions about binary relations (relativism vs. universalism, nature vs. nurture, reductionism vs., holism) about how to study human beings and their religious worlds. The bulk of the thesis locates criticisms of Barrett and Bering's theories from a number of scholarly perspectives. The critical literature highlights that these old questions are very much alive and richly contested. In this thesis, I have sought correspondences between three bodies of criticisms of the Intuitive Model. Yet I have done this with an aim to constructively enrich the developmental project at a metatheoretical level, highlighting where the 'naturalness of religious beliefs' metathesis falters and encourages methodological reductions, untenable to theorists working in associated fields of research.

Chapter one highlighted that there is a 'causal weakness' in Intuitive Model theory due to the presence of contradictory empirical evidence on some of the universal psychological biases argued to structure recurrent intuitive beliefs. This encouraged us to approach the claims of Intuitive Model theories with some caution, including the claim that the experimental evidence should have precedence over theories and findings in related disciplines. In calling attention to the corresponding themes in the critical literature, I made the potentially controversial, though sound, relation between recent cognitive theories and ideas that feature in cultural hermeneutics and sociological theories of knowledge. I have suggested that alternative theories of cognition and culture are positing a natural-scientific framework recalling pre-cognitive theory in anthropology and social sciences. I have shown that while contemporary research in the CSR rejects such binaries and is minimally open to qualitative research, the case is not the same in the CSR subfield: the 'developmental psychology of religious belief.' This resistance is partially justified because, as Day himself admits, many alternative theories of cognition and culture fail to propose empirical models that can be utilised by the developmental theorists.

Thus, the integration of holistic research into the cognitive science of religion and the 'developmental psychology of religious belief' was stalled by the requirement of empirically testable development models. The problem lies in the difficulties in constructing experimentally

grounded methodologies that trace the interactive relationships between maturationally natural intuitions and practiced reflective religious beliefs. As such, Intuitive Model theorists bracket their research on *a*cultural intuitive religion from 'speculative' cultural theories in the cognitive study of religion.

I also noted how alternative theories of cognition and culture fail to penetrate the Intuitive Model's focus on maturationally innate cognitive systems. By introducing and mediating Intuitive Model theory through the theory and method of cultural psychology, I have managed what 'distributed' theories of cognition, and also criticisms from the humanities and contradictory findings in developmental psychology have been unable to do. I have provided a model, based on the experimental data itself, which presents the opportunity for research along the lines repeatedly expressed in the critical literature.

I agreed with Day that a key problem was the constrictive understanding of 'natural' in the 'naturalness of religious belief' metathesis. The developmental model I propose is not attempting to deny or buttress psychosocial theory from evolutionary psychology and related fields of research. Thus, a focus on natural cognition should not in itself mean that cultural causations are 'unnatural.' To the contrary, my framework suggests that calling such cognition natural is tautological and no longer of meaningful theoretical relevance. If Intuitive Model theorists continue to insist on excluding or minimally considering cultural variables, they must also accept that their hypotheses have only marginal relevance to the formation of intuitive religious beliefs despite the fact that these intuitions and inferences are the focus of their studies.

I finish by presenting a simple empirical model to begin the psychosocial study of intuitive religion.

Appendix

To aid thesis comprehension, an overview of Justin Barrett and Jessie Bering's research is offered below.

Justin Barrett

Barrett's experimentally driven research holds a central place in CSR scholarship. It is significant that Barrett studied under Frank Keil, the developmental psychologist whose reworking of Sommer's ontological tree (1963) informs Boyer's writing on the ontological categories (Keil, 1979; Boyer, 1994). Barrett emphasises that religious concepts are necessarily mediated by the processing limitations and reasoning biases of the human-mind brain. He has proposed three major hypotheses. The first, coined the 'theological correctness hypothesis' argues that maturationally natural intuitions about intentional agency frequently taint theological understandings of deity. These tacit 'natural' conceptions are exposed in real-time computations and lead people to present understandings that diverge with learned 'theologically correct' articulations. His second thesis argues that cognitive specialisations dedicated to policing agency encourage belief in supernatural agency, especially when these interact with another specialisation dedicated to perceiving and responding to other human beings. His most recent work contends that 'god concepts' are cross-culturally ubiquitous because they closely correlate with default assumptions about agency. Barrett's experimental research suggests that children can conceptualise and reason about agents with different properties and abilities from as early as the age of three. He argues that distinct non-human concepts (such as 'god' and 'animal' concepts) of agency develop alongside human concepts, becoming increasing specific and distinct from one another as children mature. Furthermore, concepts about supernatural agents are acquired without difficulty, because these concepts are similar to, and capitalise on, the non-reflective assumptions children have about intentional agency generally.

    o   **Theological Correctness**

To date, Barrett's most important contribution to the CSR is his and Keil's 'theological correctness hypothesis.' The 'theological correctness hypothesis' proposes that a religious person's spontaneous and/or time pressured ('online') reasoning about religious ideas and agents differs, often drastically, from their explicitly professed, reflectively pondered, and thus theologically bounded ('offline') beliefs about such ideas and actions.[55] Their research starts from the perspective that all conceptions about the divine must conform to the processing activities in the human mind-brain:

> Specifically, divine beings that are represented as intentional agents are subject to the cognitive intuitions that govern all intentional agents. These intuitions may include psychological and physical attributes not endorsed by a given theological tradition' (Barrett, 1998: 608).

Barrett and Keil argue that people exposed to theological discourse employ two distinct conceptualisations of deity during real-time activities. The first is 'theologically correct' – a conceptualisation learned through theological education and experience; the second is an intuitive 'anthropomorphic' conceptualisation, based on an evolved agency detection bias, coupled with the unavoidable necessity to reason about supernatural beings through natural ontological categories. The theologically correct conception is often tenuous precisely because it is a learned conceptualisation, whereas anthropomorphic conceptualisations arise spontaneously and normatively. Testing this hypothesis on subjects from American Christian traditions, Barrett found that Christian believers tend to conceptualise religious agents in highly anthropomorphic terms, despite the emphasis on God's vast ontological difference from humans in many Christian traditions and cultures.

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[55] Ilka Pyysiäinen (2005) correctly cautions against distinguishing normative 'theologically correct' reflexive statements from 'theologically incorrect' non-reflective statements, in the manner of Jason Slone (2004). To do so, introduces unnecessary normative judgements when the emphasis should be on the shifts in conceptualisations that cognitive processing demands incur.

