TALKING AT CROSS-PURPOSES?

THE EFFECT OF GENDER ON NEW ZEALAND PRIMARY SCHOOLCHILDREN'S INTERACTION STRATEGIES IN PAIR DISCUSSIONS

by

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ABSTRACT

This thesis explores one aspect of the relationship between sex and language. Twenty pairs of eleven and twelve year old children were tape-recorded during two discussion tasks. Quantitative and qualitative analyses of the data were carried out to investigate to what extent previously reported sex differences in interactional style could be observed in this group of New Zealand school children. Particular attention was paid to the relationship between such differences and the way in which children learn through talk in peer discussion. Two general hypotheses were tested: (i) that girls would tend to use a more collaborative, polite, and affiliative style of interaction, while boys would tend to use a more competitive, task-oriented style, paying less attention to the processes of interaction, and (ii) that the style of interaction associated with females would be more conducive to effective discussion from a pedagogical point of view.

There were no significant sex differences in the use of interruptive forms and overlaps. However, the girls produced more talk relative to the boys in the mixed-sex context, supportive minimal responses were distributed differently, suggesting different norms as to their use and function, and there was a marked sex difference in the use of strategies for expressing disagreement: the boys were over four times more likely than the girls to produce bald, unmodified disagreements (approximately half of their total disagreement responses), while over 90% of the girls' disagreement responses were qualified in some way. These differences in style were linked to the results of the qualitative analysis of the data which provided clear evidence that the sex composition of the dyads was an important variable in determining the overall quality of discussion, with the girls more likely to facilitate effective, open-ended, elaborated discussion than the boys.

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INTRODUCTION

"Different, therefore equal" is the somewhat optimistic title of a 1970's song on the theme of women's rights.[1] It expresses rather neatly the concept at the heart of the recent trend in language and gender research towards interpreting sex differences in the use of language as evidence of linguistic subcultures or "genderlects", rather than explaining them simply as a reflection of male dominance. In this thesis I set out to explore the issue of sex differences in interactional style, with particular reference to the possible implications of such differences for children's learning in New Zealand classrooms. Is "different" really "equal" in this case, or do linguistic differences in fact help to produce gender-based inequalities in educational outcomes?

A substantial literature survey in Chapters 2, 3 and 4 provides the basis for (i) identifying and refining the research questions, and (ii) analysing and interpreting the data from my case study. Chapters 2 and 3 review the evidence that females and males have different preferred interactional styles, and that these styles have their origins in childhood socialisation patterns. Because the literature on language and sex, even in this one area, is so extensive, I have chosen to focus in detail on two aspects of interactional style: turn-taking strategies, and strategies for providing affective and referential feedback. These are of particular relevance to my overall objective, namely investigating the relationship between sex differences in interactional strategies and learning through talk. Chapter 4 gives an overview of recent research into how children learn through talk, examines gender as a variable in classroom interaction, and then relates these issues to the sex differences in the use of language reviewed in the earlier chapters. The research questions and specific hypotheses to be tested in the study are set out at the end of Chapter 4.

The research design outlined in Chapter Five has two main objectives. Firstly, to investigate to what extent the pattern of sex differences in interactional style revealed by the literature review can be observed in a group of New Zealand children in a classroom context. Secondly, to investigate what the implications of any such differences might be for the ways in which these children learn through talk.

Chapter Six outlines the analytical procedures followed in the quantitative analysis of the data, the results of which are reported in Chapter Seven. A qualitative analysis of the data follows in Chapter Eight. This provides an insight into the complexity of the data, and explores in some detail how the various interactive strategies investigated in this study relate to the quality of the discussion in pedagogical terms. The results of the quantitative and descriptive analyses are then drawn together with the evidence from the literature review on sex differences in interactive style and learning through

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1 Peggy Seeger 1979. Different Therefore Equal. England: Blackthorn Records.

talk, to form the basis for the conclusions and suggestions for further research discussed in the final chapter.

1.1 *OVERVIEW OF RECENT RESEARCH ON SEX DIFFERENCES IN INTERACTIONAL STYLE*

Over the last fifteen years there has been such a mushrooming of interest in the relationship between sex and language, that it would be impossible to do justice here to the vast range of literature on this subject. The excellent annotated bibliography by Thorne, Kramarae and Henley (1983) provides the most comprehensive published review to date, but of course the intervening eight years since its publication have seen a continuing flow of research on language and sex in a range of disciplines, including sociolinguistics, applied linguistics, conversation analysis, education and psychology. The overview in this chapter will of necessity be brief, and will focus on some of the broad issues and trends relating to sex differences in interactive style to provide a context for the specific aspects which are discussed in more detail in subsequent chapters.

1.1.1 *Sex as a sociolinguistic variable*

The growth of interest in sex as a sociolinguistic variable in its own right coincides with an increasing awareness and acceptance of the importance of gender equity issues in Western society during the last two decades. Differences in interactive style, for instance, have been seen as reflecting and reinforcing existing social patterns of male dominance, particularly in the public domain, thus helping to exclude women and girls from full and equal participation in society (eg Zimmerman and West 1975, Spender 1982, Fishman 1983, Cameron 1988, Swann and Graddol 1988). A more recent trend has been for researchers to treat male and female styles as being simply different, with contextual factors as an important variable (eg Thorne, Kramarae and Henley 1983, Coates 1986, Tannen 1990a). A related view is that males and females are socialised into sociolinguistic subcultures, which operate according to overlapping but systematically different norms of behaviour (Maltz and Borker 1982). These later models are useful in explaining characteristic patterns of interaction in same-sex groups, and the miscommunication often observed in mixed-sex interaction (eg Tannen 1990a), which has potentially negative outcomes for both sexes. Research into sex and language, then, is of more than just academic interest: the issue of sex differences in communicative style has important implications for the way people interact in all aspects of daily life, and for the outcomes of that interaction.

1.1.2. *Characteristics of male and female interaction*

Speakers use particular interactive strategies, according to the social context, to achieve their communicative goals (Kramarae 1981). Strategic analysis has provided a useful framework for the study of sex differences in interactional style; there is considerable evidence to suggest that the typical strategies employed by males and females vary systematically, although the differences are often very subtle, and neither sex uses one set of strategies exclusively.

The picture that emerges consistently from the research is one of women as co-operative, supportive and polite conversationalists, oriented towards creating smooth interpersonal relationships, while a more competitive, adversarial orientation characterises male conversational style (eg Hirschman 1974, Kalcik 1975, Aries 1976, 1982, Leet-Pellegrini 1980, Edelsky 1981, Wodak 1981, Fishman 1983, Maltz and Borker 1982, Thorne, Kramarae and Henley 1983, Cameron 1985, Coates 1986,1988, Preisler 1986, Holmes 1988b, 1990, 1991, Schick Case 1988, Tannen 1990a). The evidence for these generalisations comes from a variety of features of verbal interaction.

Men typically use direct, overtly controlling strategies in their interactions, while those women use are more indirect and collaborative (Mulac et al 1988, Schick Case 1988). This is reflected in the way males tend to dominate the talking time in mixed interaction, especially in public or formal settings (eg Eakins and Eakins 1979, Zimmerman and West 1975, Swacker 1979, Spender 1980, Holmes 1988a). This dominance is achieved by using tactics like frequent interruption, taking more and longer speaking turns than women, and failing to use strategies which facilitate participation by others, such as providing minimal feedback (eg Hirschman 1975, Fishman 1983). Females, in contrast, are more likely to use strategies which reflect a concern that all group members have a chance to speak, such as asking facilitative questions and providing plenty of supportive feedback, thus encouraging others to contribute and keep talking (eg Edelsky 1981, Fishman 1983, Holmes 1984, Cameron et al 1988, Coates 1987, 1988). They are also more likely to explicitly acknowledge and respond to previous speakers, thus elaborating and building on their utterances (Kalcik 1975, Jones 1980, Treichler and Kramarae 1983, Coates 1988). The same contrast can be seen in the different ways males and females attempt to modify the behaviour and opinions of others: males tend to issue unmodified directives and bald assertions, where females are more likely to use indirect control strategies like questions, and to justify or qualify their statements (Goodwin, 1980, 1988, Mulac et al 1988, Schick Case 1988).

In summary, the evidence shows that females provide a positive interactional environment for their conversational partners. They are active listeners, who make use of collaborative and supportive strategies to ensure that the interaction proceeds smoothly. Males, by contrast, show less concern for their fellow speakers, and tend to compete for the floor, and use a range of conversational control devices to dominate the talking time.

These patterns of male and female interaction will be discussed and illustrated in greater detail in the next two chapters, which deal with sex differences in turn-taking behaviour and strategies for providing affective and referential feedback.

1.1.3 *Difference or dominance?*

There is clear evidence that women and men typically interact in different ways in a variety of contexts.[2] As already indicated, there are two main schools of thought as to why this should be so.

One explanation focuses on the hierarchical nature of gender relations in society as a whole; asymmetries between men and women in power and social status are seen as the most important factor accounting for sex differences in language use. In this theoretical framework, the interaction patterns of women and men are described in terms of subordination and dominance (Coates 1986), and are assumed to reflect and maintain the distribution of power in society. A strong version of this approach sees power rather than gender as the underlying variable (eg O'Barr and Atkins 1980); in other words the interactive style characteristic of women is "powerless" language, and women use it because of their subordinate social status, not per se because they are women.

While the notion of male dominance clearly needs to be taken into account in any discussion of sex differences in the use of language, it is not in itself a sufficient explanation, as differences persist even in situations where the relative status of males and females is not an issue. For example, in mixed-sex interactions where women have equal or superior status to men, males continue to use a style of interaction based on power, while females use a style based on solidarity and support (Leet-Pellegrini 1980, Schick Case 1988), and research on all-female groups makes it clear that "women's language" is qualitatively different to that of men in the ways described above (eg Kalcik 1975, Aries 1976, Jones 1980, Coates 1988, Eckert 1990, Tannen 1990a, 1990b). These differences are not deficiencies; rather they support the psychological notion that females speak with a different "voice" (Gilligan 1982).

How do these different styles originate? A widely accepted explanation proposes that males and females belong to different sociolinguistic sub-cultures, developed through childhood socialisation in same-sex peer groups (Maltz and Borker 1982, van Alphen 1987, Whiting and Edwards 1988). On the basis of their own and other researchers' observations, Maltz and Borker (1982) conclude that girls and boys learn to do different things with talk. Girls learn "to create and maintain relationships of closeness and equality, to criticise others in acceptable ways and to interpret accurately the speech of other girls" (205), while boys learn to use talk "to assert (their) position of dominance, to attract and maintain an audience, and to assert (themselves) when other speakers have the floor" (207).[3] These patterns do not, of course, occur at random, but relate closely to prevailing gender stereotypes. Thus girls develop co-operative strategies of interaction and supportive ways of speaking, whereas boys are more

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2 Most of the evidence reviewed comes from the USA or the UK, and the subjects tended to be white middle class speakers of English.

3 There is also some cross-cultural evidence to suggest that this pattern of socialisation in same-sex peer groups during early and middle childhood is widespread, with broadly similar effects in terms of sex differences in social behaviour, regardless of culture (eg Whiting and Edwards 1988).

likely to compete for the floor, challenge and insult other speakers, and to express themselves very directly and baldly (Maltz and Borker 1982:205-9, van Alphen 1987). The differential development of communicative competence begins at a very young age, with children learning "a behaviour pattern that is mirrored in their language" (Fichtelius et al 1980:225) from as early as three years of age (Dittman 1972, Edelsky 1976, Haas 1978, Esposito 1979, Wells 1979, Goodwin 1980, 1988, Sheldon 1990). As we have seen, these differences persist through to adulthood.

The view that women and men use different rules of interaction, grounded in their early socialisation, certainly provides a convincing explanation of miscommunication between the sexes. Maltz and Borker (1982:213) identify several areas where we might expect these rules to conflict in mixed-sex conversation: (1) women see questions as a part of conversational maintenance while men see them primarily as requests for information; (2) women explicitly acknowledge and make links with previous utterances, while men seem to have no such rule and often ignore preceding comments; (3) men define topics narrowly and shift topics abruptly, while women develop topics progressively and shift gradually; (4) women interpret verbal aggression as personal, negative and disruptive, while men seem to see it as "one conventional organizing structure for conversational flow"; (5) women share experiences, offer reassurance and give mutual support, while men hear problems as requests for solutions, and respond by giving advice, acting as experts or lecturing their audience.

These observations are consistent with findings that in small groups, women seem to prefer interacting with other women, and that men experience mixed-sex interaction in a positive way (Aries 1976, Jenkins and Kramarae 1981). They also help to explain the finding that the patterns of mixed interaction are often quite different in public versus private settings. Women are not as comfortable about asserting themselves in public contexts, where the interactional norms are more competitive and formalised, but they often seem to take responsibility for facilitating conversation in private, less formal situations by initiating and elaborating topics, and using strategies like questions to elicit talk from others (eg Soskin and John 1963, Fishman 1983). It has been suggested, then, that in more public contexts a man may feel the need to assert his status and display his knowledge, resulting in the male domination of talking time already discussed, whereas in private conversations, especially where the main reason for talking is social, and the interlocutors are on relatively intimate terms (like the couples in Fishman's study), he is unlikely to contribute as much, leaving the woman to do the interactive work (Holmes and Stubbe, forthcoming).

1.1.4 *Conclusion*

Many of the differences in the conversational strategies typically selected by males and females seem to be based on different perceptions or expectations of the function of a particular interaction, or indeed of spoken interaction in general (eg Aries 1976, Holmes 1985, 1988b, Schick Case 1988, Tannen 1990a). Males tend to have an instrumental view of interaction: its primary purpose is to complete a task, and perhaps to establish one's status relative to others. Females place greater emphasis on its affective and interpersonal dimensions: while there may well be a practical purpose for talking too, the process of interaction is seen as valuable in its own right.

While the origins of these differences are far from clear, the argument that the competitive, assertive male style and the co-operative, supportive female style emerge out of childhood socialisation patterns is certainly a plausible one. On this basis, it has been argued that neither style is intrinsically better or worse (Tannen 1990a), that both male and female styles of interaction serve useful and complementary roles (Schick Case 1988), and that "the ideal (androgynous) speaker would be competent in both" (Coates 1986:116). The intention of this study is to investigate the interaction patterns of a group of New Zealand schoolchildren to discover whether they do in fact display sex differences such as those described in the literature, and if so, to explore to what extent it is true to say that the styles of interaction associated with males and females are different, but nevertheless of equal value, when it comes to learning through talk.

Chapter 2

SOME ASPECTS OF HOLDING THE FLOOR: AMOUNT OF TALK, INTERRUPTIONS AND OVERLAPS

The next two chapters review the substantial body of research that has accumulated over the last two decades on several specific features of female and male interactional style. The areas I have chosen to focus on fall into two broad categories. Chapter 2 provides an overview and critique of the literature on sex differences in turn-taking behaviour, in particular, the evidence on the relative amounts of talk produced by males and females in various contexts, and differences in the frequency and functions of the strategies of interruption and overlap. Chapter 3 summarises the research on the types and amounts of both affective and referential feedback which males and females typically provide for their conversational partners, and relates this evidence to theories of politeness. This information underpins the specific research questions and hypotheses which the quantitative analysis of the data will address, and also provides an empirical basis for the development of the working definitions and categories used in analysing the data.

2.1 *AMOUNT OF TALK*

The relative amount of talk produced by males and females in different contexts is one feature of interaction which has received a good deal of attention in the literature. On the whole, the research evidence contradicts the widely-held folklinguistic belief that it is women who are the most talkative conversationalists (eg Spender 1980, Coates 1986). On the contrary, in more formal public or semi-public contexts, it is clearly males who dominate the available talking time in mixed interaction. This pattern has been demonstrated in academic faculty meetings (Eakins and Eakins 1979, Edelsky 1981), in contributions to seminar and conference discussions (Swacker 1979, Spender 1979, Holmes 1988a, Holmes and Stubbe forthcoming), in television panel discussions (Bernard 1972 cited in Coates 1986, Franken 1983), in mock jury deliberations (Strodtbeck and Mann 1956), and in business meetings (Schick Case 1988, Graddol and Swann 1989). The same pattern of male dominance has also been widely observed in classroom interaction at all levels (Brophy and Good 1974, Safilios-Rothschild 1979, Spender 1980b, 1982, Brooks 1982, Gass and Varonis 1985, Coates 1986, Munro 1987, Swann 1988, Craig and Pitts 1990).