Barrett and Keil propose that the disjunction between implicit and reflective beliefs is a result of cognitive constraints in real-time reasoning. Habitually, processing biases lead to the implicit attribution of psychological and physical properties not endorsed in explicit 'theological correct' conceptualisations. For example, people appear to struggle to adhere to God's 'ontologically unnatural' atemporality and omniscience. Much of the meticulous theological discourse that believers acquire via the communication of specialists, the study of important texts, ritual engagement and other institutional intervention require cognitive effort to memorise and recall. Theology presents complex and abstract reflective representations and explanations that remain partially inaccessible to people in everyday real time computations. In contrast, the fast, reflexive computations that feature in everyday thinking encourage people to utilise simple concepts and representations that are implicit, intuitive, inferentially rich and thus comparatively straightforward to cognitively process.

Barrett and Keil's experimental design, replicated in American Secular, American Protestant and Indian-Hindu populations involves a narrative recall task, which encourages implicit 'intrusion errors' (Bransford and McCarrell, 1974) in subject's responses to the narrative. Participants either read or listened to a battery of short stories staring a culturally significant divine agent. Participants were asked to recall whether the stories included particular information and to elucidate ambiguous features present in the story.

The first experimental test of the 'theological correctness hypothesis' remains the most significant. American participants were split into three groups and then asked to respond to narratives that introduce group specific variables. In the first variant, Barrett and Keil compared participants' responses to a questionnaire examining their explicit religious beliefs with how they conceptualised God in a story-recall task. A control group tested whether the storyline and/or language used encouraged people to anthropomorphise God. To this end, the control storyline replaced God with a fictitious character named 'Uncomb;' a sentient computer from the future. In the final condition, participants completed the story-recall task as in condition

one but were asked beforehand to respond to a question encouraging them to reflect on, and express explicitly, their understanding of God.

Barrett and Keil's results supported their hypothesis that people routinely anthropomorphise god (in the sense of imbuing 'him' with human limitations) despite their expressed theological beliefs/conceptions that express no such physical and/or psychological constraints in ability. Of those that completed the questionnaires 96% proposed that God is omnipresent, omnipotent and has omniscience. Yet in the story recall tasks over 60% participants attributed human-typical constraints (such as the inability to be in two places at once and the need to be close to something to receive its sensory cue) not expressed in the story itself. The fictional computer 'Uncomb' was also anthropomorphised but to a lesser degree. Barrett and Keil maintain that participants humanised God in ways was that were at odds with their expressed theological proclivities. They appeared to use anthropomorphism to aid the processing of and recall of the narrative. Participants in the third condition, who completed questionnaires that intentionally primed against anthropomorphising God, did so anyway. According to the researchers the low processing demands of the questionnaires (e.g., the task was not time sensitive and set out in a direct question/ answer format) allowed people room to express their more thoughtful (and thus more cognitively burdensome) theological understandings. In contrast, the real-time narrative recall task placed greater demand on processing and exposed cognitive 'shortcuts' which lead to comprehension mistakes and inaccurate recreations of the themes, events, and characters involved.

The participant's online responses to the narrative recall task were compared with a questionnaire they subsequently completed about the qualities of the supernatural agent they profess belief in. Subjects, routinely anthropomorphised God (or Krishna etc) during narrative recall (e.g., viewing his actions sequentially and/or as spatio-temporally and psychologically limited) tasks, even when answering yes to whether God 'can read minds' or God 'can do multiple mental activities simultaneously' (Barrett and Keil, 1996: 122/123). Clearly, in the recall experiments believers were contradicting what they professed to believe.

To summarise, the 'theological correctness' experiments highlight that contextual demands result in strikingly divergent religious conceptualisations. Barrett believes religious ideas are part of a spectrum with the abstract and cognitively complex at one extreme and the basic and cognitively simple at the other. Offline cognition allows people to draw on practiced or learned knowledge in a cognitive task, a luxury not available in rapid real time non-reflective computations. The experiments suggest two key findings 1) humans readily anthropomorphise non-natural agents and 2) that this default tendency can be subdued in certain contexts.

Barrett argues that basic intuitive representations and beliefs are never completely overridden by divergent theological discourse. Religious people appear to hold *two* understandings of their important deities. He states about the narrative recall task outlined above: 'It appears that the greater computational demands of the on-line task require adults to use concepts with which they have greater processing fluency: in this case, a human-like concept' (Barrett, 2007:3).

o **HADD: Agency Detection and Folk Psychology**

Intuitive understandings of intentional agency are a central focus in Barrett's studies. The importance of intentional agency[56] in religious beliefs features throughout the CSR literature (Lawson and McCauley, 1990, Guthrie, 1993, 2008, Pyysiäinen, 2001, Boyer, 1994, etc). According to Standard Model CSR, a belief in intentional supernatural and/or superhuman agents is the clearest feature of any and every religious tradition (See Pyysiäinen, 2001, 2004 and Slone, 2004 for a discussion of 'godless' Buddhism). Barrett's early work on a HADD (2000) integrates 'selectionist' and Intuitive Model CSR explanation via evolutionary psychology.

Barrett contends that two interactive systems compel the inferential richness of intentional agents in human minds: Hyper-agency detection and theory of mind. HADD is a cognitive and

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[56] Intentional agency refers to any object or entity that is perceived to initiate action. Agents initiate actions because they are inferred to have beliefs, desires and intentions. Agents therefore include people, but also animals, cars computers and so on (Barrett and Richert et al, 2001: 55).

perceptual sensitivity to the recognition of other agents in an environment. It is a mechanism found in all animal species and there is an obvious evolutionary logic behind such a system. HADD involves the rapid perception and computational processing of agency, thus granting the perceiving organism the ability to consider the best course of action (classically: fight or flight) in response to the perceived agent. These fine-tuned 'hypersensitive' responses present a clear fitness advantage in the presence of threatening predatory and social agents. Yet hypersensitivity readily encourages cognitive and perceptual errors, routinely resulting in false positives, particularly in ambiguous settings. Experimental research and anecdotal evidence suggests that humans have an extremely low threshold for activating the HADD. Unexpected or ambiguous events with no clear physical cause routinely evoke the system. For example, a person walking down an alleyway at night may mistake a black shape in the distance for a human or an animal. Similarly, a gust of wind rustling leaves in a tree may be mistaken for the movement of an agent. In his 1993 work *Faces in the Cloud* Stewart Guthrie, reframing David Hume, argues that the tendency to over-infer agency, particularly human agency, is a key origin of religious beliefs. He extrapolates that religion is a systematised form of anthropomorphism. We perceive the world as littered with human-like agents because other humans are an essential and basic parts of our lives. However, the frequent experience of incorporeal human agency compels a belief that the world is populated with intangible beings. This 'cognitive noise' present in the system does not undermine the adaptive advantage it offers. It is a better 'bet' to over-infer agency than to fail to perceive it. Strategically, it is less costly to have one hundred false positives than to fail to respond to the one time it is actually a predator, thus selection is unlikely to weed out the over-stimulus of agency.

Barrett places less emphasis on specific anthropomorphism[57] in the HADD and more on generic intentional agency. For Barrett, (2000 and belatedly for Guthrie: 2008) it is the interaction with theory of mind systems that humanises the HADD inference system. Barrett believes the onset of theory of mind may mark the pivotal point when god,' 'human,' and 'animal' concepts are distinguishable in young children's minds.

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[57] Though anthropomorphism is central to his work on god concepts.

Unlike Guthrie's theory, which appears to blur the boundaries between the HADD and theory of mind, Barrett's can better explain why supernatural agents are not literally human-like, embedded with many X factor qualities and talents (such as immortality, disembodied presence) strange to 'people' concepts. The theory of mind system grants non-agent-specific HADD ascriptions human-like beliefs, desires and intentions that are immediately salient and meaningful to the perceiver. Thus, the invisible agencies that HADD encourages awareness of (if no counter-evidence is available) motivate perceptions of communicative intent. Enter Boyer's theory of religious representations and the non-humanlike attributes of supernatural agency are explicable (Barrett and Lanman, 2007: 117).

 Barrett contends that his data presents emendations to Boyer's counterintuitive theory of religious representations. Firstly, only unreflective or spontaneous deity representations fit the cognitive optimum of the minimal counterintuitiveness thesis. The complexity and abstractness of theologically correct conceptualisations undermines the recall and transference of theological propositions. Secondly, the anthropomorphism of 'god concepts' arises from interactions between the physical and psychological domains, which promote a normative natural category for 'god concepts' (Barrett, 2000). Barrett combines his work on HADD and implicit anthropomorphism in his recent work on 'god concepts.'

- o **God Concepts and the Preparedness Hypothesis**

 Barrett's recent Intuitive Model research has focused on the relationship between implicit panhuman intentional agency concepts and Christian 'god concepts.' Like his work on 'theological correctness' and the HADD system, the focus of his experiments is on how the mind explains the behaviour and thought processes of non-human agents. He expands his work on the 'theological correctness hypothesis' to include the actual causal cognitive structures that encourage belief in supernatural agency.

Barrett and his collaborators' research is motivated by a perceived gap in the extant developmental literature. They note that there is very little research on how children comprehend the actions of non-human agents. This is due to the prevalence of the Piagetian proposal that children liberally and normatively project human qualities onto non-human agents. Piaget assumed that people's 'god concepts' are radically constrained and distorted by early emerging and tacitly enduring childhood artificalism. Piaget treated 'god concepts' as isomorphic outgrowths of childhood concepts about humans, which comprise inferences about human, particularly parental, infallibility. Such close ties between human and god concepts make research on how children understand non-human agents largely redundant or of a secondary significance.

Barrett hypothesises that the earliest conceptual structure for representing agency is non-specific, representing any perceived intentional agent, whether 'human', 'superhuman,' or 'animal.' Thus the 'preparedness hypothesis' reverses the Piagetian explanation by arguing that differentiated concepts about 'humans' and 'gods' derive from a default and generic intentional agency base, allowing children to perceive early that gods and humans not only have different empirical abilities, they also have different desires, intentions and beliefs. Thus, non-human concepts appear to develop alongside (rather than out of) human concepts, becoming specified as children cognitively and experientially mature.

Barrett outlines a three stage developmental model of childhood understandings of agency. In the first stage (roughly around the age of one) children presume that agents are engaged in goal based activities, with actions dedicated to the achievement of these goals. During the second stage (roughly between the ages of two and three) children begin to develop mentalistic understandings of goal directed behaviour, such as an awareness that action is mediated by desires. The third stage, which occurs in the fourth to fifth year, evidences the development of a mature representational theory of mind. Four-year-olds begin to grasp that agents act in the pursuit of goals that stem from their beliefs and desires. Critically, they simultaneously learn that agents can entertain beliefs and desires that are false and may encourage the pursuit of

inappropriate goals. In the cognitive literature, this is considered the development of a basic theory of mind and is experimentally observed by the ability of the child to pass the false belief test (Wellman and Cross et al., 2001). They found that up until the age of four, children overrate the knowledge and mental reach (in particular, adult beliefs are infallible) of other people. Barrett, like Piaget before him, views this as a kind of childhood omniscience in which children assume that parents and other adults know everything that the children seeks to know (Richert and Smith, 2009). In Barrett's reading, this bias leads children to normatively grant *all* agents superhuman and/or supernatural qualities.

 Barrett and collaborators maintain that the onset of mature theory of mind capabilities allows children to infer that different agents perceive different realities; this development is critical to the stabilisation of mental concepts about different agents. By the age of four children may hold a number of theories of minds about different classes of agents, whether an animal, human or non-natural agent. They appear to understand that these different classes have different knowledge potentials (Barrett and Richert, 2003). As the false belief test evidences, children's understanding of human concepts undergoes a substantial revision between the ages of four and five. Functionally accurate human concepts appear to require an extended developmental period, until the basics of folk-psychological reasoning, which includes knowledge of human fallibility, and mentalistic intentions are in place. A developing awareness of human fallibility evokes a dramatic conceptual reworking of human agent concepts; one that is radically different from the understanding of self and others prior to this development of mature theory of mind skills (Barrett, Newman, and Richert, 2003).

What is also remarkable to Barrett and collaborators is that prior to the onset of mature theory of mind skills, a child's 'default' agency representations are closer to 'theologically correct' Judaic Christian representations about deity than they are about human agents. Barrett's experimental research suggests that children can distinguish between gods and humans from at least the age of three (Barrett, Richert, and Driesenga, 2003). Children may thus be cognitively prepared to develop concepts of gods that are distinct from the concepts they hold about

people and animals. Furthermore, if representations were strictly anthropomorphic, then 'god concepts,' which assume omniscience and omnipotence, should collapse in light of this emerging awareness about the absence of such abilities in humans (Barrett, Richert and Drisenga, 2003; Barrett, Richert and Newman, 2003; Richert and Barrett, 2005). Yet, in contrast to human concepts, 'god concepts' are notable for their developmental stability, which suggests they may be categorically distinct and resistant to the striking changes in reasoning about human agency.

Barrett and collaborators speculate that assumptions of omniscience may be present in the formative agency concept. If so, 'god concepts' which feature omnipotence are easy to acquire, and are acquired early on. They make intuitive sense because of their extremely close association with the foundational intentional agency template. 'God concepts' are therefore cognitively optimal: rather than violating ontological expectations, 'god concepts' exploit them, ensuring they are easily accommodated in a child's mind (Barrett and Richert, 2003).

Of course, 'god concepts' are not generated out of thin air. As noted earlier, Barrett believes that 'god concepts' develop normatively because of the interactions between intuitive domains (HADD and theory of mind) and culturally proscribed theological traditions. With 'god concepts,' unlike human concepts, children need not abandon intuitive conceptualisations; rather they learn to inhibit and/or refine these assumptions, as they increase their empirical knowledge and start to process disembodied theological propositions about god.