The evidence is clear that in relatively formal and public contexts males will tend to dominate the available talking time. However, the small amount of evidence from less public, more informal situations is rather more mixed. Some research confirms the trend for males to dominate in these contexts too. For example, Soskin and John (1963) found the same pattern in spontaneous husband-wife interactions. Men have also been reported to talk more than women in experimental laboratory discussions (Leet-Pellegrini 1980, West and Zimmerman 1983, Mulac 1988, 1989), and Swacker

(1975) reported that men involved in a picture description task took an average of thirteen minutes, while women took only a little over three.

There is other evidence which appears to contradict these findings however. A more symmetrical distribution has been reported in a number of laboratory studies, (Hirschman 1973, 1974, Brotherton and Penman 1977, Bilous and Krauss 1988), as well as in studies of married couples (Kenkel 1963, Strodtbeck 1975). There is also evidence that females can be more talkative than males in these less formal contexts. For instance, Meyerhoff (1986), in a small study based on Swacker's (1975) picture description task, reported that the female subjects talked more than the male subjects, regardless of whether their facilitator was male or female, and that this seemed to be explained by a greater willingness to co-operate in completing the task. Two other experimental studies of same- and mixed-sex interaction also found that women talked longer and more frequently than men, on average (Ickes and Barnes 1975, Markel et al 1976). This pattern has not only been seen in adult interaction: a study of social interaction among preschoolers (Smith and Connolly 1972, cited in Coates 1986) concluded that girls were both more talkative and more fluent in interaction with both their mothers and their peers up to the age of four.

The evidence summarised thus far strongly suggests that the degree of formality of an interaction is an important variable influencing the extent of male dominance of talking time. Evidence from Edelsky (1981) provides further support for this suggestion. She found that in university committee meetings the men dominated when the interaction or type of "floor" was more formal, but when the interaction switched to a more informal and collaborative floor, the pattern was reversed, with the women talking more than the men. A possible explanation for this is that males tend to interpret public and formal settings as a forum for establishing or enhancing their relative status, thus making talk a highly-valued activity in such contexts, while status is less likely to be as important in more informal or intimate contexts; women, on the other hand, seem to value talk more for its ability to foster connection with others (Tannen 1990a). This is borne out by research which shows that the "sexual appropriateness of the task" (Brophy and Good 1974:201), or the topic under discussion may influence relative amounts of talk, with males tending to talk more on task-oriented topics, and females talking more when the topic involves feelings and relationships (Aries 1976, Brotherton and Penman 1977, Haas 1979, Jose and Wong McCarthy 1983). Another interpretation of the greater tendency for men to dominate in public compared to less public contexts, is that women are socialised into doing most of the active work in maintaining conversations (Fishman 1983). This means that in some contexts women are required or allowed to contribute very little other than being active listeners, while at other times they are responsible (or perceive themselves as being responsible) for filling silences and keeping the conversation going.

In summary, while the evidence reviewed here shows that males clearly tend to dominate the talking time in more formal, public contexts, it also suggests that females are likely to talk more in less formal situations, especially where the topic reflects typical female concerns. It is this second aspect of the research evidence which provides the basis for the first two hypotheses tested in the present study (see Chapter 4). Overall, the literature on amount of talk provides support for the characterisation of a male style which is generally more competitive and instrumental in orientation,

relative to a female style which has a more affective orientation, and is more supportive of the needs of fellow conversationalists.

2.2 *INTERRUPTIONS AND OVERLAPS*

Another aspect of conversational interaction which has been extensively researched in recent years is that of sex differences in the strategies of interruption and overlap. The main focus of this research has been on showing the relationship between these features and male conversational dominance, but more recently, the focus has shifted to an examination of how the strategies of interruption and overlap actually function in particular contexts.

Although the emphases of different studies vary according to whether they are based in sociolinguistics, social psychology or conversation analysis, most take as their starting point the assumption that conversations are rule-governed sequences of behaviour, with interactants demonstrating a high degree of skill in effecting smooth turn transitions. Overlaps represent errors in prediction, while interruptions are generally seen as a violation of the basic turn-taking rule or norm, that one person speaks at a time (Sacks et al 1974), and as such, are a disruptive or dysfunctional conversational strategy.

2.2.1 *Evidence of sex differences*

There is an increasingly large body of international research, mainly British and American, on the topic of sex differences in turn-taking behaviour. A major catalyst for all this research, and probably the most frequently quoted work on this issue, is Zimmerman and West's (1975) study, which produced some very interesting and suggestive results. Thirty-one conversations were covertly recorded in public places (ten male-male, ten female-female and eleven female-male interactions), and analysed for examples of simultaneous speech. These were categorised as either overlaps (turn-transition errors) or interruptions (violations of the turn-taking rules). Zimmerman and West found that in the same-sex pairs, interruptions and overlaps were evenly distributed between the speakers, but in the mixed pairs they found a striking and consistent asymmetry: 96% of all interruptions and 100% of overlaps were made by men.

This finding sparked considerable research activity, and since 1975 a substantial body of evidence has accumulated suggesting that in mixed-sex dyads or small groups, men interrupt women significantly more often than women interrupt men. West (1979) found, (this time in a laboratory setting), that in five unstructured conversations between male/female undergraduates, 75% of interruptions were initiated by the men. Other researchers have also reported that men use more interruptions than women (McMillan et al 1977, Natale et al 1979, Octigan 1979, Eakins and Eakins 1979, Leet-Pellegrini 1980, Brooks 1982, Larson 1984, Munro 1987, Mulac et al 1988, Woods 1988, Schick Case 1988, Craig and Pitts 1990), and that in mixed groups men (Larson 1984), and both men and women, tend to interrupt women more than men (eg McMillan et al 1977, Natale et al 1979, Eakins and Eakins 1979). There is also evidence to show that in same-sex groups men interrupt their partners more than women (McMillan et al 1977, Natale et al 1979, Mulac et al 1988).

Generally, subjects in the research quoted have been university-educated adults. However, Esposito (1979) studied forty pre-school children at play in same-sex and mixed-sex dyads, and found significant differences for interruptions: boys interrupted girls twice as often as vice versa, leading to the conclusion that conversational sex differences seem to be acquired early in life, developing in conjunction with general conversational skills. This conclusion is indirectly supported by Greif (1980) who studied sixteen two- to five-year-old children and their parents. She found no significant differences between girls and boys, but found that fathers interrupted and overlapped more than mothers did, and that both parents were more likely to interrupt and overlap their daughters, reflecting both the patterns seen in adult groups, and how children are socialised into gender roles.

Three New Zealand studies reveal the same general trends as the overseas research. In a small study of informal dinner-table conversation between four flatmates (Stubbe 1978), the two males initiated 60% of the total interruptions, although interestingly, the females produced 57% of the overlaps, which indicates that they too were competing for the floor, but were more likely to use a non-disruptive strategy to do so. In another small study of conversation in a similar setting (Hyndman 1985), the tendency for men to do more interrupting than women was even more marked: 77% of interruptions were initiated by the men, and were five times as likely as the women's to be successful bids for the floor. Gilbert (1990) studied a series of small group discussions related to the fifth form syllabus in a New Zealand secondary school science classroom. In mixed-sex contexts, the boys accounted for 61% of the talking time, and were more likely to interrupt other group members than the girls. Interestingly, it was the boys in the single sex group who produced the highest rate of interruptions (defined as a response which actively took the floor away from the previous speaker in such a way that their contribution was effectively terminated (p.99)).

The evidence is by no means all supportive of the premise that men do more interrupting than women, however. A number of studies have failed to find a significant difference between the sexes (eg Beattie 1981, Dindia 1987, Roger and Nesshoever 1987, Murray and Covelli 1988), or show women interrupting more than men (eg McCarrick et al 1981). Dindia (1987), in a study of dyadic interaction, found that while men did not interrupt more than women, and women did not receive more interruptions than men, there were some statistically significant sex differences in how interruptions functioned: men were more likely to use "disconfirming" interruptions (resulting in topic shift) in mixed-sex dyads, and "disagreeing" interruptions in same-sex dyads than women. (See below for further discussion of this finding). There were also more cross-sex than same-sex interruptions. McCarrick et al (1981) found that the wives in couples they studied initiated more of the within-couple interruptions that occurred, and also tended to "interrupt back" in cross-couple interactions rather than adopt a submissive, silent role.

In a study of undergraduate work groups, Kennedy and Camden (1983) found that overall women were interrupted significantly more than men and they <u>did</u> significantly more interrupting. This difference was however not statistically significant in the mixed-sex group, which suggests that women produced a higher interruption rate in the same sex interactions than did men. Bilous and Krauss (1988) also report findings

of no significant difference in mixed dyads, but women interrupting more than men in same-sex dyads. In a study of same-sex pairs, Hirschman (1973) found that women interrupted and overlapped one another more than men, while Ofshe (1981) came to a similar conclusion, with the difference greater during social than task activity. The implications of this last group of findings will be discussed below in relation to how interruptions and overlaps function in different contexts.

There is some suggestion in the research that women may "invite" interruption by engaging in less assertive speech behaviours before, during, and after being interrupted. For example, Brend (1972) found differences between typical male and female intonation patterns, with women showing a greater preference for "incomplete" or "hesitation" patterns than men. In Zimmerman and West's (1975) study, it was significant that the women did not protest against any of the male interruptions, and that they had a marked tendency towards fairly long stretches of silence after interruptions or retarded minimal responses, thus possibly reinforcing this kind of behaviour. However, more recent investigations into this question have concluded that this is not the case. Studies by West (1979) and West and Zimmerman (1983) both found that all participants tended to yield the floor to interrupting parties, and women were not more likely to tolerate such intrusions than men. Dindia (1987) also found that women did not have less assertive behaviours interrupted, they did not interrupt less assertively, nor did they respond less assertively to interruptions. It is unlikely, then, that the higher frequency of interruptions by males reported above can be explained by women's behaviour.

2.2.1.1 *Summary*

A majority of studies show that men in mixed-sex contexts interrupt women more than vice versa. While there are other studies which do not support this, or report a slight trend the other way (eg McCarrick et al 1981; Camden and Kennedy 1983), there is very little evidence showing that women interrupt men more than vice versa. On the contrary, the body of evidence supporting Zimmerman and West's original finding (to a greater or lesser degree) is substantial (approximately 14:6 of the studies reviewed here).

Another trend that appears throughout the research evidence quoted is the finding that women are interrupted more than men, by both men and women in mixed groups (5:1 not counting dyad studies). In other words, men do not just interrupt more across the board, they interrupt women more than they interrupt men, and women seem to do this too in some studies. Thus the sex of the "interruptee" may be of significance as much as or in combination with the sex of the interruptor (cf Brouwer 1982).

In same-sex contexts, female pairs or groups showed higher interruption rates than their male counterparts in four studies (Hirschman 1973, Ofshe 1981, Kennedy and Camden 1983, Bilous and Krauss 1988), with the reverse also reported in four studies (McMillan et al 1977, Natale et al 1979, Mulac et al 1988, Gilbert 1990). Two studies (McMillan et al 1977, Kennedy and Camden 1983) reported that females as a group interrupted more in a single-sex context than in a mixed context. There is also some evidence of a higher interruption rate overall in mixed groups than single-sex groups or pairs (Zimmerman and West 1975, Kennedy and Camden 1983, Dindia 1987), and

in cross-sex versus same-sex interactions within mixed groups (Stubbe 1978), regardless of findings on sex differences.

2.2.1.2 *Inconsistencies in the evidence*

From this brief review of the literature it is apparent that the state of affairs with regard to sex differences in interruption behaviour is rather more complex than the early research suggested. Although there are some clear trends, before these can be accepted with confidence, it is important to consider how the apparent contradictions in the evidence might be explained or reconciled, and which aspects need to be resolved by further research.

Some writers (eg Beattie 1983, Dindia 1987, Murray and Covelli 1988) have used "no difference" results to suggest that sex differences in interruption do not in fact exist, and claim that previous studies which did find sex differences were flawed in their research design and/or statistical analysis. For example, Zimmerman and West's 1975 study has been criticised on the basis that their sample was small and unrepresentative, that one man produced almost 25% of the interruptions (Beattie 1982b), and that no statistical analysis was done (Dindia 1987). In fact Dindia (1987) throws into question entirely the widely accepted conclusion drawn from research over the last fifteen years that there are sex differences in interruption behaviour, on the grounds that it is largely based on empirical evidence that employed faulty statistical analysis. While the criticism may be valid to some extent, this seems a rather extreme position given the strong trend supporting the existence of sex differences. It is true, however, that the varying approaches to analysing data on interruptions and overlaps in the literature make it very difficult to compare different studies reliably. Furthermore, none of the research to date appears to have adequately taken into account the relationship between amount of talk and interruptions or overlaps in calculating their relative frequencies in the speech of males and females, thus making it even more difficult to judge the validity of the results reported. (This point will be discussed in more detail in Chapter 6).

Another explanation offered for findings of "no difference" is the suggestion that changing societal norms have affected typical interaction patterns (Aries 1982, Kennedy and Camden 1983). This seems unlikely, however, given the fact that some of the most recent studies quoted above showed evidence of sex differences.

There are various complicating factors which must be taken into account when assessing the evidence. Firstly, as Swann (1988) points out, there is a problem of interpretation when attempting to quantify sex difference data, as we are dealing with gender associations rather than categorical differences, thus making it problematical to simply aggregate the results of different research studies or even at times to draw firm conclusions from individual studies.

Secondly, some research designs do not account for the interaction of sex of speaker and sex of addressee. This is a significant variable as illustrated by a number of the studies reviewed above which indicate different patterns of interruption behaviour for same-sex versus mixed-sex contexts. In some studies, this variable is included in the research design (eg Brouwer et al 1979, Murray and Covelli 1988), but in others only one context is tested, or the statistics are collapsed, thus making it difficult to

determine whether a difference is the result of sex of speaker, sex of addressee or an interaction of the two (as pointed out by Dindia 1987).

Thirdly, there is the problem that different studies adopt differing formal and/or functional definitions of interruptions and overlaps, which often makes it impossible to compare their results directly. For example, the formal definitions of interruption and overlap adopted by Beattie (1981, 1983) do not coincide exactly with those used by Zimmerman and West (1975). In other studies the functional definitions are different; for example, Kennedy and Camden (1983) and Dindia (1987) deliberately include as interruptions utterances which are supportive, where others (eg West and Zimmerman 1983) include only "negative" interruptions or those which function as (successful) turn bids in their definition. A "no difference" result based on the wider definition may mask significant differences within sub-categories (eg Dindia 1987).

Furthermore, interpretations by analysts after the event, and without the benefit of being involved in the ongoing negotiation of an interaction, often do not match participants' perceptions (Aleguire 1978, Roger and Nesshoever 1987, Tannen 1990a) and in addition, are likely to be affected by their own interactive norms. A related possibility, which will be explored in more detail later, is that the interactive norms governing interruption behaviour, and how interruptions function, vary according to the context and/or the interactive style adopted by the participants, with gender possibly affecting the distribution of these norms across different contexts. This would help to account for some apparent inconsistencies in the evidence, as well as for evidence of miscommunication (eg Maltz and Borker 1982, Tannen 1984) brought about by the differential use and/or understanding of the functions of interruptions.

2.2.1.3 *Other variables interacting with gender*

Finally, gender is not the only variable that may affect interruption behaviour in conversation; there are potentially many other factors which could interact with it, and presumably affect research results in unknown ways when not specifically considered or built into research designs. Variables that have been manipulated or taken into account in various studies include social context, group composition and size, participant characteristics, status/power (West and Zimmerman 1977, Esposito 1979, West 1984, Greif 1980, Woods 1988), expertise (Leet-Pellegrini 1980), personality characteristics (such as dominance (Roger and Nesshoever 1987), desire for approval (Natale et al 1979), interpersonal orientation (Street et al 1987)), and paralinguistic features (Beattie 1982a). I will briefly discuss a number of these factors.

Context

Mulac et al (1988) stress the importance of social context, and are critical of the assumption of linguistic stability they see in much of the literature on male/female language differences. Sex-differences that occur in one context may not be generalisable to another, perhaps because the context itself affects behaviour, or because a different context introduces other variables which have an effect. An example of this is Beattie's (1981) study of university tutorials in which he found that women interrupted as often as men. In the British tutorial system, contributions to discussion form part of the evaluation procedure, which would suggest a greater motivation might exist for women to compete for the floor than in other apparently

very similar contexts. Murray and Covelli (1988) also found no sex differences in rate of interruption, and concluded that the context was a more important variable in explaining patterns of simultaneous speech than the sex of the addressee or speaker.

Expertise

Leet-Pellegrini (1980), focused on sex differences in conversational dominance, and reported that dominance was based on a subtle interplay of the two independent variables of sex and expertise; the results did not show the striking asymmetry observed by Zimmerman and West (1975) whereby males routinely interrupted females, but speakers who were both male and well-informed tended to dominate conversation (by talking and interrupting more). It was the use of power, in the form of expertise or additional knowledge, that definitively separated the sexes.

Status/power

The relationship between interruptions and the relative status of participants, independent of a gender hierarchy, is explored in a number of studies. If asymmetries in interruption behaviour are seen as a reflection of social power, then it is predictable that when equals interact in mixed groups (thus making gender salient) men will tend to interrupt more (eg Zimmerman and West 1975, Stubbe 1978, Hyndman 1985). Where, however, there is a conflict between gender and formal status there is still a tendency for gender to be more salient (Eg Greif 1980, West and Zimmerman 1984, West 1984, Woods 1988,), suggesting that sex differences in interruption behaviour cannot simply be explained as reflecting differences in power. This issue will be discussed in more detail below.

Group size

Roger (1989) suggests that interruption rates in dyads and larger groups may not be directly comparable, due to the unique character of dyadic interaction processes and reported differences in communication patterns as a function of group size (eg Sacks, Schegloff and Jefferson 1974). Kennedy and Camden (1983) suggest that increased demand on available speech time in groups may lead to a relaxation of turn-taking rules, with interruption possibly a more legitimate means of gaining access to the floor than it would be in a dyad. Even if this is not the case, in any group larger than two, the question of "who will speak next to whom" is a problematic one, and the effect of increased competition for speaking turns on the rate of interruption is unknown.

Individual characteristics

Interruptions are often asymmetrically distributed in both mixed and same-sex dyads (eg Dindia 1987, Gilbert 1990), indicating the importance of individual differences. A number of studies have sought to link individual characteristics to interruptions . For example, personality traits like dominance (Rogers and Jones 1975), positive interpersonal orientation (Street and Murphy 1987), and desire for social approval (Natale and Entin 1979) were positively related to the number of interruptions produced by a person. Features of individuals' conversational style, like use of paralinguistic signals (Beattie 1983), or a preference for a more reserved style of

informal interaction (Tannen 1984) also affect the number of interruptions produced and their interpretation.

2.2.2 *FUNCTIONS OF INTERRUPTIONS AND OVERLAPS*

There is clear evidence that there are differences in how interruptions are used by men and women in conversational interaction. What is the significance of these findings? To answer this question it is necessary to investigate the possible reasons for gender asymmetries in interruption behaviour.

There are two main approaches to this question in the literature: the first, the "dominance model", views interruption as one strategy for achieving (male) conversational dominance; the other, the "difference model", hypothesises that interruptions are multi-functional, and are asymmetrically distributed, at least in part, because men and women have different conversational norms.

2.2.2.1 *The male dominance hypothesis*

Zimmerman and West (1975) make an explicit connection between their findings and the power relationships between women and men; they interpret interruption as one mechanism for achieving domination of a conversation, allowing male control of both the topic and amount of speech produced by the female conversational partner. In this view, conversational dominance is seen as a reflection of, and one means of maintaining, male dominance in society as a whole.

This interpretation of their findings, and the appropriateness of using interruptions to investigate cross-gender conversational dominance, can be supported on both theoretical and empirical grounds, and has formed the basis of much subsequent research into interactional sex differences.

In the widely accepted turn-taking model of Sacks et al (1974), interruption is seen as a violation of the current speaker's turn. As such it is, by definition, a negative, dysfunctional strategy, assumed to represent competition for speaking time through disruption of another speaker's turn, and thus to operate (alongside other devices such as amount of talk, delayed minimal feedback, lack of acknowledgment of a previous utterance) to control a conversation.

Beattie (1982b) reports that interruption was interpreted unambiguously as an indicator of general communicative dominance in the psychological literature of the 1960's and 1970's, (eg Courtwright et al (1979) who found that the more domineering a spouse was, the more he or she interrupted the other; Rogers and Jones (1975) who found that persons with more dominant personalities were able to hold the floor more often and attempted more interruptions than their less dominant counterparts). There is a substantial body of empirical support for the male dominance interpretation of sex differences in interruption, subsequent to Zimmerman and West's 1975 study.

Evidence on the effects of interruption on the interaction process suggests that interruption (especially by males) does lead to domination of the available talking time, both in terms of amount of talk and control of topic. For example, Zimmerman

and West (1975) found that women tended towards fairly long stretches of silence after interruptions. Hyndman (1985) in a study of small group interaction, found that the men initiated 77% of all interruptions, and their interruptions were 50% more likely to result in their gaining the floor; Woods (1988) reports a similar finding, with 85% of interruptions by men in her study successful, compared with 44% for the women. Holmes (1989), using data from Munro's (1987) tapes of small group interactions between ESL learners, concludes that "the male students take the floor from the women considerably more often than the reverse", with an average of 11.4 interruptions per discussion each for the men compared to 7.5 for the women.

Other studies, while not reporting interruptions by male interactants to be more often successful, nevertheless show a general tendency for participants to yield the floor after an interruption (West 1979, Stubbe 1979, Kennedy and Camden 1983, Dindia 1987)[1]; this again suggests that interruption functions as a strategy for gaining the floor, especially for men, who tend to make disproportionate use of it. (This interpretation is, of course, largely dependent on the exact definition of an interruption, a point which will be dealt with below). If the underlying assumption of the dominance approach is accepted, that using interruption to gain the floor is a disruptive, dominant communicative act, then there is indeed substantial empirical support for it; any of the studies outlined above in section 2.2.1 which showed men interrupting more in mixed contexts could be interpreted to support the male dominance hypothesis, even where this is not explicitly stated.

There is also evidence that the frequency of interruption by individuals correlates positively with dominance in situations where the question of who is dominant (or who has the power) is clear, and that this asymmetric pattern resembles that often found in cross-sex interaction. Interactions between adults and children are a case in point, where the power relationship is quite unambiguous. In the formal setting of a classroom, for example, teachers often exert direct control over discourse structure by dominating the available talking time and controlling turn-allocation; the right of a teacher to interrupt a pupil is unquestioned. The fact that it is generally unacceptable in this context for pupils to interrupt teachers illustrates quite clearly who is in the position of power. This same asymmetry is apparent in less formal adult-child interactions. For example, West and Zimmerman (1977) found that in taped conversations between five different parents and their children in a paediatrician's office, 86% of interruptions were made by the adult. Greif (1980) in a study of sixteen pre-school children and their parents, found that parents interrupted their children approximately twice as often as vice versa. Thus interruptions seem to be used both as a means of reflecting and maintaining power relationships or relative status, and as a strategy for maintaining control of a conversation. The latter can be seen especially clearly in contexts where the occupational role of one of the participants demands such control, as in doctor-patient (West, 1988) and teacher-pupil interactions (Edwards 1987).

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[1] Generally, both sexes are equally inclined to yield the floor in the face of an interruption; the significance here is that where there is an asymmetry in interruption behaviour, those who interrupt more often will get the floor more often.

A study by Beattie (1983) of political interviews on television also illustrates this point nicely. The politicians involved were Margaret Thatcher, the British P.M. and Jim Callaghan, the Leader of the Opposition at the time, who in terms of status (and political goals) could be expected to have a vested interest in keeping control of the discussion, particularly with regard to topic. But the interviewer's job also involves retaining control, in order to meet the objectives of good current affairs reporting and to stay within time constraints. This conflict of interest is reflected in Beattie's results, which I interpret as follows:

Firstly, interruptions are very frequent: 37% of all speaker switches (and 45.2% of all attempted speaker switches); secondly, the interruption rates are asymmetrical, but this does not relate in a straightforward way to dominance. Callaghan interrupts his interviewer more than vice versa, while Thatcher receives more interruptions, of which however only approximately 40% are successful (because she refuses to yield the floor).[2] Both politicians produce almost double the number of "overlaps" produced by the interviewers (a type of interruption which Beattie links to dominance- see discussion below). Thus interruptions are quite clearly being used in this context to attempt to compete for control of the interaction.

Status

There is some suggestion that the tendency for men to hold higher status positions than women is sufficient explanation for findings of male dominance of conversation, without needing to invoke a gender hierarchy as such (eg O'Barr and Atkins 1980 who put forward the concept of "powerless language", used not only by women but also by other low-status groups). That is, differences in male and female speech could be interpreted in terms of power instead of gender. Woods (1988) points out that if this is the case, then high-status women could be expected to dominate conversation in similar ways to men (for example by interrupting more), while low-status men could be expected to show relatively less dominant behaviour. There is empirical evidence to show that this is not the case with respect to interruptions, however.

Eakins and Eakins (1979) recorded and transcribed university faculty meetings throughout an academic year. Of particular interest is their finding that interruptions followed a hierarchy of status within each sex (the highest status individuals were interrupted least and the lowest status individuals the most), but, as a proportion of total number of turns, the men initiated more interruptions and were interrupted less than the women. The same hierarchy of status can be seen in Greif's (1980) study of sex differences in parent-child interaction (also reported above), where fathers interrupted and overlapped more than mothers and both parents interrupted daughters more than sons. (Interestingly, although it was not statistically significant, Greif's data showed a tendency for boys to interrupt adults more than girls).

West (1984) studied the interrelationship of status and gender in doctor-patient dialogues. She found that, while male physicians initiated 67% of interruptions relative

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[2] Beattie argues that rather than being an example of male dominance, Thatcher is interrupted more often because of particular paralinguistic characteristics of her speech.

to their patients' 33%, patients interrupted their female doctors as much or more than these doctors interrupted them (68% to 32%). The most symmetric exchanges were between women doctors and women patients. In this case, the status of being a doctor was clearly outweighed by being female.

Woods (1988) recorded a series of triadic conversations between work colleagues of differing occupational status in order to study the interrelationship between gender and status and floor apportionment. She found that even when women held high-status positions, male subordinates interrupted more often. Also women's interruptions failed far more often than men's. Males (both bosses and subordinates) tended to succeed in gaining the floor by the use of interruption far more often than female participants (85% versus 44%). Finally, as hypothesised, both male and female "bosses" were interrupted less frequently than their subordinates, but the lowest status males were also interrupted less frequently than their female superiors in the triad, and subordinate females almost four times as often as their male counterparts.

These four studies clearly show that gender has a strong influence on interruption patterns, independently of formal status (though the two are interrelated), and seem to support the hypothesis that an asymmetry in interruption behaviour "reflects, establishes and reinforces power relationships". (Eakins and Eakins 1979). The male dominance model provides an appropriate framework for explaining findings such as these. As Coates (1988:69) observes: "When a woman has higher status than a man, yet on linguistic measures fails to dominate her male subordinate, then we have to infer a gender hierarchy where male is construed as of higher value."

While there is a substantial body of evidence that links interruptions with male conversational dominance, there are other studies which have provided conflicting evidence, or have suggested counter-arguments both to this interpretation of the evidence and to the assumptions on which it is based. It is certainly the case that the relationship between male dominance and interruptions is a great deal more complex than was at first thought.

Problems with the male dominance hypothesis

Dindia's (1987) study of same-sex and mixed dyads does not support previous findings that men interrupt women more than vice versa, or that women react less assertively to interruption than men, and she comments that her results are not patterned in a way that suggests an obvious relationship to dominance. She also questions the statistical validity of previous studies which found sex differences in interruptions (see above) and concludes that where there are no sex differences in interruptions, then either interruptions do not function as dominance cues or men are not more dominant than women (368).

Bilous and Krauss (1988) propose the concept of linguistic accommodation as an alternative framework to the male dominance hypothesis to explain their results which showed females interrupting more than males in same-sex dyads, but no difference in mixed dyads, with significant convergence towards the male norm. (They accept that one interpretation is that females are accommodating to the male norm for interruptions, thus reflecting male superiority, but reject this explanation because of differing results for the other indices tested). They also suggest that interruptions may

function differently in different contexts (eg a desire to dominate/control versus a high level of involvement by participants) and conclude that the patterns of accommodation they found may reflect an attempt on the part of male and female participants to secure a favourable evaluation from their opposite-sex partners.

Aleguire (1978) in tapes of five unstructured conversations found that out of sixty-nine instances of simultaneous speech only 7% of the interruption sequences were interpreted by the participants as rude, intrusive or inappropriate, and concluded that different types of interruption need to be specified before the exact relationship between interruption and male dominance can be decided.

Ferguson (1977) investigated the relationship between the dominance rating of participants and interruption rate, and did not find a significant correlation between the two. However, speakers who rated themselves as highly dominant were found to use a lot of overlaps. Zimmerman and West (1975) found also that men used overlaps, as well as interruptions, far more frequently than women.

Beattie (1983), in the study of political interviews summarised above, concluded that interruptions were not directly linked to perceptions of dominance, but that other devices created this perception: both politicians used overlaps almost twice as often as their interviewers.[3] Beattie (1981) also found overlaps were used significantly more frequently by tutors than students in university tutorials (while overall, students interrupted their tutors more than vice versa). He suggests that this form of "interruption" acts as a subtle reflection of dominance relationships in conversation.

There is also evidence to suggest that conversational dominance in the form of interruptions (among other devices) can result from the interplay of gender and other variables, notably the variable of "expertise." The status inherent in gender alone may not be sufficient to explain sex differences. Leet-Pellegrini (1980) studied the emergence of dominance and control (measured by "talkativeness", number of interruptions and overlaps, and number of assent terms, plus perceptions of dominance and control by participants and independent judges) in the conversations of seventy pairs of unacquainted university students. The two independent variables were sex composition of pairs and expertise. The results for interruptions and overlaps found male-female asymmetry, though not nearly as marked as Zimmerman and West (1975), and she concludes overall that "the emergence of power was not based upon expertise per se, nor upon gender qua gender, but upon a subtle interplay between the two..... Women with expertise generally avoided responding in dominant ways." This suggests that a woman of higher status/expertise may be choosing not to "dominate her male subordinate" (Swann 1988).

Swann (1988) argues that the notion of "male dominance" itself is rather problematical, on the basis that if it is seen as the norm for men to talk or interrupt more than women, they may do so with the complicity of women; as in other

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[3] It needs to be noted here that the definition of "overlap" used by Beattie is different to that used by Zimmerman and West (1975), who would include some of the utterances classed by Beattie as overlaps in their interruptions category.

asymmetrical relationships (eg doctor-patient, teacher-pupil), legitimate authority is less likely to be contested. "Rather, all parties in an interaction will contribute to its maintenance" (128). She suggests that "both women and men see men as the dominant sex, and so when gender is salient in an interaction (ie when it seems relevant to be seen as a woman or a man, rather than as a doctor, lawyer etc) men would tend to dominate" (127).