Barrett believes the cognitive optimality of 'god concepts' is only a partial explanation of the cross-cultural presence of supernatural agents in human minds and cultures. In a recent article (2008) examining why Santa Claus[58] is not a candidate for a successful god, he emphasises that 'god concepts' cannot just capitalise on intuitive bias, mnemonic advantages, and default assumptions about intentional agency. A successful god concept must also offer pragmatic

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[58] Offered by critics to highlight that the 'preparedness hypothesis' is unable to differentiate between believed religious agents and culturally recurrent mythical agents that are not believed.

utility, typically through the possession of important strategic information about a person, which encourages a believer to change his or her actions in the real world.

As his early work with Keil should make clear, Barrett is not arguing against the anthropomorphism theory of deity. He agrees that childhood and 'online' adult conceptions of god appear highly anthropomorphic and constructed through the lens of human limitations. Anthropomorphic properties emerge only 'when relevant properties of God are either unavailable or not salient, in much the same way as people will occasionally treat computers or animals in strikingly anthropomorphic ways' (Barrett and Richert, 2003). The intentional agency template encourages both intuitive acceptance and reflective elaboration of deity concepts. Nevertheless, people still tend to make anthropomorphic category mistakes in their real time reasoning about god. The recent findings of Barrett and collaborators suggest that both child and adults conceptions of deity involve foundational agency intuitions, theological abstractions *and* anthropomorphism.

Barrett's key claims are: 1) Childhood agency attributions are not of one human-centric kind. The generic agency base encourages the development of distinct concepts about particular agents. 2) Because of an overlap between the default intentional agency concept and 'god concepts,' at least as understood in Abrahamic traditions, children are cognitively prepared to believe and accept applicable theological teaching as plausible.

Jesse Bering

My second case study is Jesse Bering's experimental research. His work is motivated by an ambitious and increasingly nuanced theory about the evolutionary function of theory of mind (and similar social communicative adaptations) in relation to the genesis of the hominoid species and the causal role it plays in the advent of existential-cum-religious cognitions. He asserts that the human mind is a 'reality bending prism' and believes God is a scratch on our psychological lenses rather than a phenomenological enigma.

Bering argues that natural selection operates on both the structure of the mind and the resultant psychological dispositions. His research is thus controversial because of his insistence that some psychological dispositions are adaptations. This argument conflicts with the logic of the CSR and mainstream evolutionary psychology, which asserts that only the cognitive architecture is prone to selection pressures. Uniquely, he seeks to account for human existential concerns through the cognitive sciences; he describes his research as 'a bit Sartre, a dash of Darwin and a lot of cognitive science' (Bering, 2009: 1).

Bering emphasises the evolutionary foundations of human psychological dispositions. His early research examined theory of mind capabilities in primates. This research has encouraged him to consider a long view about human cognitive proclivities. He proposes that humans developed a series of unique and species-specific adaptations (language, theory of mind and the intentionality system) to deal with the escalating complexities of group living. Put simply, individuals with these social facilitation adaptations fared better (were biologically more successful) than those without them. Bering believes human consciousness is the result of these (and possibly other) adaptations. In fact, Bering routinely conflates theory of mind with subjective consciousness because in his reading, theory of mind inadvertently introduced existential reflections (why am I here? what is my purpose? do I matter? what happens after death?) and are intimately tied to religious cognitions that build on biases in the psychological dispositions themselves. Straying from normative CSR theory he speculates that humans share

an organised 'cognitive system' committed to the construction of illusionary representations of psychological immortality, belief in the intelligent and purposeful design of the self and beliefs concerning the symbolic meanings behind natural events (Bering, 2006).

Noting a 'culturally ubiquitous' tendency to attribute psychological states to dead agents and to view unexpected events as platforms for supernatural communication (Hinde, 1999; Boyer, 2001; Bering and Bjorklund, 2004), Bering undertook a number of experimental studies to discover whether, and if so how, implicit folk psychological biases predispose people to perceive the world in such a manner. As a corollary, he investigated whether this psychological system aids immersion in prevalent socio-cultural concepts and discourses.

He proposes that these beliefs stem from normative intuitions bolstered by a panhuman inability to simulate psychological non-existence, as well as a causal reasoning bias, which produces belief in a purposeful self-engaged in a conditional relationship with the world and its designer(s). Also important to the acceptance of such beliefs is the habitual entertainment of disembodied, and physically absent people during thinking. These folk intuitions account for two recurrent religious beliefs: belief in strategically influential, omniscient supernatural agents and beliefs about the psychological immortality of self and others. While the intuition of immortality makes supernatural agents believable, it is the theory of mind mechanism and the teleofunctional reasoning bias that makes them *meaningful*.

Beliefs about a meaningful relationship between a person and his or her designer are enhanced by the projection of theory of mind communicative intents onto the alleged deities. Disembodied and invisible, supernatural agents require novel means to communicate their desires and intentions. Experimental work by Bering and collaborators suggest that children from the age of seven intuitively see unexpected and/or unusual natural events (a cyclone, the presence of a blackbird after a loved one's death, the birth of triplets, or a ongoing drought) as such communicative attempts. Supernatural agents are interpreted as strategically meaningful guardians of the moral order. Through natural events, an agent articulates their pleasure or

displeasure. A complementary quality of supernatural agents is that they have superhuman abilities: the ability to know and influence the future course of events, as well as access a person's private thoughts and deeds. This is akin to Boyer's depiction of supernatural agents as 'full access strategic agents.' That is, the gods know what you have been thinking and whether you have been living up to the ethical norms of your particular culture; they are able to punish or reward you in accordance.[59] As self-interested actors, believers who perceive a supernatural communicative attempt will change their behaviours in accordance with the supernatural will. That morality appears closely associated with religion should come as no surprise as both are a product of a consciousness arising from social cognitive adaptations.

In opposition to the epidemiological argument that religious beliefs are cognitive spandrels, Bering proposes an adaptive account of afterlife beliefs via their effects on social cognitions. Through a fusion with the work of Dominic Johnson, Bering asserts that such illusions may have solved a number of cooperation dilemmas faced by early humans and thus may have become an evolutionary advantageous by-product of the ability to reason about the minds of others. He argues that such beliefs are ex-adaptations: they arose as by-products of dialogues between different cognitive systems (such as those that process social information and those that process information about physical kinds) but had unintended prosocial effects. Thus, though belief in supernatural morality is an illusion, Bering believes it may have been an illusion exploited by evolutionary processes.