In summary, the relationship between dominance and interruptions is clearly not a straightforward one, and a simple equation of interruption with male dominance would seem to be overly simplistic: some studies do not support the male dominance hypothesis at all, either failing to find male/female asymmetry or suggesting an alternative explanation; in others it is argued that interruption is not a "unitary phenomenon" (Beattie 1983), and that there are different sub-categories of interruption (as defined by form) which relate differently to dominance. In addition, gender alone does not always predict a difference in conversational dominance (whether measured by interruption or other indices); other factors such as status and expertise, interrelate with gender in complex ways. The male dominance model provides a convincing explanation for the results of particular studies and some of the patterns which have emerged from this area of research as a whole, but fails to account for the whole range of findings on sex differences in interruption behaviour.

2.2.2.2 *The difference approach*

A number of writers argue that sex differences in conversational interaction arise not primarily because of power asymmetries (although these clearly do exist), but because women and men have acquired gender-specific communicative norms: they belong to different sociolinguistic subcultures (Maltz and Borker 1982). Rather than seeing women's language as weak and submissive, and by implication somehow inherently inferior to the language used by men, the difference model seeks to demonstrate that women use a distinct interactive style with a number of positive strengths, thus challenging what a number of writers see as the androcentric bias of the male dominance model (eg Coates 1988). Coates (1988) suggests that this approach developed initially as a model to explain the distinctive features noticed in studies of women interacting in same-sex groups (eg Hirschman 1974, Kalcik 1975, Jones 1980), but it is also a useful framework for work on mixed interaction, and throws fresh light on research results like those on interruption behaviour summarised in this chapter, which seem contradictory when interpreted according to the dominance model alone.

The main problem, in theoretical terms, with the dominance explanation of sex differences in interruption is the assumption that it is possible to attach a single communicative function to a given linguistic form or interactional device; this assumption has been increasingly questioned (eg Holmes 1984, Swann 1988, Cameron et al 1988). There is a growing amount of empirical data (see below) which suggests that interruptions and overlaps function in different ways in different contexts, and that multi-functionality is in fact the norm. Whether or not they are an indicator of conversational dominance, or are functioning in some other way, requires context-specific interpretation (Mulac et al 1988, Swann 1988). The context determines which meaning or function should be attached to particular conversational features: "particular interpretations cannot be considered as fixed attributes of formally identified conversational features" (Swann 1988:127).

A related point is that interruption is just one of a number of strategies that may be used towards the goal of dominating the talking time (Murray and Covelli 1988) and speakers who intend to dominate an interaction will use whatever appropriate interactional resources there are available; these resources vary from context to context (Swann 1988:138). This clearly implies that it is the speakers' intentions and shared understandings (in a particular context) that determine the function of interruptions. Interruptions are not inherently a dominance device; their function depends on how they are used, how often and in what context.

Central to this issue is how interruptions are defined with respect to form versus function. Kennedy and Camden (1983) argue that interruptions are not necessarily dysfunctional (as assumed by the Sacks et al (1974) turn-taking model) simply because they violate the turn-taking rules, and in fact a number of studies have demonstrated that in some contexts interruptions, while appearing to disrupt the discourse on a formal level, do not function disruptively at all, being used instead as a strategy for demonstrating solidarity and involvement (eg Kalcik 1975, Natale et al 1979, Tannen 1984, Bilous and Krauss 1988), or to provide elaboration or support for the propositional content of the addressee's utterance (Kennedy and Camden 1983, Dindia 1987).

There is evidence to suggest that individual or group interactive styles or norms can affect the amount, distribution and functions of interruptions and overlaps. For example, Tannen (1984) reports that individuals and interactions characterised by a "high-involvement style" show a higher rate of interruptions and overlaps along a continuum than those characterised by a "high-considerateness style" (involving more attention to one-at-a-time rules of turn-taking). Personality and ethnic affiliation both influenced which style an individual tended to adopt in Tannen's data; differences between speakers in how interruptions were perceived to function led to numerous instances of communicative breakdown .

Given that interruptions are multi-functional, and that their function may vary according to differences in individual or group norms, then it is reasonable to infer that gender-specific norms may exist, and that male-female asymmetries in interruption reflect these, at least in part. There is a good deal of evidence which directly supports the existence of such gender-specific norms, co-varying with situation. Kalcik (1975) and Coates (1988) both report a high rate of "interruptions" in all-female groups engaged in "gossip" or shared narrative, where the interruptions functioned as part of the joint construction of topics. Ofshe (1981) found a much higher rate of interruptions in all-female groups than in male groups, with the difference greater during social than task activity. Pilkington (1989) in a small study of gossip in same sex groups, similarly found that all-female interaction was characterised by a large amount of simultaneous speaking and this was indicative of a high degree of involvement in the conversation. Edelsky (1981), looking at mixed groups, reports up to sixteen times more "deep overlaps" in "collaborative floor" type interactions (with roughly equal interaction from both sexes), compared with "one-at-a-time" type interactions (in which the males tended to dominate).

In such contexts, where often no one speaker holds exclusive rights to the "floor" (Edelsky 1981), the validity of the "one at a time" rule is open to question (Edelsky 1981, Coates 1988), and if "interruptions" in the formal sense occur, they are unlikely

to be interpreted as disruptive devices by the participants (Coates 1988). Instead, they would seem to function as signals of solidarity and involvement in the conversation, and reflect the co-operative, collaborative style of discourse most commonly associated with women. It has also been suggested that in certain other contexts, particularly informal occasions with larger groups, the "one at a time" turn-taking rule is relaxed, making interruptions more acceptable and frequent, for example where interactants know each other well (Kennedy and Camden 1983, McCarrick 1981) or where they are engaged in exploratory talk (Gilbert 1990).

This ties in with work that suggests that women are more at ease conversationally in private contexts than in formal public contexts (eg Coates 1986, Tannen 1990a, Holmes 1991). In the public domain interactive norms are less flexible, and interruptions are more likely to function as devices to gain the floor, whereas in the private domain, among equals, it is more possible for interruptions to be used as "a strategy for working together to produce shared meanings." (Coates 1986:107). This public/private distinction suggests that male control of talk via interruption in certain contexts is not simply a matter of male dominance, but of differences in preferred style, with women preferring a more polite, indirect, collaborative style rather than one based on power. This is borne out by research where status is treated as an independent variable (as discussed above in section 2.2.2.1): in contexts where interruptions tend to function as a means of controlling rather than facilitating talk, male "experts" (Leet-Pellegrini,1980) and "bosses" (Eakins and Eakins 1979, Woods 1988, Schick Case 1988) use interruptions more frequently than their female counterparts.

Differences between the "co-operative" female and "competitive" male interactive styles show up in both mixed and same sex interaction. Thus interruptions by women are more likely to reflect active listening (performing a similar function to minimal responses), while men's interruptions are more likely to function as turn-bids (Coates 1986). On the level of referential meaning, men are more likely than women to use "disconfirming" interruptions (where no acknowledgement is made of the previous utterance) in mixed dyads, and to use more "disagreeing" interruptions in same-sex dyads (Dindia 1987). Females also tend to be more oriented towards the social or affective aspects of interaction, while men tend to have a task orientation. In terms of interruption behaviour, this means that women are less likely to interrupt where this might disrupt the discourse, but more likely to interrupt in order to support the addressee in making a point. This female orientation towards process versus product (Gilbert 1990), together with the evidence showing that interruptions can function positively in interactive terms, explains the apparent contradiction between results that show females interrupting less often than men in some contexts, and more often in others.

2.3 *CONCLUSIONS*

The evidence surveyed in this chapter clearly supports the existence of distinctive female and male conversational styles. These are reflected in systematic differences in relative amounts of talk, in asymmetries in the number and distribution of interruptions and overlaps in both same-sex and mixed-sex interactions, and in characteristic differences in how interruptions and overlaps function in various

contexts. The fundamental difference between the more competitive male style and the typically cooperative female style helps explain the apparent contradictions in the research evidence. This is clearly illustrated by the different patterns for amount of talk in public and private contexts, and by the difference in how interruptions function in same-sex contexts, where gender hierarchies do not apply, and in mixed-sex contexts, where there is a tendency for males to use interruptions as a dominance device. "Dominating" the talking time, or overlapping and interrupting, as defined here, are not inherently negative conversational devices, but rather are some of a number of strategies that may be used either to dominate or to facilitate an interaction. The evidence clearly suggests, for example, that males are more likely than females to use interruption as a disruptive device in order to control and dominate an interaction, while particularly in same-sex contexts, females characteristically use it as a facilitative device to jointly construct a dialogue and to demonstrate solidarity and support.

Differences in interactive style, such as those found in turn-taking behaviour, have to be seen in the context of prevailing power structures, and it is surely not coincidence that the conversational style associated with men is aggressive and competitive, while that associated with women is supportive and cooperative (Cameron et al 1988:80, Holmes 1990).

Chapter 3

"WHAT DO YOU THINK?" STRATEGIES FOR GIVING FEEDBACK: AGREEMENT, DISAGREEMENT AND MINIMAL RESPONSES.

The literature on sex differences in conversational style outlined so far presents a clear picture: women tend to value the social or affective aspects of the interaction process to a far greater extent than men, and are thus more likely to demonstrate a range of cooperative, facilitative discourse strategies. Men, on the other hand, have been shown to orient themselves more to the content or perceived product of an interaction, thus paying less attention to the face needs of their conversational partners, and engaging in more competitive, often disruptive strategies. These issues have already been discussed in relation to some aspects of turn-taking and holding the floor. In this chapter, I will look at how these different interactional styles are reflected in the strategies which females and males typically use to provide referential and affective feedback to their conversational partners. I will focus in particular on the speech acts of agreeing and disagreeing, and on the use of supportive minimal feedback. Before reviewing the research evidence on sex differences in the use of these particular features, some discussion of the literature on conversational norms in relation to theories of politeness is required, in order to provide a theoretical framework for what follows.

3.1 *PREFERENCE FOR AGREEMENT*

There is evidence from a number of studies of talk that there is a clear "preference for agreement" in conversational interaction (Sacks 1973 (cited in Brown and Levinson 1978), Jackson and Jacobs 1980 (cited in McLaughlin 1984), Edmondson 1981, Wootton 1981, Levinson 1983, Pomerantz 1984, Brown and Levinson 1987, Sacks 1987, Houtkoop 1987, Bublitz 1988). This can be readily observed in the way speakers often structure their contributions to an interaction in order to maximise agreement and minimise or avoid disagreement. For example, Sacks (1987) observes that in question-answer sequences, "yes" is a much more frequent answer than "no", agreements generally occur early in a turn whereas disagreements are usually deferred and "weakened" in some way, and that questioners also attempt to formulate their questions so as to avoid a disagreeing response.

There is some evidence that this structural preference for agreement in adult conversation is less marked for children (of up to around 8 or 9 years) in certain contexts (eg Goodwin 1983, Maynard 1985), though Phillips (1987) found it was well-established in 10- to 12-year olds in a school setting. He notes that "children engaged in an educational argument seem to be oriented in favour of cooperativeness", using indirect methods such as token agreement (eg yes, well...) to dismiss other opinions (1987:384).

This "preference for agreement" is usually understood in a formal sense, as a concept which refers to "sequence and turn-organisational features of conversation" (Schegloff, Jefferson and Sacks 1977:362), and describes the structural characteristics of preferred (unmarked) and dispreferred (marked) pair parts (Levinson 1983). Sacks (1987) uses the term in this way, and sees it as part of a formal and anonymous apparatus for handling agreement and disagreement (1987:65).

It can, however, also be understood in functional terms; namely that speakers prefer, in the ordinary sense of the word, to produce the response that the first speaker would prefer to hear (Taylor and Cameron 1987:114). Thus there is a "functional connection between some dispreferred second parts of adjacency pairs...and the formal features of delay, mitigation, apology etc with which they are usually produced" (1987:114). A preference for agreement, in the functional sense, can best be explained by recourse to theories of politeness.

3.2 *POLITENESS*

Leech (1983) suggests that conversation is a goal-directed activity, where participants use conversational strategies to achieve both illocutionary and interactional goals. The latter include observance of the Cooperative Principle (Grice 1975), whose function is to ensure maximally efficient communication, and what Leech calls the "Politeness Principle", which derives from the desire "to maintain the social equilibrium and the friendly relations which enable us to assume that our interlocutors are being cooperative in the first place" (Leech 1983:82). This principle leads him to posit the existence of an "agreement maxim" (1983:132), whereby it is suggested speakers seek and maximise agreement wherever possible, and manage unavoidable disagreement by the use of various mitigating devices. Other writers have proposed similar maxims (eg Bublitz 1988:196).

Brown and Levinson (1987) also focus explicitly on the psychological function of the preference for agreement by tying it to the concept of interactional "face". "Face" is defined as "the public self-image that every member (of a society) wants to claim for himself" (1987:61). Its meaning is closely linked to that of "face" in the everyday terms "saving face" or "losing face". The participants in an interaction work to maintain their own face and that of the other participants, a cooperation which arises out of the "mutual vulnerability of face" (1987:61). Brown and Levinson distinguish two types of face which give rise to corresponding face wants, "which every member knows every other member desires, and which in general it is in the interests of every member to partially satisfy" (1987:62):

> **negative face:** the want of every "competent adult member" that his actions be unimpeded by others.
>
> **positive face:** the want of every member that his wants be desirable to at least some others. (1987:62)[1]

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1 Brown and Levinson define the respect for face as 'wants' rather than as norms or values, because it is not an unquestionable right; face does not have

Inevitably, speakers will often need to perform communicative acts that conflict with the face wants of the addressee and/or the speaker. Brown and Levinson term these "face-threatening acts" or FTA's (1987:65). FTAs may threaten negative face (eg orders, requests, strong negative emotions), or positive face (eg contradictions or disagreements, challenges, blatant non-cooperation such as disruptive interruption, showing inattention).

Brown and Levinson (1978, 1987) describe four "super-strategies" for doing FTAs. Positive and negative politeness are both "on record" strategies with redressive action which in some way "gives face" to the addressee (1987:69). FTAs can also be done "off record", so that the meaning is indirectly and ambiguously communicated (1987:69). For example, Bublitz (1988:196) discusses how the functional ambiguity of "hearer signals" (minimal responses) may be used "as a subtle and polite way of communicating that the hearer is unable to agree and could therefore only state his negative position", while still being capable of interpretation as a supportive utterance.

The "bald on record" strategy involves doing an FTA in the most direct and unambiguous way possible; namely with maximum efficiency in terms of Grice's maxims (1987:95). A speaker will choose this strategy if efficiency is more important than face considerations, so that face redress is seen as unnecessary. This may arise, for example, where an interaction has a task-oriented focus (1978:102), or where there is a significant imbalance in power between speaker and hearer.

3.3 *SEX DIFFERENCES*

It would seem, then, that a social concern with "face" and politeness is the main principle which motivates observed features of conversation such as indirectness and the preference for agreement. Insofar as this is proposed as a universal principle (Brown and Levinson 1978, 1987), it is reasonable to expect both sexes to agree more often than to disagree, and to use similar strategies for minimising the face threat of a speech act such as disagreeing. There is, however, a growing body of empirical evidence which suggests that there are in fact sex differences in how females and males tend to orient to the need to preserve face in an interaction: the face wants of the hearer seem to hold a higher priority for women than for men. This is consistent both with the common perception that women are more "polite" than men (eg Lakoff 1975, 1979), and with the differences already outlined between the cooperative, affiliative style associated with women and the more competitive, task-oriented style associated with men.

How are these differences realised in terms of conversational strategies? Holmes (1989:3) suggests that the strategies typical of female and male interaction can be broadly characterised as "talk-support" and "talk-inhibition" strategies respectively. Supportive feedback, confirming and agreeing, and "polite" disagreement are talk-

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to be fully satisfied, and also can be, and often is ignored. They also point out that a model based on 'wants' rather than needs allows an interactional dynamic to be introduced into the analysis.

support strategies which are sensitive to the need for maintaining face, while bald challenges and disagreements represent a talk-inhibition strategy which makes no allowance for face-redress.