Bering's theory moves expertly between various levels of naturalistic explanations, arguing for coherence between the cognitive and biological via an ambitious synthesis of ethology, cognitive linguistics, and neuroscience. It also binds comparative, developmental, evolutionary and, uniquely and provocatively, existential psychology. While this exploratory reach is not unique in the CSR, his use of these research fields is. Like Barrett, Bering places foundational

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[59] Unlike Boyer however, he contends that beliefs such as the assumption that ancestors are watching you directly aids social cooperation by inhibiting anti-social activity. While clearly, this is by no means a new idea; Durkheimian functional theories are often reworked by adaptationist accounts of religion (see Sosis and Alcorta, 2003; Bulbulia, 2004, Wilson, 2002), Bering similarly translates social solidarity accounts into the language of contemporary evolutionary psychology.

importance on empirical testability and reification. Yet he openly admits his hypotheses, while grounded in the available data, freely mix the hypothetical and speculative.

    o   **The Folk Psychology of Souls**

 Bering's early research on the advent of theory of mind and human self-consciousness feeds directly into his theories about religious belief. Like many others (notably, Freud and Dostoyevsky) he places existential concern about mortality at the centre of religion, though he goes a step further by arguing that existential predilections about death themselves stem from distortions in human reason.[60] He contends that the belief that the self continues in some form after physiological death is a ubiquitous aspect of everyday implicit thought and behaviour.

Bering contends that afterlife beliefs are explainable by way of a number of socio-cognitive processes that encourage reasoning errors. Furthermore, these intuitive reasoning mistakes account for the emotional and existential salience that such beliefs evoke. Bering's 'folk psychology of souls' incorporates six major hypotheses; while they all build on each other some clearly have more empirical support than others. It should also become clear that the hypotheses demand a substantial amount of prior hypotheses for validation, particularly those that utilise the developmental and evolutionary literature. These hypotheses comprise a 'folk psychology of souls' which pinpoints why such beliefs are intuitive and prolific in diverse populations.

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[60] Bering rejects the proposition that afterlife beliefs, such as a belief in the existence of souls, are the consequence of a psychological need; a wish fulfilment and projection that sustains a person in the face of the transitory nature and ultimate meaninglessness of existence. He notes that the experimental research conducted on this finds that this is not the case; and in many traditions, the afterlife is not a particularly desirable place to be. Thus, it is hard to see how religious beliefs ameliorate existential anxiety.

o   **Afterlife Beliefs as Normative Reasoning Biases**

Bering's theory diverges from another central developmental theory of religious beliefs put forward by Paul Bloom. Bloom argues that children distinguish between physical and mental objects and agencies from a very early age. He defines this as 'commonsense dualism' (Bloom, 2005). It is this ability to distinguish between explicit physical causations and imperceptible mental causations that Bloom believes is the hallmark of theory of mind skills and therefore, human sociality. For Bloom, quite simply, most religious beliefs are by-products of this adaptive dualism.[61] Though Bering's thesis is more complicated, he agrees this bias promotes beliefs about dualistic selves and leads to a conviction that death is a Rubicon where the body and the immaterial self part company.

Bering argues that beliefs in psychological immortality are partially buttressed by simulation constraints. He notes that death provides a particular simulation problem because it is impossible, or at the very least extremely difficult, for a person to simulate a permanent psychological state of nothingness. He proposes that preschool children have a basic grasp of the concept and implications of biological mortality much earlier than the age of seven that developmental psychologists have assumed since Piaget (Barrett, 2004: 83). Bering believes such knowledge arises earlier. He asserts that previous research has not been duly sensitive to the peculiarities of children's beliefs about death. Work by Slaughter and collaborators (Slaughter and Lyons, 2003) suggest that children find some aspects of non-existence harder to process and imagine than others. Provocatively, Bering's study found that children learn at a very early age that certain activities (eating and drinking) are necessary for the healthy maintenance of mammalian organisms and thus death correlates to the absence of such life supporting activities. Perceptual states like seeing and hearing have direct biological correlates (eyes and ears), while emotional states do not have such direct relations. Bering proposes that children have better phenomenological grasp of the former; they can imagine times when they have been without perceptual qualities of a certain form (like sight during darkness) and are

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[61] It is adaptive because it allows functional distinctions between agents and objects.

thus able to simulate such an absence. Imaging an absence of intention proves more difficult. The absence of psychobiological (thirst) and perceptual qualities (sight) is easier to grasp than the absence of emotions, knowledge, and desires.

Bering's experimental studies overcome limitations in the majority of early research. Early research focused on explicit biologically based understandings of the finality of death (i.e., can a dead agent still drink?). His research distinguishes children's psychobiological (does a dead agent know it is dead?) and related psychological understandings of death (can a dead agent feel it is dead?) in tandem with children's biological understandings of death. Bering tested the theory that as children mature belief in the psychological continuation of life decreases, regardless of cultural ambiences that support belief in souls and life after death. Once children have a working understanding of the biological finality of death and begin to see that the mind is encased in, rather than distinct from a body, then their assumption that people continue to psychologically exist, as souls or as disembodied objects like ghosts, should lessen. This is because children should extend their understanding of biological causality to mental causality; empirically perceiving that mental states, relative to beliefs and desires, are entirely absent in deceased organisms.

In fact, Bering had little faith in the above hypothesis. He believes it is more likely that children's understandings of biological mechanisms remain fragmented and develops incrementally. Children do not just socioculturally *acquire* beliefs about the psychological continuation of minds after biological death; rather such assumptions are compelled by a naïve or more correctly deficient ontological understanding of biological beings, which allows for the projection of nascent theory of mind abilities onto deceased organisms. Critically, Bering believes that the interaction between specialisations dedicated to processing biology and other specialised tacit domains like theory of mind and folk physics infest assumptions about biological agency.

In his most widely cited study, Bering presented children between the ages of 3 - 12 with a puppet show featuring a narrative with an unexpected twist. Tested individually, participants were presented with a show involving a mouse wandering around aimlessly, lost in a forest. In one of the puppet show variations, the children were told it was hungry, thirsty, tired, thinking about its mother, and angry with its brother. Part way through the show it eats some grass as an alligator unexpectedly appears and kills the mouse.

The sudden death of the mouse was essential to the experiment as Bering speculates that corpses place a great strain on inference systems dedicated to evaluating and responding to the concealed motivations of other organisms. It is possible that such a shortfall in the evolved social cognitive mechanism encourages belief in 'disembodied' souls. On completion of the puppet show, the children were then asked questions about the posthumous abilities of the dead mouse: Is the mouse still hungry? Can he still taste the grass in his mouth? Is he still angry with his brother? Is he still thinking about his mother? Does he still want to go home?