3.3.1 *Agreement*

Confirming or agreeing with another speaker's assertion or opinion is a positive politeness strategy which emphasises solidarity, and has the function of encouraging and supporting contributions by other participants in an interaction. There is some evidence to suggest that women in mixed contexts use this strategy of "seeking agreement" (Brown and Levinson 1987) to a greater extent than men do (eg Strodtbeck and Mann 1956, Piliavin et al 1978, Leet-Pellegrini 1980, Edelsky 1981, Munro 1987). Studies on single-sex interaction have also demonstrated that women, particularly in informal contexts, tend to adopt a highly collaborative style including explicit agreements and confirmations, repetitions and sentence completions, which can function to directly support the addressee's point, or to elaborate on it in some way (eg Hirschman 1973, Kalcik 1975, Coates 1988, Pilkington 1989). At times, this style of interaction results in a cooperatively constructed dialogue or narrative (eg Kalcik 1975, Coates 1988), where no one interactant can be said to hold the floor exclusively (cf Edelsky 1981:415).

Male interaction on the other hand, is typically characterised by less agreement and more argument and disagreement. van Alphen (1987) confirmed these tendencies in a study of 9- and 12-year-old children: the girls' groups showed a focus on agreement and explicit approval, and seldom disagreed, whereas the boys, especially in the older group, far from supporting or agreeing with other speakers, often ignored their comments or explicitly challenged or disputed them. (These results are very similar to those of Hirschman 1973, for adults). In a descriptive study of the conversation of second-, sixth- and tenth-grade same-sex "best friends", Tannen also reports "more concern among the girls with avoidance of anger and disagreement"(1990b:73).

3.3.2 *Disagreement*

Disagreeing with another speaker runs counter to the agreement maxim (outlined above), and is a face-threatening act (Brown and Levinson 1987). As we have seen, all speakers, but women especially, tend to deal with this by maximising the potential for agreement in an interaction. However, it is not always possible or desirable to avoid disagreement; there are many occasions where a speaker wishes to place a difference of opinion "on record". When this happens, the speaker can either choose to go "bald on record" (Brown and Levinson 1987:60), by denying or contradicting with no attempt to soften or qualify the disagreement, or to use one of a number of positive or negative politeness strategies to mitigate the implied threat to face. From the evidence available, it seems that males and females typically deal with this situation rather differently.

3.3.2.1 *Bald disagreement*

As already mentioned, males seem to disagree more often than females, especially in same-sex interactions. An even more consistent finding, however, from a number of researchers, is that males are far more likely to use bald challenges or disagreements

than females. Goodwin (1988) in a study of school-age children's play interaction, found that although the girls' repertoire of interaction strategies included both cooperative and competitive forms, the girls did not generally use bald challenges, insults or threats, whilst these were commonplace among the boys. Brown (1980) in her study of a Mayan speech community also found that men went bald on record more often than women. In a small New Zealand study of male and female gossip, Pilkington (1989:18) found the male group was characterised by a "frequent, direct and repeated expression of disagreement or hostility". Schick Case (1988:52) in a detailed analysis of the interactions of a group of business managers, found that "the masculine style was an assertively aggressive one that proposed, opposed, competed....that pressed compliance on a listener, or led to an argument." Maltz and Borker (1982:212), reviewing research on male and female speech styles, list the following as some typical features of friendly interaction between men: "Loud and aggressive argument...verbal threats...challenges, put-downs, insults and other forms of verbal aggression." They conclude that "challenges rather than statements of support are a typical way for men to respond to the speech of other men", but that these are not understood as signs of real conflict (1982:212).[2]

This aggressive male-male style, with its blatant disregard for the rules of politeness, seems at times to function as a means of expressing solidarity, much as the collaborative style of women's interaction does in all-female groups. Such an interpretation is supported by other research such as Labov's (1972) study of ritual insults in adolescent boys' groups, and Kuiper (1991) on the language of insults in New Zealand male sporting formulae, and also by sociological descriptions of "male mateship" (eg James and Saville-Smith 1989). It seems probable that there is also an element of covert prestige at work here, given the evidence that women are generally more polite in their use of interaction strategies. However its main function would seem to be as an assertion of dominance, a pattern which probably has its roots in childhood socialisation in single-sex boys groups, which are hierarchically organised, and where speech is used as a means of asserting status, and attracting and maintaining an audience (Goodwin 1980, 1988, Maltz and Borker 1982:207, Whiting and Edwards 1988).

3.3.2.2 *Polite disagreement*

While men use the "bald on record" strategy for expressing disagreement relatively often, women seem to avoid bald, explicit disagreement in most situations (eg Kalcik 1975, Goodwin 1980, Maltz and Borker 1982). Where disagreement must be placed "on record" they are likely to use one of a number of politeness strategies to "redress" the face threat: either the positive politeness strategy of avoiding disagreement , which includes devices like "token agreement", telling white lies, and hedging opinions, or negative politeness strategies such as apologising and indirectness (Brown and Levinson 1987).

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2 This is not to say that females never express disagreement or conflict baldly; rather, that they tend to do so far less often, and in fewer situations, than males. I would suggest that bald disagreement by females is most likely to occur in highly informal, mixed-sex contexts where the participants know each other well (eg Stubbe 1978, Tannen 1984).

A number of studies provide evidence that women are indeed more likely to soften or minimise disagreement in these ways. Swacker (1979) found that women used more politeness strategies such as hedged disagreements or indirect questions than men in conference question-answer sessions, and a similar pattern has emerged from a study of public meetings in New Zealand (Holmes and Stubbe forthcoming). Schick Case (1988:53) describes the speech of women in her study as being more polite and indirect, and using many softening devices such as tags and modal constructions. Coates (1988:114) presents evidence that women in single-sex groups exploit epistemic modal forms more than men, and suggests that they use them to mitigate the force of an utterance to avoid coming into open disagreement with other speakers. Munro (1987) found that women in an ESL classroom also used more "softened" disagreement than men, using a range of strategies that included hedges, questions and token agreements.

Women, then, would seem to have a stronger "preference for agreement" in interaction than men, as indicated by the evidence that they are more inclined than men both to seek agreement and avoid explicit disagreement. As with the male style, Maltz and Borker (1982:206) suggest that this can best be explained by sex-differentiated peer socialisation patterns, which train girls to criticise and argue in socially acceptable ways: "Girls learn to direct things without seeming bossy, or they learn not to direct.... Conflict and criticism are risky in the world of girls."

3.3.3 *Minimal responses as supportive feedback*

Minimal responses (also referred to in the literature as backchannels (Yngve 1970), feedback (Edelsky 1981), listener responses (Dittman 1972), and hearer signals (Bublitz 1988)), will be the final strategy discussed here. Minimal responses are a talk-support strategy which signal active listening, and provide positive affective feedback to the speaker.[3] They are a ubiquitous feature of conversation, along with non-verbal attention signals like head nods. Edmondson (1981:156) in fact posits a conversational maxim to account for them: "When you can support your interlocutor during his (sic) turn at speech, do so!"

Minimal responses include tokens such as mhmm, mm and yeah, and are usually inserted precisely throughout the stream of talk, without in any way representing an attempt to take the turn. Dittman's (1972) finding that young children do not produce minimal responses nearly as frequently or place them as accurately as adolescents and adults is evidence that providing this kind of feedback requires a significant degree of skill, a fact which is also commented on by Fishman in her discussion of the woman's role in the couple-interactions she studied (1978:40).

There is clear evidence that women use more minimal responses and use them with greater frequency than men in mixed contexts (Strodtbeck and Mann 1956, Dittman 1972, Hirschman 1974, Zimmerman and West 1975, Fishman 1978, Stubbe 1978, 1980, 1983, Leet-Pellegrini 1980, Hyndman 1985, Munro 1987, Roger 1989, Gilbert

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3 Minimal responses may also have other functions, which need not concern us here, but which will be touched upon in Chapter 6.

1990). For example, Hirschman (1974) in a study of both same-sex and mixed-sex pairs, found that women produced 53 tokens of mmhmm to men's 8; and Hyndman (1985) in a New Zealand study of dinner-table conversation between flatmates reported that women produced 195 examples of supportive feedback versus 45 from the men.

In same-sex contexts, women also produce a lot of supportive minimal feedback. Hirschman found in fact, that women used more mmhmms in same-sex conversation than in mixed-sex interactions. Coates (1988) notes that minimal responses are clearly a supportive feature in her same-sex data, although they are used in two different ways: in "interaction-focused" sections of the discussions, they are used as active attention signals, while in the narrative or "information-focused" sections they are less frequent, but are used in a sensitive way, for example to signal agreement to a topic shift, or to mark active agreement with a speaker's summing up. Coates (1988:107) concludes: "In all-female groups it seems that the use of these linguistic forms is further evidence of women's active participation in the joint production of text."

Maltz and Borker (1982:202) offer an interesting twist to the obvious interpretation of this evidence, that women are more supportive conversational partners than men. They hypothesise that minimal responses have very different meanings for men and women: for women they mean "I am listening; please continue", whereas for men they have a stronger meaning, approximating "I agree" or "I follow your argument so far". This would explain the difference in frequency of usage, but it also suggests the possibility of real miscommunication on an affective level. If this is in fact the case, then a man who produces only the occasional mhmm is not necessarily inattentive by virtue of that fact - he simply does not always agree. Of course this is only speculation at this stage, but it strikes me that even if this does prove to be the case, the fact remains that men produce far less vocalised supportive feedback than women.

3.4 *CONCLUSION*

In conclusion, the available evidence clearly suggests that there are indeed differences in the ways in which females and males typically provide referential and affective feedback to their conversational partners. Women pay more attention to the face wants of other speakers, with the result that they demonstrate both a strong preference for agreement and a strong dispreference for explicit disagreement compared to men. While the differences are by no means sex-exclusive, the claim is certainly justifiable that the "talk-support" strategies of supportive minimal feedback, confirming and agreeing, and polite disagreement are by and large characteristic of a female style, while the "talk-inhibition" strategy of bald challenges and disagreement is primarily a characteristic of male style. Men place less emphasis on the face wants of their fellow speakers, focusing instead on the immediate task and content of the interaction, and perhaps also attempting to enhance their own status. Women by contrast, with their typically supportive, co-operative linguistic behaviour, facilitate the processes of interaction, both linguistic and social. The following question posed by Cameron,

McAlinden and O'Leary (1988) in the conclusion to their study of another "talk-support" strategy, facilitative tag-questions, provides an appropriate and thought-provoking conclusion to this discussion. They ask:

> ...whether the role of conversational facilitator is a sub-cultural norm of all-female groups, a burden shouldered by subordinate speakers, or a strategy used to control ongoing talk - or, of course whether it is all of these things at different times and in different settings.
>
> (1988:91)

Chapter 4

LEARNING THROUGH TALK

4.1 *INTRODUCTION*

This chapter draws together the evidence on language and gender already summarised, with some aspects of the extensive body of research on classroom interaction, in order to explore the implications of sex differences in interactional style for children's learning in the classroom context, and to provide a framework for the qualitative analysis of the data in Chapter 8. I will review the evidence for the claim that differences in language use work to the disadvantage of girls in schools, in both teacher-directed contexts, and in peer interaction. This will involve looking at how the typical characteristics of male or female style relate to both children's access to talking time, and to the quality of classroom discussion in terms of the sorts of talk that encourage conceptual development most effectively. Some of the implications of this evidence for teachers and pupils will also be discussed. The final section of this chapter summarises the main points to come out of the literature review in the first four chapters, and sets out the detailed research questions and hypotheses to be investigated in the remainder of the thesis.

4.1.1 *Language in the school curriculum*

As the focus of educational practice has shifted from the direct imparting of knowledge and skills by teachers to more learner-centred approaches, spoken language has become an increasingly important medium in the classroom. The view of developmental psychologists that the active construction of knowledge by the learner is of critical importance (Cazden 1987), and that spoken language therefore plays a central role in learning and cognitive development (eg Piaget 1980), has become widely accepted by educationists since the 1960's. There is a recognition that in addition to its communicative function, talk is also "the major means by which we consciously organise experience and reflect upon it." (Barnes 1976:84). Pupil talk is therefore as much a prerequisite to certain kinds of learning as experiences built around practical activities, observation, listening or reading; it enables children to make their understandings explicit, and to relate new experiences to existing knowledge (Marland 1977, Barnes 1976). Concepts must be internalised before they are truly learned, and talk is a vital catalyst for this internal change.

There is evidence that discussion by pupils, whether teacher-directed or in peer groups, is of particular importance (and most effective) in contexts where children have to solve problems or grapple with complex ideas and relationships (Swann and Graddol 1988). By implication, where pupils have less access to this kind of talk, they must have fewer opportunities for successful learning. Thus evidence from research on classroom interaction patterns (eg Flanders 1970, Sinclair and Coulthard 1975) which showed teachers taking up to two thirds or more of the talking time, has influenced the development of teaching methods which increase the amount of time

available for pupil talk, ranging from the incorporation of small group discussion work into traditional programmes, to fully-fledged activity-based programmes.

4.2 *GENDER AS A VARIABLE IN TEACHER-PUPIL INTERACTION*

4.2.1 *Access to talk*

Reducing the dominant influence of the teacher on classroom interaction does not, however, alter the fact that classroom talk is also distributed unequally among pupils themselves, whether in teacher-led discussion or peer-group interaction. In particular, there is considerable evidence that gender is a major variable in determining who has the most access to teacher-led talk from pre-school through to tertiary level: predictably, the classroom context mirrors the pattern of male dominance of talking time found in society at large (Brophy and Good 1974, Safilios-Rothschild 1979, Coates 1986, Craig and Pitts 1990). Thus girls contribute far less, on average, than boys to classroom discussions in both whole-class and small group interaction (eg Spender 1980b, 1982, Stanworth 1981, French and French 1984, Swann and Graddol 1988), and receive less feedback from teachers, whether positive or negative (eg Neale 1978, Spender 1982, Coates 1986). For example, it has been estimated that boys normally get as much as two thirds of their teacher's attention (Spender 1982). Moreover, studies which explicitly take into account the effect of individual differences (ie not all boys are talkative, not all girls are quiet), confirm that gender nevertheless accounts for a substantial asymmetry between girls and boys (French and French 1984, Croll 1985, Swann 1988, Swann and Graddol 1988).[1]

4.2.2 *Quality of interaction*

Perhaps more worrying than differences in quantity, is the quality of the interaction between girls and teachers: not only do girls generally get a smaller share of the talking time, but they tend to be particularly excluded from the type of exploratory discussion which is most likely to lead to learning. There is evidence that teachers (at all levels) are more likely to adopt an open-ended approach with male students, challenging them to solve problems, encouraging them to explore ideas and have extended conversations with the teacher; in contrast, interaction with female students tends to be relatively "closed", and girls are more likely to have things done for them (Serbin and O'Leary 1973, cited in Sadker 1985; Safilios-Rothschild 1979).

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1 Individual differences between pupils (personality, intelligence, motivation) obviously play a part, and cultural differences are also important: for example, not all cultures consider talking to be the main route to learning (eg Philips 1972, Nicol 1985). The reported result of unequal participation in a school culture which places a high value on talk is often poor academic achievement, possibly because pupils adopt other learning strategies (eg rote-learning, passive listening, and silent observation), which do not allow them to use language "to learn to interpret, explore and gain new knowledge." (Jones 1986), and which are not rewarded under the prevailing values of the system.

Examples of this difference can be seen both in teachers' questioning strategies, and in the type of feedback typically provided to male and female students. In question-answer sessions teachers tend to ask boys for answers more often than girls (Stanworth 1981, cited in French and French 1984; Coates 1986; Sadker 1985). They also ask different types of questions; for example, Swann and Graddol (1988) found that in teacher-led small group discussions, girls were mostly asked rhetorical yes-no questions, while boys were more likely to be asked challenging, open-ended questions. Research has shown that such higher order questions are of greater educational value (Redfield and Rousseau 1981, cited in Cazden 1987). The quality of responses to pupil answers and written work also varies systematically: when girls do receive a response, it tends to be relatively unelaborated, imprecise and brief (Sadker 1985), and comments tend to be peripheral (eg presentation of work, effort), rather than providing good evaluative feedback (Jenny Neale 1978); boys are much more likely to receive longer, more specific responses which encourage them to discover solutions for themselves or to elaborate their thinking.