The experimental results suggest that the younger the child the more likely he or she was to say that psychological states survive biological death. Though three-year-olds generally understood that the mouse was biologically dead (it would no longer taste grass in its mouth), they struggled to reason that the mouse's psychological processes simultaneously ceased. They stated that the mouse was still able to feel and know things despite physical death. For example, it still missed its mother and wanted to go home. Bering believes these results are startling because most of the youngest test subjects were stating that the mind survives death. It was only the oldest children who stated that psychological states cease at biological death. This challenges the thesis that afterlife beliefs are acquired through culture or because children are taught to believe in them, or have an emotional yearning for it. Indeed, it was extremely rare for three-year-olds to express notions about heaven or god when explaining the mouse's behaviour. Rather such statements were more likely from the older children who had greater religious acclimatisation. Bering suggests that the lack of such cultural intrusions in the reasoning of the three-year-olds may pinpoint an early reasoning bias that senses that minds

achieve a degree of psychological immortality regardless of the biological termination of the body.

The experiment lends support to the 'simulation constraint' hypothesis. Simulation constraints produce biases in the way people reason about human death through 'type 1 errors' (aka rejecting the null hypothesis). That is, because humans intuitively struggle to imagine psychological non-existence they defer to what they perceive to be close experiential analogies. Bering cites a 1973 study that found that children describe death as state of resting, sleeping, and feeling peaceful – perspectives, which presume the psychological continuation of the self after death. Bering contends that these children are engaging in 'type 1 errors' by erroneously ascribing familiar mental states to the unknowable state of death. Adults also present 'type 1 errors' when reasoning about psychological cessation. In his most recent experiment, American undergraduates who claimed to be material 'extinctivists' contradictorily stated that a dead protagonist in a story they were asked to read, *knew* that he was dead (Bering, 2010). This finding echoes Barrett's 'theological correctness hypothesis.' The 'extintivists' have learned, most likely through exposure to scientific knowledge, that death necessitates psychological cessation, yet real time intuitive simulation constraints continue to produce reflexive reasoning behaviours that undermine this learned knowledge.

   o **Ancestors and Place Error**

The second important socio-cognitive error is the place error.   Bering frames human relationships in terms of 'online' and 'offline social events' and argues that both employ the same theory of mind faculties. Online social events occur in the physical presence of a person. They include sharing a dinner at a restaurant or attending a seminar by one's thesis supervisor. Yet, we are only periodically in the physical presence of the people we have social relationships with. In their physical absence we tacitly assume that others are engaged in goal directed behaviour of one sort or another, whether sleeping, walking to work, preparing a subsequent seminar, or holidaying in the Ureweras (Dunbar, 1997). Just as we reason about the intentions

of those we are directly interacting with we also reflect on the intentions and motivations of others in their absence. For example, we ruminate on their intentions in a specific instance or more generally recall a shared experience or mentally prepare for a future meeting with them. When we think of a physically absent significant other, we assume they are doing something (e.g., at work) and thinking something (e.g., longing for the vacation in two weeks time or upset with us for not hanging out the washing).

Just as inferences may not be accurate during online interactions, our inferences may not necessarily be correct in offline relationships. For example, I assume that a friend of mine in the UK is asleep right now, it is two in the morning there and he will probably have to get up for work in the morning. Of course, I do not know this and in fact, he has decided to have a night on the town and plans a sick day tomorrow. It is this uncertainty that makes theory of mind a *theory*. The point, Bering is making is that during offline social events, we routinely extract a person from their physical bodies and conceive of them in purely mentalistic terms. Even in such disembodied a state, we implicitly assume they are intentional and motivated.

 The death of someone with whom we have had offline social interactions poses a problem to regularities in folk psychological reasoning. Accustomed to inferring intention in a person's absence, their sudden non-existence through death is difficult for the system to process. Just as death proves a simulation blind spot, the human mind appears to struggle to update its social register about the deceased, particularly when a social protagonist dies in an unforeseen situation. The unexpectedly dead continue to activate our offline social cognitive capacities and thus remain alive to us mentally. These intrusions persist, if merely by force of habit, and the living person continues to treat a dead person as an intentional being with goals and desires. This is especially so if the deceased person has played a significant role in a person's life. Bering cites casual examples of people who pick up the phone to call a recently deceased relative only to remember the person they are calling is deceased.

 This quirk in social reasoning promotes a place error wherein people continue to consider a dead person as an agent and locate him/her in the world of the living: '[t]his place error is seemingly compounded by nonnegotiable simulation constraints that tempt us into reasoning about these dead agents' continued psychological functioning' (Bering, 2006: 456). Bering thinks that it is unsurprising that people tend to project immaterial souls onto deceased people who have played significant roles in their lives. Habituated to engaging in offline social cognitions when a significant other who is physically unavailable this process merely continues after this person's death. This social cognitive activity problematises reasoning about biological finality. Even if funerals are elaborate and explicit, the automatic intuitive tendency to reason about the activities of socially absent people continues (Bering, 2006: 455).

o **Teleological Design and the Purposeful Self**

The second cluster of reasoning errors involves teleofunctional biases in human reasoning. The bias toward teleological causation is a central hypothesis in the 'developmental psychology of religious belief' and the one, after commonsense dualism, and the advent of theory of mind abilities in four-year-olds that has the greatest empirical support. According to this literature, teleofunctional reasoning is a foundational characteristic of human thinking. Bering cloaks his argument in the research of Margret Evans (2000, 2002) and Deborah Kelemen (2004, 2005, 2009). Kelemen et al.'s numerous experiments establish that children exhibit a clear bias toward teleological explanation for not only human behaviour but also the behaviour and *purpose* of animals, artefacts, and natural objects. In her most famous studies, she asked children what mountains and clouds were 'for'. The children strongly favoured the idea that mountains are for climbing and that clouds are for raining. This tendency was so recurrent that Kelemen describes the children as 'promiscuous teleologists, 'even 'intuitive theists' (Bering 2006: 458; Kelemen, 2004, 2005). Additionally, she found that the children would reliably reject mechanistic explanation offered by the experimenter, for example that a cloud may not exist to do anything and is the result of condensation.