4.2.3 *Sex differences in interactional style*

These by now well-documented phenomena are usually accounted for in two ways. Firstly, that teachers are "socially and psychologically predisposed" (French and French 1984) to give preference to male pupils and to respond differently to male and female pupils. Secondly, that the "differentiated communicative competence" of girls and boys enables boys to dominate in the classroom (Coates 1986:156) and to participate more actively. These two factors are not, of course, mutually exclusive, but can rather be seen to work together in a complex interrelationship.

It is clear that teachers do behave differently towards boys and girls: insofar as they interact with pupils in ways conforming to social expectations, part of the hidden curriculum of classroom talk includes the learning of gender-appropriate roles in public talk (Swann and Graddol 1988:64). Thus, the fact that teachers are more inclined to solicit contributions from boys at the expense of involving girls, conveys the message that girls should expect a lower level of participation than boys. Teachers' acceptance of boys "chipping-in", while girls are more likely to be reprimanded for calling out (Swann and Graddol 1988), also teaches girls that they should be quiet and obedient: loud behaviour is inappropriate for girls, but it is acceptable for boys to be assertive and grab teacher attention (Coates 1986:156). Lack of feedback or uncritical acceptance of girls' contributions suggests that their ideas have little value, and further discourages active participation in learning by girls.

These dynamics seem to operate largely on a sub-conscious level. Studies of teachers' perceptions of how they interact with female and male pupils show that most are unaware of how much attention they actually give to boys (Kelly et al 1984, cited in Coates 1986). Moreover, teachers often do not manage to achieve equality in their interactions with boys and girls, even when they believe they have done so. This may also reflect differing expectations of how big a share boys and girls ought to have, as illustrated by a feeling commonly reported by teachers who did successfully achieve a balance, that they had given an unfair share of their attention to the girls (eg Kelly et al 1984, Whyte 1984, cited in Coates 1986).

At the same time, the behaviour and expectations of pupils also have a part to play. As already outlined in previous chapters, children's early socialisation in same-sex peer groups means they acquire sex-preferential styles of interaction, with different norms about when and how much to speak, and the appropriate use of strategies for speech acts like stating opinions and arguing. This contributes to different outcomes for boys and girls in mixed-sex classrooms.

While girls tend to conform quite closely to school behavioural norms such as quietness, boys tend to be noisy and less disciplined, which in itself guarantees that they will get more teacher attention. This may be a direct result of their behaviour patterns, but it may also be an indirect outcome; for example, experienced teachers have been observed to regularly scan their class to monitor boys' behaviour for signs of potential problems, with a resultant bias in gaze direction and soliciting of contributions from boys (Swann and Graddol 1988). Girls themselves may be hostile towards those who adopt a more assertive role, thus further reinforcing girls' silence in class (Coates 1986:156).

In addition, boys are often more active participants in discussions than girls, making greater use of a range of strategies which work to secure the extended attention of the teacher and monopolise the interaction. These include such things as calling out answers to questions, making comments and guesses and asking questions (Clarricoates 1978, 1980, Stanworth 1981, Spender 1982, Sadker and Sadker 1985), being first with their hand up (Swann and Graddol 1988), and "sidetracking" the teacher by making newsworthy claims or taking up unusual positions on a topic (French and French 1984).

The interactive style and classroom behaviour typical of boys, then, means they make heavier demands on the teacher's time and hence get more than their fair share of attention and talking time; the types of responses they get are also more likely to promote active participation in the learning process. As a group, girls are clearly at a disadvantage in classroom interaction with teachers, both in terms of their access to talk and its quality. The behaviour and expectations of both the teacher and pupils interact to create a situation where an unequal distribution of talk is seen as normal, and where boys are expected to participate more actively than girls, thus reflecting and maintaining the gender-linked patterns of interaction observed outside the classroom.

There are advantages for all learners if teachers address this issue, and it is indeed possible to effect change. For example, the GIST study in Britain (Coates 1986) showed that teachers could reduce the asymmetry in teacher attention to boys and girls in whole class contexts. Sadker and Sadker (1985) report a study in the United States of sixty teachers who were given training to establish gender equity. They found that, not only did the training succeed in largely eliminating male bias, but classes taught by these teachers had a higher level of intellectual discussion, with more effective and precise teacher responses for all students. Thus a better deal for the girls led to a better deal for all.

4.3 *PEER INTERACTION*

When students interact exclusively with their peers, the nature of classroom talk changes. The educational value of such small group and pair discussion has been argued on two grounds. Firstly, peer interaction is valuable, simply because it provides greater opportunities for pupil talk: peer interaction in small groups or pairs allows pupils who otherwise participate relatively little, to gain a larger share of the available talking time (eg shy or quiet individuals, girls). Secondly, it has been suggested that peer interaction provides the most favourable context for exploratory talk, and as such supports forms of learning which take place less readily in the whole-class context (Barnes 1976:200). Before examining how differences in styles of interaction might affect the outcomes of peer interaction for girls and boys, it will be useful to look more closely at the characteristics of exploratory talk.

4.3.1 *Exploratory talk*

Peer interaction has importance beyond simply giving individuals greater opportunity to verbalise ideas; it also influences the quality of discussion in terms of potential learning outcomes. It allows students to question and argue with each other in ways that would be inappropriate and structurally difficult in teacher-led discussions (Cazden 1987), and the talk tends to be less formal and more exploratory in nature. A number of researchers have suggested that peer interaction therefore provides a better context, in general, for learning through talk than do teacher-led discussions. Although the exact relationship between talk and learning remains to be empirically demonstrated (Cazden 1987), there is good educational evidence to suggest that the thorough understanding and integration of new information with old knowledge is fostered by exploratory talk, which is characterised by a questioning, open-ended, collaborative approach to problem-solving, and is most likely to be observed in peer discussions (Britton 1970, Stubbs 1976, Barnes 1976, Barnes and Todd 1977, Atkin 1978, Piaget 1980, Cazden 1987, Phillips 1987, Gilbert 1990).

The most complete account of exploratory talk, based on empirical observation of how children learn through talking in peer groups, has been provided by Douglas Barnes (1976, Barnes and Todd 1977). He defines it as talk that allows students to explore and develop their ideas through the joint negotiation of meaning. It is characterised as "first draft" talk (rather than the "final draft" talk more typical of pupil-teacher interactions), because it involves the verbalisation of ideas which may not yet be fully formed. Such talk is characterised by frequent hesitations, rephrasings, false starts and changes of direction, and is often quite inexplicit (Barnes 1976:28).

4.3.1.1 *Collaborativeness*

The key characteristics of exploratory talk are its collaborative nature, and the fact that it is focused on solving a problem or coming to grips with a particular topic. Collaborative interaction has a number of markers, according to Barnes, such as links between utterances, frequent questions, attentiveness to the social needs of others, and a low level of competition for the right to speak. These relate to four types of "collaborative move": initiating, eliciting, extending and qualifying one's own or another's contribution (Barnes and Todd 1977).

4.3.1.2 *Cognitive strategies*

This collaboration makes possible the cognitive strategies which allow students to work together in clarifying their understanding of a given topic. By talking together, children can build on one another's opinions and observations in a way that is not possible on their own. thus allowing them more readily to relate their own experiences to school knowledge (Barnes 1976). They can make use of powerful strategies which lead to learning, such as constructing questions, setting up hypotheses, using evidence, and interrelating and clarifying different viewpoints (Barnes and Todd,1981, Phillips 1987).

Effective exploratory talk of this kind is facilitated by an open-ended approach to the task at hand. Interactants often make use of a "hypothetical mode" of talk (Barnes 1976, Phillips 1987), which is characterised by the non-evaluative "brainstorming" of ideas and opinions, and questions or tentative statements which invite elaboration by others. The hypothetical mode, together with the "experiential mode" (Phillips 1987) where participants recall a personal experience or share background knowledge, help to provide a shared framework which encourages children to "...reflect, hypothesize, evaluate, and order. They are encouraged, in fact, to become actively involved in their own learning." (Phillips 1987:385). An open approach also allows learners to see possibilities beyond those the task explicitly requires, and to persevere in trying to organise ideas, which often produces lengthy discussion on a topic (Barnes 1976:67).

4.3.1.3 *Cognitive conflict*

Another characteristic of good exploratory talk is the way participants make use of each other's contributions by extending or modifying them, and deal with disagreement in open discussion to try to reach verbal clarification of their differences (Barnes 1986, Philips 1987). Barnes and Todd (1977) consider one of the strengths of small group work is that it forces learners to take other viewpoints into account, and from them to build up a more complex model. In their descriptive study of small group peer interaction in junior secondary classrooms, this strategy was used by the more successful groups: "...instead of rejecting another person's point of view as irrelevant or "wrong", they collaboratively utilised each other's opinions, not wholesale but with modifications, to become part of a shared understanding" (69).

Less successful groups in the Barnes and Todd study tended, in contrast, to use a closed approach in their discussions. This was characterised by few questions, a less analytic approach to the task, activities limited to those explicitly asked for, and less elaborated discussion (typically either dogmatic assertions leading to simple acceptance or rejection (see also Phillips 1987), or rapid consensus with infrequent disagreement and little reference to previous contributions); the learning outcome in such cases was poor, with students demonstrating little or no engagement with the topic, satisfaction with a low level of explanation, and short discussions.

There is thus some empirical support for the view of Piagetian cognitive psychologists that talk among peers, with its relatively equal power relationships, encourages "cognitive conflict" which not only promotes conceptual learning, but is an essential factor in cognitive development (Piaget 1980, cited in Cazden 1987). But the use by some students of less effective strategies shows that peer interaction is not enough in

itself to produce learning through talk. Although "...the expression of a dissident opinion, provided it is understood as a qualification and not as a dismissal, plays a crucial part in advances in understanding" (Barnes and Todd 1977:36), this depends on a sense of shared validity, which in turn depends on certain social skills.

4.3.1.4 *Social skills*

The basis for successful exploratory talk is collaboration; successful collaboration in turn is based on the use of facilitative interactional strategies. While social relationships are not, as in ordinary conversation, a main focus of exploratory talk, they nevertheless affect a group's ability to learn from a discussion. For example, Barnes and Todd (1977:72) observed in their study that groups who took a competitive approach to the discussion (eg competing for the floor and to carry out procedures, belittling and rejection of each other's contributions, the exchange of insults) produced less effective discussion than groups whose style was more collaborative.

The social or affective strategies they found to be helpful in producing collaboration included: giving support and encouragement (eg eliciting contributions, responding thoughtfully, explicit agreement); managing conflict constructively (eg polite disagreement, acknowledging and relating alternative viewpoints, raising new questions, qualifying); appropriate control of progress through task; and a low level of turn-competition. Such strategies provided the basis for the open-ended approach that led to successful collaborative learning.

4.4 *GENDER AS A VARIABLE IN PEER INTERACTION*

It is clear from the summary above that peer interaction as a context for exploratory talk has unique value in promoting conceptual learning. However, its processes and outcomes are not necessarily the same for all pupils. As in the more formal context of teacher-directed discussion, differences in interactive style influence both the quality of and access to talk achieved by girls and boys in small group and pair discussion.

4.4.1 *Quality of discussion*

When the evidence on sex differences in style and the characteristics of effective exploratory talk are drawn together, a striking correlation between the two becomes apparent. The essential characteristic of female style is its facilitative nature; women and girls are more supportive of their conversational partners, they interrupt less often, they use less direct disagreement strategies, they solicit contributions, they expand on and elaborate other speakers' utterances, and they are concerned with the process of interaction, not only with its outcome. As we have seen, these are all features of the collaborative type of discourse that has been observed as a prerequisite for successful, open-ended exploratory talk. Conversely, the male style tends to be more competitive, with less attention to the social needs of others, as reflected in a greater tendency to interrupt, to offer little feedback or other support, to disagree baldly, and to focus on the task rather than the interaction. These interactional features reduce the amount of collaboration that is possible, and hence the potential for effective learning through talk. It seems reasonable to conclude, therefore, that it is girls, with their typically

collaborative style of interaction, who are most likely to provide a favourable context for successful exploratory talk.

Although this conclusion is largely deductive, there is some empirical evidence to support it. While gender was not a focus of Barnes' (1976) study, it is at least suggestive that the group which best characterised his definition of good exploratory talk consisted of girls, while the least successful group included only boys. (Of course there were also many examples of girls being less successful, or boys more successful; these distinctions are not sex-exclusive). Gilbert (1990), studying exploratory talk in a New Zealand secondary science class, also confirms this tendency; moreover, boys interacting in a mixed sex group had considerably more opportunities to engage in exploratory talk than boys in a same-sex group, and received more positive feedback, while the girls in this group enjoyed correspondingly fewer opportunities for exploratory talk than those in a same-sex group, and spent more time listening and giving feedback to others. There is then, some support for the suggestion made above that girls are more likely than boys to have the necessary interactional skills to facilitate exploratory talk.

It has been suggested, on the other hand, that the lack of direct competitiveness in girls' interactions limits their opportunities for practising negotiational skills, and by extension, makes their interactions less conducive to creating the "cognitive conflict" necessary for learning to take place (eg Lever 1976, Gilligan 1982 cited in Goodwin 1988). This point is debatable. Girls do compete, negotiate and disagree, but their methods of managing such conflict are often different to those employed by boys (Maltz and Borker 1982, Goodwin 1988). The evidence on exploratory talk summarised here certainly suggests that a co-operative environment encourages rather than discourages the sort of cognitive strategies that lead to learning.

It is true, however, that sometimes a concern with social harmony can lead to a failure to challenge a misleading conception (eg responding with an agreement, thus providing social support instead of critical evaluation). For example, Barnes and Todd (1977:74) give the example of a girls' interaction, where the participants support and extend each other's contributions, thus demonstrating good social skills, yet are too easily satisfied with a simple solution, compared with the more complex solutions of other groups which derived from the interchange of points of view. They conclude that groups which are <u>too</u> preoccupied with consensus are likely to learn less from their discussion.

A collaborative style of interaction, then, is a necessary, but not a sufficient basis for the cognitive strategies that lead to learning. However, where the problem-solving focus of exploratory talk is maintained, there is good reason to suppose that the social and interactional skills typical of female style provide a better basis for exploratory talk than the more competitive male style.

4.4.2 *Access to talking time*

In terms of access to talking time, peer interaction, particularly in same-sex contexts, clearly provides a more favourable context for girls to talk than the more formal and public context of class discussion, or even teacher-directed small groups. The style of interaction typical of peer groups is one with which girls are more likely to be

comfortable, as it is based on cooperative norms; even when adopting an argumentational style, one of the most common modes of classroom peer interaction, there is evidence that children are oriented towards co-operativeness (Phillips 1987), and in a small peer group there are fewer participants competing for the floor. In theory then, peer interaction should help redress the balance for girls with respect to their access to talking time.

While there is no doubt that peer interaction does make more talking time available to individual learners, (and that it may be the main context for girls to engage in exploratory talk, as they are largely excluded from it elsewhere) it cannot be assumed that gender inequalities no longer exist in this context. In mixed groups, there is evidence that boys and men are still likely to dominate in many cases,as they import their "public" competitive style into this context too (Gass and Varonis 1985, Munro 1987, Wood Bell and Lees 1989, Gilbert 1990). Thus, while an improvement on whole-class discussion for girls, small mixed-sex discussion groups do not guarantee girls more equal access to talk.

4.5 *CONCLUSION*

This chapter has explored the relationship between sex differences in interactional style and how children learn through talk in classrooms. The evidence on styles of interaction leads to the conclusion that the female style is more likely to be collaborative and socially supportive, while the male style is based on more competitive norms. This has two main implications for the way boys and girls learn through talk in classrooms. Firstly, it affects how much they get to talk; the more assertive male style ensures that boys tend to dominate the available talking time, whether in whole class or small group discussions. Secondly, there are some fundamental implications for the quality of that talk as it relates to learning outcomes: it seems that many of the skills required for successful exploratory talk are more characteristic of the female speech style, yet girls do not benefit from this to the extent that could be expected.

Girls are likely to have the collaborative skills required for effective learning in a small group, but, without a responsive partner, will be able to use them to less effect in mixed interaction. There are two reasons for this. Firstly, the interactive style typical of boys often gives girls less access to the floor. Secondly, boys are less likely to employ a collaborative interactive style and the associated social and cognitive strategies (such as eliciting contributions from others or extending and qualifying others' contributions), that seem to be a prerequisite for learning through talk in peer groups, thus potentially limiting the effectiveness of this type of interaction.

It is somewhat ironic that while boys' more competitive, assertive style is of itself less likely to promote good exploratory talk, it nevertheless allows boys as a group to gain more quality talking time in mixed-sex interactions, with a correspondingly negative effect on girls' access to the kind of classroom talk most likely to lead to learning.

4.6 *RESEARCH QUESTIONS*

The review of the literature in Chapters 1 to 4 leads to a number of conclusions, which may be summarised as follows. It is clear that there are differences between typical male and female conversational styles, and that these differences probably have their basis in different sets of interactive norms developed in childhood. Male norms tend to produce an instrumental, competitive style of interaction, while female norms place more emphasis on the affective and co-operative aspects of interaction. The existence of these different styles is reflected in various aspects of interaction such as turn-taking behaviour, and strategies for providing feedback. Thus there are systematic differences in how much males and females talk in various contexts, and in the strategies they use to gain turns at talk, to encourage others to participate in a conversation, and to provide referential feedback. These differences also affect the outcomes of interactions. For instance, in public contexts, males tend to dominate, while in private or less formal contexts, males are less facilitative than females, who tend to do more of the "interactional work". The same interaction patterns are also reflected in classrooms, and as shown in this chapter, this can lead to inequalities in educational outcomes, which tend to disadvantage girls. There is, however, some evidence that the strategies characteristic of the female speech style are more likely to facilitate successful exploratory talk. The existence of sex differences in interactional style therefore has important implications for the way children learn through talk.

On the basis of this evidence, I established two broad objectives for my own research. First, I set out to discover whether there was evidence of sex differences in the interactional styles of a particular group of New Zealand children in a classroom context, with particular reference to strategies for turn-taking and the provision of feedback. I was interested in looking at this question on two levels: firstly, whether there were differences both in terms of the specific strategies used and how these strategies functioned in context; and secondly, whether there was evidence of the existence of different norms for interaction. These research questions led to the formulation of a number of specific hypotheses, expressed as predictions based on the evidence summarised in the literature review. This set of hypotheses was designed to be tested by means of a quantitative analysis of the data, the results of which will be reported in Chapter 7. The hypotheses are included here as they form the basis of the research methodology described in the next chapter, but it should be noted that the way in which the linguistic variables, in particular those of interruptive forms and overlaps, have been defined, is relevant to the form the hypotheses have taken; these definitions and their rationale are discussed fully in Chapter 6.

4.6.1 *Hypotheses to be tested by quantitative analysis*

4.6.1.1 *Amount of speech*

Although previous research suggests that males tend to talk more than females in more formal and public contexts, as outlined in Chapter 2 (section 2.1) this tendency is far less clearcut in less formal and public contexts, perhaps because females feel more comfortable about talking in such contexts, and/or because they expect (or are expected) to do more of the interactional work. In the classroom, small group or dyadic peer interaction provides the closest parallel to these less formal contexts (see

section 4.3 above). Therefore, particularly where the task-type or topic is one likely to appeal to girls, it is not unreasonable to predict that girls will dominate the talking time in this type of mixed-sex interaction. Thus, the first two hypotheses make the following predictions:

HYPOTHESIS 1: Girls will take a greater proportion of the available talking time than boys in informal, small group/dyadic MS (mixed-sex) contexts.

HYPOTHESIS 2: Talking time will be more equally distributed between participants in SS (same-sex) than in MS contexts.

4.6.1.2 *Interruptions and overlaps*

The next set of hypotheses is based on the research summarised in Chapter 2, which showed a clear tendency for males to interrupt more than females, as predicted in Hypothesis 3. Hypotheses 4a and 4b are included on the basis of evidence of differences in how interruptions function, which suggests that males are more likely to use interruptions as a disruptive device in order to control or dominate an interaction, while, particularly in same-sex contexts, females are more likely to use them as a facilitative device.

HYPOTHESIS 3: Girls will tend to produce a lower rate of interruptive forms than boys in both SS and MS contexts.

HYPOTHESIS 4a: A greater proportion of girls' interruptive forms will be supportive rather than non-supportive, in both SS and MS contexts.

HYPOTHESIS 4b: A greater proportion of boys' interruptive forms will be non-supportive rather than supportive, in both SS and MS contexts.

Hypothesis 5 predicts a difference in the opposite direction, on the basis of certain studies summarised in Chapter 2, which showed women overlapping more than men (eg Beattie 1981, 1983, Stubbe 1978). These findings suggest the interpretation that females may use overlaps in order to gain turns at talk, in preference to the more disruptive strategy of interruption . This interpretation is tested more explicitly by means of Hypotheses 6a and 6b.

HYPOTHESIS 5: Girls will tend to overlap their interlocutors at a higher rate than boys in both SS and MS contexts.

HYPOTHESIS 6a: A greater proportion of girls' overlaps will be supportive rather than non-supportive, in both SS and MS contexts.

HYPOTHESIS 6b: A greater proportion of boys' overlaps will be non-supportive rather than supportive, in both SS and MS contexts.

4.6.1.3 *Supportive minimal feedback*

As summarised in Chapter 3, there is clear evidence that females tend to use more supportive minimal responses than males in both mixed- and same-sex contexts. This evidence provides the basis for Hypothesis 7.

HYPOTHESIS 7: Girls will tend to produce a higher rate of supportive minimal responses (SMR's) than boys in both SS and MS contexts.

4.6.1.4 *Agreement and disagreement*

Finally, the evidence that females are more inclined than males to seek agreement and avoid explicit disagreement, also cited in Chapter 3, gives rise to Hypotheses 8, 9, 10a, and 10b.

HYPOTHESIS 8: Girls in both SS and MS contexts will produce more agreeing and/or fewer disagreeing responses than boys.

HYPOTHESIS 9: Girls will produce a higher proportion of opinion responses which are agreements rather than disagreements relative to boys.

HYPOTHESIS 10a: Boys in both SS and MS contexts will produce more "bald" disagreements as a proportion of total disagreement responses than girls; this tendency will be most marked in the SS context.

HYPOTHESIS 10b: Girls in both SS and MS contexts will produce more modified disagreements as a proportion of total disagreement responses than boys.

4.6.2 Research questions to be investigated by qualitative analysis

My second objective was to investigate whether any differences that emerged from the quantitative analysis could be linked to the way girls and boys learn through talk in peer interaction. This led to three specific research questions based on the evidence reviewed in sections 4.2 and 4.3 of this chapter. Firstly, whether there was evidence from my data to support the hypothesis that girls would tend to provide a more favourable interactional context than boys for the production of effective exploratory talk; secondly, whether and how the particular interactional strategies used by the children in this study facilitated or impeded learning through talk; and thirdly to examine the degree of correlation between any sex differences in interactional style

and the quality of discussion revealed in the data. These questions were investigated by means of a qualitative analysis of the data, reported in Chapter 8, and interpreted in conjunction with the quantitative results to reach the conclusions set out in the final chapter.

Chapter 5

METHODOLOGY

This chapter sets out the research design devised for testing the hypotheses put forward in the previous chapter. Various aspects of the design will be discussed, including the selection of subjects, the rationale for incorporating particular non-linguistic variables, the procedures adopted for collecting the data, and the transcription procedure followed.

5.1 *RESEARCH DESIGN*

The purpose of this study was to examine the effect of the main independent variables of sex of speaker and sex of partner on the linguistic and related cognitive outcomes of peer interaction in a classroom context. Because schools provide a controlled environment, the logistics of recruiting subjects and collecting data were relatively straightforward, and it was possible to make use of a structured experimental design. However, the need to collect natural data at the more informal end of the scale, while at the same time controlling a number of non-linguistic variables, influenced the eventual design in a number of ways, which will be elaborated in the discussion which follows.

5.1.1 *Preliminary organisation*

A pilot study was conducted to check the viability of the proposed research design, both in terms of logistics and the quality of the data generated. The pilot study also allowed fine-tuning of the stimulus tasks and briefing procedures (see below), and testing of the technical equipment. The revised format was then tested again before being used in the collection of data for this study.

With the pilot study completed, I proceeded with making the practical arrangements for the data collection. This involved liaising with the teachers involved, agreeing on a timetable, doing classroom observations and collecting information on potential subjects, and, once the participants were selected, obtaining parental consent and setting up a room for recording purposes.

5.1.2 *Factors affecting the design*

There were a number of practical constraints on the design. Firstly, the data collected had to be of a sufficiently high recording quality to allow adequate transcription and analysis of the target linguistic variables. In the absence of sophisticated technology, this requirement made it impractical to collect the data in a normal classroom setting.

The issues of recording quality and ease and accuracy of transcription, also contributed to my decision to study pair rather than small group interaction. Dyadic interaction has

in any case been the focus of much previous research on sex differences in interaction (as summarised in the literature review), and there seemed to be no real advantage in studying group interaction in the case of the particular linguistic variables I was concerned with. On the contrary, as children's voices can be very hard to distinguish, pair interaction with its greater ease of recording and transcription, offered real advantages, especially for the analysis of turn-taking behaviour. In addition, dyadic interaction provides a context where it is easier to control for non-linguistic variables such as the effects of individual differences and group dynamics, which have the potential to mask the variable of participant sex.

Secondly, to meet the objectives of the study, the data collection process had to be relatively controlled. However, this meant there were a number of factors in the design which were likely to encourage a perception of greater formality on the part of the children involved, which might conflict with the aim of collecting data of a relatively informal nature. For instance, because of the need to withdraw children from class in order to collect the data, the way in which the recording was organised, and the nature of the stimulus tasks, it was important for me to initiate the activities, and be present during the recording sessions. This provided control over how the tasks were presented, and also allowed me to observe the interactions discreetly and make appropriate field notes to supplement the recordings, both as a subsequent aid to transcription, and to provide additional information on, for instance, non-verbal cues and reactions to the tasks. Other factors which may have contributed to a less informal atmosphere were that I (in consultation with the children's teachers) selected the participants rather than self-selection by the children, that the discussions were being recorded, and that the stimulus tasks were relatively structured.

In order to keep the situation, and therefore the language, as natural as possible, for both the pilot study and the main data collection I worked in schools where I was known as a teacher by both staff and pupils, although my previous contact with the children who formed my subject pool was limited. This meant I was not coming in to the situation "cold", and more importantly from the point of view of obtaining naturalistic data, the children saw me primarily as a teacher and not as a researcher. Although they were aware that I was engaged in some kind of research which involved observing children doing discussion work, neither the children nor their teachers were informed of its precise nature until the data collection was complete. Another balancing factor was that the children involved were accustomed to audio- and video-taping themselves as part of their classroom programmes, and to working in small groups outside the classroom in withdrawal areas, either on their own or with an adult. In addition, every attempt was made to make the situation as close to a real teacher-initiated classroom activity as possible, with the stimulus tasks and organisation of the data collection sessions designed to simulate a typical small group lesson.

In both the pilot study and the collection of data for analysis, my observation of the interactions and an initial scan of the tapes confirmed that the data would be more than acceptable for my purposes. The children were interested and involved, their interaction seemed largely unaffected by either my presence or the presence of the tape recorder, and the discussions sounded comparable in most respects to those observed in similar activities in the children's own classrooms.

5.1.3 *Selection of subjects*

The subjects were twenty children of eleven and twelve years of age, from Forms One and Two at a Wellington primary school. This age group was selected for two reasons. Firstly, it is an age group which has not been studied in New Zealand research on sex differences in interactional style. By the age of eleven, evidence of sex differences could be expected if these are going to develop at all, yet will not necessarily follow the same pattern as with adults. It was expected, therefore, that this study would provide a useful comparison with data collected from adults, both in New Zealand and overseas. Secondly, because a second aim of this research was to investigate the possible effect of sex differences in linguistic style on how children learn through talk, the fact that I had recent teaching experience with this age group was an important factor, as it put me in an excellent position to design appropriate tasks for eliciting the data I needed, and to assess the pedagogical value of the discussions, an important part of the descriptive analysis I intended to do.

The study was designed, as far as practicable, to keep the variables of cultural, social and language background constant. Thus, the children selected for inclusion in the database were Pakeha New Zealanders, of "middle class" origin, for whom English was a first language.[1] These criteria were intended also to allow greater comparability of the results of this study with other research, and to provide a baseline for research in the future.

Because this was a small descriptive study, twenty children provided an adequate yet manageable database, which allowed a degree of control over other non-linguistic variables. The subject pool consisted of two classes of twenty-five children at the same school, and once any children who did not meet the above criteria were eliminated, those who were to work together for the purposes of the data collection were selected from within each class.

In order to provide some measure of control over the effect of individual differences, I also consulted with the two teachers to obtain information about the children's usual friendship groups, their personalities (eg individuals who were particularly dominant, withdrawn or disruptive), and their approximate level of ability in reading and oral work. This allowed me to exclude some children from the sample who were unlikely to cope with the task requirements, and to avoid matching children who were "best friends" or who positively disliked each other, in an attempt to minimise the effects of these variables on the interactions (cf Barnes and Todd 1977). It also provided valuable background information for use in the interpretation of the results.

5.1.4 *Task design*

The tape-recorded discussions were generated by means of two stimulus tasks (see Appendix B). These tasks were designed both to elicit natural language as close to the informal end of the spectrum as possible, and to function as genuine classroom

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1 Other children in the classes, who did not meet these criteria, were also included in the activities on other occasions, but these interactions were not included in the research design as such.

activities. They were presented as part of a social studies lesson with the theme of values clarification, and consisted of two problem-solving discussion exercises, which were designed to get the children thinking about and exploring issues collaboratively in relation to their own knowledge and values. To meet the objectives, the task content had to be of high interest and relevance to children of this age, largely self-explanatory so as to obviate the need for teacher intervention, and able to stand alone as part of a single lesson. A social studies theme was chosen in preference to science or maths, on the assumption that this would be easy for all the children to relate to, regardless of individual preferences or differences in ability.[2]

The children were expected first to come up with a consensus view, if possible, on a number of sub-topics, and then to form an overall conclusion, prompted by a number of open-ended questions. During the initial "briefing", the children were told that they were expected to discuss their reasons for the decisions they made. We also talked about what they might do if they found themselves in total disagreement; if they could not reach a joint decision, they were encouraged to make sure they understood why their partner held a different opinion. These suggestions were reinforced by the fact that there was to be a short follow-up discussion with the whole group where they would be expected to report and justify their decisions.

The two tasks were quite different in terms of content, and had slightly different formats, both to prevent boredom from setting in, and to minimise any "learning effect"; they were, however, comparable with regard to their basic structure and requirements. From a teacher's perspective, the requirement to solve a problem provided a meaningful framework within which the pupils could practise and develop their discussion and thinking skills; mastery of the content as such was not the object of the exercise. The tasks therefore provided a degree of structure to encourage the production of exploratory talk, and to ensure that the discussions continued long enough to provide approximately fifteen minutes of recorded interaction, but within this structure, the children were free to approach the tasks as they wished.

5.1.5 *Procedure for data collection*

The data was collected in a semi-formal classroom context, by observing and tape-recording ten single-sex and ten mixed-sex dyadic peer interactions. The recording was done in five sessions, in which groups of four children were withdrawn from their normal classroom work for approximately forty-five minutes. They were told they would be working in pairs on two social studies problem-solving activities. The recording sessions were run over five days, and were all scheduled to take place at the same time in the morning.[3]
This method of organisation made it possible to alternate same-sex (SS) and mixed-sex (MS) dyads while including the same children in both contexts. This allowed a

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2 I was aware that the task-type and content might have greater appeal for the girls than for the boys; the fact that this variable could well have affected the nature of the interactions has been taken into account in interpreting the results of the data analysis.