Kelemen hypothesises that intuitive reasoning in teleological terms endures throughout the life course, though is routinely overridden by scientific knowledge and experiential observations. To test this hypothesis, Krista Casler and Kelemen (2008) sought teleological ascriptions in Romani gypsies, who were prime candidates because they only had marginal scientific education. The study uncovered that teleological reasoning was as common for Romani gypsies as it is for American children. Similarly, another study found that people in progressive stages of Alzheimer's disease reasoned more teleologically than normal populations or people in less severe stages of the disease. Margret Evans, who it should noted is critical of Bering's findings for misrepresenting the developmental literature, has also found that children prefer creationist accounts of species origins to naturalistic or mechanistic ones.[62]

Bering contends that teleofunctional reasoning biases may also encourage afterlife beliefs in other ways than those hypothesised by Evans and Kelemen. He emphasises that teleology implies creationist reasoning (i.e., something was designed for a purpose) and if people are maturationally prone to perceive their world as purposefully created, then they will normatively question their place in a designed world. Such existential reflection is developmentally normative and encourages belief in the theological authorship of the self because the belief in an intelligent designer logically necessitates belief in the teleological purpose of the self. He argues that the belief in the purposeful self is particularly resistant to counterhypotheses. He cites experimental evidence that people struggle to conceive of themselves as purposeless and inconsequential (Bering, 2006: 459). One particular experiment found that while scientific education reduces teleological ascriptions to artefacts and to natural properties the teleofunctional understanding of the self appears protected from such mechanistic knowledge. In fact, it appears to get stronger, perhaps because of the accrual of autobiographical purpose. Belief in the purposeful self remains stable and differentiated from belief in a purposeful human species. The question, what am I here for? is of a different kind

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[62] This is not strictly true. The youngest children actually prefer spontaneous generation perspectives (Aristotle's argument that species arising spontaneously).

than the question what is the human species here for? Even with awareness of the materialistic operations of the species as a whole, people continue to individuate themselves as purposeful. While this clearly is an important and beneficial feature of human psychology, its origins lie in mistaken inferences about the natural world and our relations to it.

Bering contends that we are born budding existentialists prejudiced to perceive ourselves as purposeful and special agents we formatively ask the categorical question: Why do I exist? Such a question framed within a strong cognitive predilection toward teleofunctional ascriptions induces a contractual relationship between the self and its presumed creator. We perceive that we have been designed for a purpose. It may be because of this relationship that pancultural afterlife beliefs are nearly always intimately tied with morality; a folk morality that is invariably prosocial involving deference to establish customs, laws, and hierarchical structures.

This link to morality dictates what we ought to and ought not to do in this world. Via this intuition, supernatural agents are able to act as moral agents, punishing and rewarding believers in accordance with their actions. If we adhere to our purpose, we are to be rewarded, either in this world, or in the afterlife. If we stray from the path that the creator has given us then we will suffer misfortune. Teleofunctional ascriptions when mediated through the self promote a belief in the moral agency of a designer of the self. Even the Karmic cycle implies an intelligent designer of this system. This intuitive assumption explains why people expect retribution for actions that breach the dictates of the supernatural agent.

Bering sees this vividly evidenced in the existential torment individuals experience during the loss of a loved one. He cites a number of studies, which show that despite professed religiosity, people who are grieving display a heightened sense of meaninglessness and question the value and purpose of life (Bering, 2006: 459). Bering suggests that grief induced existential despair, confronts implicit assumptions that people entertain about relationships between the self and some purposeful agency. Grief, temporarily at least, threatens the intuitive assumption of teleological purpose granted by an engaged agency. In short, grief, particularly that stemming

from personal misfortune or the premature death of loved one, betrays the implicit teleological authorship of self, encouraging a reflective awareness that this relationship is illusionary. A god that lets horrible things happen breaches the implicit contract between self and designer, which supposes a reasonable security from dire misfortune. The sufferer becomes attentive to the lack of control they have over their own life. Through the death of the person close to them, they become conscious of the role of chance and random forces in their own lives. The emotional investment in the supernatural agent or agencies is re-evaluated as people reason that these agencies do not care whether the devotee suffers misfortune or not.

This state of grieving is typically temporary. The sense of the privileged and purposeful self is regained typically through subsequent reasoning that the deceased was somehow different from them, either through 'just world' philosophies (e.g., 'it was their time' etc). Suicide also exposes intuitive assumptions about the designed and purposeful self. In Western traditions at least, believers who believe God governs their life will find the intentional taking of life through euthanasia, suicide, or abortion anathema. Bering argues that the moral repugnance to such act is a product of the teleofunctional bias. God has designed life, so he is in control of it. Suicide is thus 'a form of intellectual theft' (Bering, 2006: 459) because the immortal self is intuitively believed to be a purposeful creation with a moral contract to its creator.

These beliefs are intimately relevant to the self's sense of meaning, identity and emotional health. Yet Bering believes that selection may have stabilised these cognitive illusions because they were functional; they curtail selfish and antisocial action and encourage fitness by way of prosocial actions.

- o **Just World Philosophies and Unexpected Events as Supernatural Communication**

The final set of reasoning errors encourage people to see random natural events as meaningful communicative attempts by supernatural agents. Bering's theory extends Barrett's work on the role of HADD and theory of mind in religious reasoning. Bering similarly argues that people

perceive that supernatural agents are not just observing them; they are actively trying to communicate with them. Unexpected natural events, such as tsunamis, droughts, or earthquakes are frequently interpreted as meaningful communication attempts. Bering believes that the perception of symbolic communicative intent in unexpected or uncanny events arises from an intuitive bias to over-ascribe human intentionality; because of this bias people invariably treat their gods like special types of people.

Thus, gods, like people, are intentional; they have beliefs, desires, and act according to goals. The actions of deities evoke the same search for the desires, belief, and goals that humans normatively use to track human and animal minds. A review of the Human Relations Area File database by Bering and Dominic Johnson found that the prolific cross-cultural belief in immortal beings is entwined with a belief that the dead held some responsibility for natural events. Humans appear to employ theory of mind skills to explain and predict supernatural agents' beliefs and desires. The key difference is that human and animals behave through their actions, while supernatural agents; having no perceived body in which to act through, act through events. The telelofunctional bias interacts with theory of mind and leads people to sense that things happen for reasons. Unexpected or ambiguous events perceived through the lens of theory of mind encourage a search for communicative intent.

Bering and collaborator David Parker (2006) tested whether theory of mind (in particular second order reasoning: understanding that an agent may know something that you do not know) is central to these illusionary inferences experimentally. Children aged between three and nine were recruited to play a forced choice game. The children were randomly split into groups. The first group of children were told that an invisible agent, named 'Princess Alice' would attempt to communicate with them in some way if they were making mistakes during the task. The second group received no such prime. Princess Alice's communicative attempts included a picture unexpectedly falling from the wall, and the lights suddenly turning on and off. As expected, it was only at the age of seven (when second order representational ability has developed) that children reliably inferred that flicking lights and the falling painting were

symbolic communicative attempts by Alice and modified their behaviour in accordance. Five-year-olds grasped that the events were most likely caused by Alice but failed to register their communicative intent and therefore did not change their game play. Three-year-olds failed to perceive invisible agency and to register communicative intent. Bering argues that the significance of the study is in the close tie between the developmental advent of second order reasoning and the ease in which those that have developed this ability will infer symbolic communicative intent. There is a cognitive ease to causation inferences.

According to Bering's reading of the ethnographic data, believers assume that their supernatural agents actively communicate their pleasure and displeasure. A review of the Human Relations Area File database found that beliefs in immortal beings are tied to a belief that they hold some responsibility for natural events (Bering and Johnson, 2005: 126). It is through this communication that a person learns the specifics of their social contract with the deity. This is typically combined with a 'just world' moral philosophy (Lerner and Simmons, 1966) as people presuppose that the world is 'just' and that people get what they deserve. The presence and prevalence of 'just world' beliefs in children's reasoning was established in a famous study by Piaget. Children were presented with vignettes about a child who steals apples from an orchard and then experiences a causally unrelated event, falling into a river from a bridge he was crossing. 86% of the youngest children believed the unfortunate fall was because of the theft (Piaget, 1932). In opposition to Piaget, Bering believes this 'immanent justice' philosophy endures into adulthood. He concludes that 'just world' beliefs are so strong that calamities and hardships are routinely interpreted as the result of earlier actions.

- o **Adaptative Function of Supernatural Illusions**

Incorporating Dominic Johnson's research, Bering hypothesises that the afterlife beliefs discussed above are functional illusions that have salient real world consequences that may have been exploited by natural selection (2006, Bering and Parker, 2005, 2006; Bering and Shackelford, 2005). Bering and Johnson speculate that beliefs in witnessing souls (i.e., invisible

agents that can observe, assess, and respond to your behaviour) may provide a genetic advantage to the believer by encouraging the self-inhibition of socially undesirable behaviour. They contend that in all cultures supernatural agents are granted privileged and intimate epistemic access to mental states. He suggests that a cognitive system or systems dedicated to producing belief in supernatural agents with privileged epistemic access may have encouraged the suppression of ancestral selfish acts. This is important because antisocial acts produce a fitness disadvantage in socially complex groups that are able to communicate information about such actions due to the emergence of language.

The maintenance of social relations is crucial to an individual's survival and reproduction. Accordingly, Boyd and Richardson propose that evolution may have designed humans to be deeply concerned about their reputation among their social group. Humans do invest a great amount of time in monitoring their behaviours to ensure that they are giving off the right 'signals.' Concern with how others perceive us is tied to mature theory of mind skills but also to the advent of language. Language allows rapid communication between third parties. If someone wrongs us we can warn others about these breaches of social etiquette. Dunbar (1997) has noted that gossip is intimately tied to the policing of social norms and etiquettes.

Knowledge of other people's subjective mental states (their beliefs, desires, and intentions) is of strategic importance to all normally functioning humans. Equally important is the protection of the thoughts and actions that a person entertains or engages in which run against communal norms and customs. Humans have evolved a specialised theory of mind ability in the pursuit of such information. Such inferences aid the co-operative exchange of resources, as well as the policing of deceptive intent and antisocial behaviour. Humans are experts at discerning information that affect the subjective states of others. This information has causal effects on the perceiver's own behaviour, encouraging them to modify their behaviour through their inferences. For example, if you and I were involved in an exchange of resources and I infer through your behavioural cues (lack of eye contact, distracted manner) that you intend to cheat me of my share, I would change my own exchange behaviour accordingly.

However, as research on the fundamental attribution error reminds us, our inferences about others' minds are often misguided or erroneous. While we have direct epistemic access to our own desires and beliefs, we must rely on indirect cues to account for the mental states of others. We are forced to infer unobservable mental states from the observable behaviours and appearance of the person whom we seek information about. The balance between accuracy and error in theory of mind inferences is unavoidable. If we were able to directly and precisely access other people's mental states the value of theory of mind abilities would become redundant. We would be mere mental ethnologists. The imperfection of our inferences about others stem from selection pressures against such strategic knowledge. An individual who is able to deceive in theory of mind exchanges will have a fitness advantage, resulting in a pay-off for imperfect knowledge. Our intuitions are reliable but are exploitable. It is the hyperactive concern for our social reputations and a desire for privileged knowledge of others that informs the moral qualities invested in supernatural beings. However, unlike our cospecifics who must rely on folk psychological intuitions to infer intentions, supernatural agents are uniquely perfect mental ethnologists; they can literally read our minds. Whitehouse defines Bering and Bjorklund's thesis neatly as the 'good citizen hypothesis' (Whitehouse, 2006: 486).

As Barrett also contends, it may be the quality of omnipotence that grants deities such as the Judaic Christian 'god' a central position in the religious pantheon. While folk religious pantheons also host a number of limited access agents, such as ancestors, ghouls, and demons, it is only those with strategic access that matter the most to the lay believer and theologian alike (Bering and Johnson, 2005: 120). Indeed, strategically relevant supernatural agents that influence realities in this world and the next are closely correlated with human morality. This belief leads to inferences that a person is observed and assessed by these agencies. Such beliefs control a person even when they are alone; causing them to recheck antisocial behaviours that without such a policing mechanism may seems like a rewarding, even sensible, decision to make if they could have gotten away with it.

Citing the epidemiological literature on concept acquisition, Bering and Johnson suggest that full access strategic agent concepts may be more cognitively successful than supernatural agents without such qualities. As Boyer and Barrett argue, omnipotence itself makes supernatural agents more salient and memorable to believers (Boyer, 1994; Barrett, 2004). It is not only significant that people perceive natural events as communicative attempts; it is also that these communicative attempts are expressions of verdicts based on the supernatural deity's assumed epistemic knowledge. Moreover, Bering sees a clear developmental trajectory behind this tendency. In his own study, it was not until the age of seven that children began thinking in superstitious terms and inferring communicative elements are present in unexpected events (compare: Evans, 2000 and her findings on the late development of existential creationism).

Bering and Bjorklund (2004) also examined this relationship via an experiment with college students. Tested individually, the students were given one of three primes. All students were told that the computer task (a difficult spatial intelligence test) they were requested to undertake had been temperamental recently and that it was possible that answers for each task may inadvertently pop up on screen. The experimenter explained that if this happens it was important that they did not look at the answers and quickly push the spacebar to remove them. The first prime was a memorandum that appeared on the computer screen at the end of the instructions for the task. This memorandum was dedicated to a fictitious researcher who had been involved in preparing the experiment and had recently died. The second group of students were presented with the memorandum and were casually informed that the dead researcher's ghost had been seen in the room the experiment was being conducted in. The third group were given no prime. Just as each participant was beginning to undertake the test, the experimenter explained that she has just been called out of the room and would be back shortly, leaving the student alone in the room. The test measured the response speed in which participants cleared the answers from the screen by pushing the space bar.

Those students who had been primed about the sightings of the dead experimenter pushed the spacebar quicker than those who were not primed. Those who only received the memorandum were in the middle range. Bering contends that his experiment supports the thesis that beliefs in supernatural agents (even if compelled by suggestion only) are enough to restrict antisocial or norm violations. Bering argues that this study and the earlier Princess Alice experiments lend credence to the theory that belief in supernatural punishment facilitates in-group coordination.

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