3 One session had to be rescheduled to an afternoon, however, due to an unforeseen school trip.

comparison of the effects of speaker/partner sex and dyad composition, while controlling for the variable of individual differences. In order to minimise the possibility of the task content or a "learning effect" biasing the results, the order of tasks was kept constant, but dyad composition was varied. Thus, each pair of children worked on Task A first, and Task B second, but for three groups the session began with SS and ended with MS interactions, while for the remaining two the order was reversed:

Groups 1, 4 and 5:

	DYAD 1	DYAD 2
1 TASK A:	*Girl + Girl*	*Boy + Boy*
2 TASK B:	*Girl + Boy*	*Girl + Boy*

Groups 2 and 3:

	DYAD 1	DYAD 2
1 TASK A:	*Girl + Boy*	*Girl + Boy*
2 TASK B:	*Girl + Girl*	*Boy + Boy*

This design had the advantage that the simple instruction to change partners for the next activity automatically produced the desired alternation of dyad types, without having to make this explicit to the children, who were unaware of the true objective of the "lesson" they were participating in. The children were not given a choice as to who would be their partner in the first interaction, as there was no guarantee that self-selection would have resulted in the appropriate ordering: there may have been some social pressure not to work in a MS pair, but this is likely to be more acceptable if initiated by the teacher (Thorne 1986). This level of intervention was felt to be justifiable given that children are quite accustomed to receiving guidance as to whom they work with during the normal course of a school day, and was consistent with the fact that I had selected the groups in consultation with their teachers, as noted above.

The recording session began with a short "warm-up" discussion based on the first task, and involving all four children. This led into an introduction to the task and "briefing" the children on what they were expected to do to clarify the written instructions. The children were told to do as much as they could in fifteen minutes, but that it did not matter if they did not finish the whole task in that time. Unless they struck a major problem they were to complete the task without any further input from me; this was presented as part of the requirement to reach a consensus of opinion in a situation where there were no "right" answers. With the first task complete, the children came back together as a group to share their conclusions, before repeating the procedure,

with their new partners, for the second task. Both the pre- and post-task group discussions were also recorded, both for future reference, and to avoid alerting the children to the fact that I was mainly interested in the pair discussions.

The pair discussions were recorded onto low-noise tapes, using two small National Panasonic cassette recorders, fitted with Sony F27 uni-directional microphones. The two pairs of children were seated at tables, side by side, on either side of the central mat area where the group discussions took place, sharing a task sheet and facing the microphone. I "eavesdropped" on both interactions as unobtrusively as possible from a central point, using prepared observation sheets. These combined a checklist on the way the interactions were proceeding, and some verbatim recording of what was being said by whom at various points to assist in transcription of the tapes later.

5.2 *TRANSCRIPTION PROCEDURE*

Once the data collection was complete, I wrote up my field observations for each dyad, and integrated these with the background information collected on individual children. I then proceeded to transcribe the central ten minutes of each interaction, using my verbatim records to assist in distinguishing the speakers and as a check on accuracy. I transcribed the data orthographically, providing a broad indication of intonation and other paralinguistic and non-verbal features where appropriate. Pauses were timed and recorded in half seconds for short pauses, and whole seconds for pauses of two seconds or more. Simultaneous speech and contiguous utterances were also carefully transcribed, and an interlineal format was adopted to facilitate the analysis of turn-taking behaviour. Where transcription was impossible or its accuracy uncertain, this was clearly shown in the transcript, along with an indication of approximately how many syllables long the missing segment was. Appendix A sets out the transcription conventions used, together with two examples of complete data transcripts.

5.3 *POINTS TO NOTE*

It was impossible to make the situation completely uniform for all five recording sessions. The content of the briefings varied to some extent depending on questions from the children and the need for clarification, and because queries or problems sometimes arose once the pair discussions were underway, it was necessary for me to intervene on occasion to clarify a procedure or to encourage the children to keep going. Otherwise, there were few problems in collecting enough data to meet my requirements from all five groups.

The children were clearly aware of the microphone's presence to a greater or lesser extent, as was evident from occasional comments and silly behaviour (eg tapping microphone, funny voices). This was one reason for transcribing only the central ten minutes of each transcription, as once the children had "warmed up" they seemed to lose any self-consciousness they might have had to start with. The interactions certainly looked and sounded natural and unforced for the most part, but the fact that the children were "playing to an audience" needs to be taken into account when assessing the degree of informality of the data.

Chapter 6

ANALYSIS OF THE DATA

This chapter outlines the steps followed in analysing the data for each of the linguistic variables being tested. The discussion is organised under the three headings of (i) amount of talk, (ii) interruptive forms and overlaps, and (iii) agreement, disagreement and supportive minimal feedback. Each of these sections defines the technical terms used and explains how the data was categorised for the purposes of the quantitative analysis. Some of the problems which arose in classifying the data, and some of the contextual or pragmatic considerations affecting a speaker's use of these features are also discussed briefly, where appropriate, with reference to examples from the data. The definitions and analytic categories discussed here also provide the basis for certain aspects of the qualitative analysis; however, specific issues and procedures relating to this part of the study are discussed in Chapter 8. The final section of this chapter provides a description of the statistical procedures applied to the data.

6.1 *AMOUNT OF TALK*

I had two reasons for measuring the amount of speech produced by my subjects. Firstly to enable me to test hypotheses 1 and 2, as set out in Chapter 4, and secondly because this information provided the statistic on which to calculate rates of interruption, overlap and minimal feedback (see discussion below).

There were a number of possibilities to consider in deciding on how to quantify amount of speech. I could have calculated it as the proportion of time in each ten-minute transcript taken up by each speaker in a dyad. However, this seemed unnecessarily complicated to put into practice, and would have entailed a number of subjective decisions about such issues as the inclusion of pauses. Counting the number of utterances produced by each individual (eg Soskin and John 1963) was a possibility, as was counting syllables, but I felt that in the interests of ease and accuracy of counting, a simple computerised word count would serve my purposes quite adequately. Thus, amount of speech was measured in terms of the number of "words" (equivalent to orthographic words) uttered by each speaker in the set time of ten minutes of transcribed data. This is a fairly crude measure of amount of speech, and the word counts given do involve some degree of approximation for the simple reason that there were some stretches of speech that were not able to be transcribed, and in these instances the number of words could only be estimated. However, I have assumed for my purposes that the word counts are sufficiently accurate to allow meaningful comparison between speakers, with an estimated error factor of $\pm$ 50 words (ie if the difference between speakers is $\leq$ 50 their word counts are considered to be equivalent for the purposes of interpretation).

6.2 *INTERRUPTIVE FORMS AND OVERLAPS*

6.2.1 *Development of the categories for analysis*

In order to test the hypotheses relating to these variables, I had to identify and count all instances of interruptive forms and overlaps in the data. The analysis was based in the first instance on the written transcripts of the data, with reference to the tape-recordings as a check where intonation or other paralinguistic features could affect the interpretation of an utterance. My first task was to develop a workable set of categories with which to analyse the data. As demonstrated in my review of the literature, the concept of "interruption" can be operationalised in many different ways, depending on the exact definition used and the way in which it is applied to the data. I aimed to develop a set of definitions and classification criteria as unambiguous and explicit as possible, rather than rely on an undifferentiated interpretation of the concepts of "interruption" and "overlap".

In common with much of the previous research, my starting point was the Sacks et al (1974) turn-taking model, and the definitions of interruption and overlap developed by Zimmerman and West (1975, 1983) based on that model. Their categorisation system provided sufficient detail on the level of form for my purposes, while allowing scope to develop a functional sub-categorisation. It also allows for a degree of comparability with other research based on the same system.

According to the Sacks et al. model, speakers are entitled to at least one complete "unit-type"(which may be a word, phrase, clause or sentence depending on the context) before a speaker change can legitimately occur. A smooth speaker switch occurs when the next speaker makes a legitimate turn bid, without any incursion into the current speaker's utterance. Accidental overlaps occur because there is a tension between a need to avoid simultaneous speech and a need to minimise gaps between turns. Thus an overlap occurring close to a possible completion point can be seen as a genuine "error" or a legitimate turn bid (an attempted smooth speaker switch based on inaccurate prediction of a completion point).

Interruptions, on the other hand, involve a deeper incursion into the current speaker's utterance. Given the accuracy with which speakers are able to place their utterances (Jefferson 1973), as demonstrated by features like minimal feedback, latched sentence completions and smooth speaker switches, these cannot be seen as mis-timing, and can thus be classified as (potentially) disruptive violations of the turn-taking rules (West and Zimmerman 1983).

Minimal responses, while given varying definitions in the literature, are generally classified as a separate category of responses, whose primary function is to provide affective feedback to the speaker, not to convey referential meaning (Dittman 1972, Edelsky 1981) or to claim a turn at talk (Beattie 1983). Thus, whatever its placement relative to the current speaker's utterance, a minimal response is not regarded as being in violation of the turn-taking rules.

6.2.2 *Formal criteria*

My operational basis for distinguishing interruptions from overlaps and smooth speaker switches is West and Zimmerman's (1983) definition: an interruption is an insertion two syllables or more from a possible completion point. An overlap occurs within two syllables of a possible completion point. This is not a purely arbitrary distinction, but does in fact have some empirical basis. West and Zimmerman (1983) report consistent differences in the effect of interruptions and overlaps on subsequent conversation. In the case of overlaps, speakers were far more likely to finish their utterances within a state of simultaneous speech, and there was a far lower drop out rate by either party. Speakers also retrieved interrupted utterances more often than they retrieved overlapped utterances.

Unlike West and Zimmerman (1983), I have not based my analysis solely on instances of simultaneous speech; while this is an important indicator, as Murray (1985:37) points out: "For those 'doing interaction', simultaneous speech is neither necessary nor sufficient to identify an instance of 'interruption'." Not all instances of simultaneous speech are interruptions or "accidental overlaps", for example minimal responses. Conversely, interruptions can be perceived to take place in the absence of simultaneous speech, where the current speaker immediately yields the floor. These are sometimes termed "silent interruptions" (Beattie 1983). The following example shows how S2's precisely placed insertion interrupts S1's utterance. In this case, the utterance is retrieved by S1:

S1: *it would be|*
S2: *|oy + it's MY pencil|*
S1: *|quite bad for Martin cos he'd miss his mum cos he likes her*

3#3GGS

6.2.3 *Functional criteria: problems of definition*

Where my categorisation starts to diverge from West and Zimmerman's model is in the interplay of the turn's function with the formal definition outlined above. West and Zimmerman (1983) see interruptions as a primarily negative conversational device. Interruptions, according to their definition, are not facilitative, and are incursions with the "potential to disrupt turns at talk, disorganise the ongoing construction of conversational topics and violate the current speaker's right to be engaged in speaking" (105).

Evidence in the literature (Kennedy and Camden 1983, Dindia 1987, French and Local 1983, Coates 1988), supported by an initial classification of some of my own data, led me to agree with the conclusion of Kennedy and Camden (1983) that interruptions (as defined according to the formal criteria) are not necessarily negative or dysfunctional by definition, simply because they violate the turn-taking rules. (This issue is explored in more detail in Chapter 8 as part of the qualitative analysis of the data). There would seem, then, to be a mismatch between the formal definition, and West and Zimmerman's (and other researchers') primarily negative interpretation of how interruptions function.

West and Zimmerman (1983) attempt to resolve this by adding a functional dimension to their analysis, defining interruptions as distinct from other instances of simultaneity which are facilitative or "appear to ratify or otherwise contribute to the talk of a current speaker." (104), and include them in the same category as minimal responses. (eg yeah; saying the same thing at the same time (precision timing); longer utterances which indicate active listening or intense involvement). This is fine in theory, but poses problems when applied to the actual analysis of data. Minimal responses, comprise a closed class of supportive forms, inserted precisely and non-disruptively into an utterance, and as such are readily identifiable both by form and function. In my own data, longer facilitative utterances such as those described by West and Zimmerman do occur, and they often do function in much the same way as minimal responses, in that they are clearly affective, but unlike minimal responses, it is not possible to distinguish them from other candidate interruptions on the basis of formal criteria, and as they are explicit endorsements of a preceding utterance (Stubbs 1983), they also carry referential meaning. It is also easy to find examples in my data where an interruption is clearly disruptive in terms of the discourse, but is nevertheless supportive on a referential level (see examples in Chapter 8).

Once this complex interaction between the affective and referential levels of analysis is made explicit, it becomes difficult to see how a satisfactory classification of utterances as interruptions or not can reliably be made according to how they function, without recourse to a far more detailed degree of analysis than could be considered here. For example, Murray (1985) criticises as misleading the type of approach adopted by West and Zimmerman (1983). He points out that not all theoretical completion points are in fact equally possible, but are negotiable according to the context, and presumably the norms and expectations of the participants. He also suggests that participants' "models of interruption include judgments of severity of violation of completion right that are...scaleable" (1985:35). This is based on his notion of "point" as a means of identifying interruptions; in other words, an interruption is felt to be most serious if the speaker has not had the chance to complete their first point during a turn, less so if she has made at least one complete point; to cut off both turn and topic is seen as more disruptive than cutting off the turn if the speaker has the chance to come back to their point within the lifetime of the topic.

Another problem arises in identifying an utterance as an interruption in those cases where it is not possible to identify which speaker "holds the floor" at a particular point (Edelsky 1981). Again, while the theoretical distinction is reasonably clear, objectively identifying an interaction or parts of an interaction as having a "collaborative floor" (Edelsky 1981) for the purpose of counting interruptions, is far from straightforward.

It is generally assumed in the literature, whether implicitly (eg West and Zimmerman 1983) or explicitly (eg Beattie 1983), that an interruption functions as a (turn-disruptive) bid for the floor. There is evidence to suggest, however, that not all utterances which are in technical violation of the turn-taking rules necessarily function as turn bids. Edelsky (1981) recognises this distinction with her term "non-floor-holding turns", and French and Local (1983) describe a set of prosodic cues which they used to distinguish "directly turn-competitive incomings" from those which are not turn-bids (eg an interjection where the incomer is happy to stay within a state of

overlap). As directly turn-competitive interruptions are potentially the most disruptive, it could be argued that they should therefore be separated out in order to gain a truer picture of which participants in an interaction are being most disruptive of the discourse.

It is difficult to see how the observations summarised above could be translated into a practical way of coding interruptions; even if possible, it would require a considerably greater level of detail in the analysis than could be considered here. These points do, however, serve as a reminder of how difficult it is to reduce something as complex as verbal interaction to a purely quantitative level.

6.2.4 *Definitions*

Taking into account the fact that interruptions can perform a number of different functions according to the context, it seemed appropriate to adopt a broader definition than one based on purely formal criteria. Therefore, following Kennedy and Camden (1983), while the formal criteria have been retained, based on the "one speaker at a time" norm, the definition also includes a sub-categorisation which accommodates both positive and negative speech functions. To avoid the ambiguity of the term "interruption", the term "interruptive form" will be used from here on. The resulting definition is as follows:

> An "interruptive form" is an utterance or turn which is technically in violation of the turn-taking rules, and thus potentially disruptive of the interruptee's discourse, while it may or may not be supportive of the propositional content of the interruptee's utterance. It does not necessarily function as a turn bid.

According to this definition, then, interruptive forms include longer utterances which <u>are</u> facilitative in their function at the referential or content level (eg agreeing, supporting current speaker's talk, seeking clarification) but nevertheless are potentially turn-disruptive, because they violate the turn-taking rules, according to the formal criteria already outlined. As discussed above, they may not in fact function disruptively on the affective level (eg Coates 1988, Edelsky 1981), but that the potential is there is demonstrated by examples of miscommunication caused by differing interpretations of these potentially disruptive utterances (eg Tannen 1984). Overlaps were defined as attempted smooth speaker switches, thus technically not in violation of the turn-taking rules or disruptive of the discourse. The relationship between the two levels of analysis is summarised diagrammatically in Figure 6.1. On this basis, I set up two broad categories:

LEVEL ONE (Discourse strategy)

A (potentially) disruptive utterances/turns
(ie interruptive forms, in violation of the turn-taking rules).

B non-disruptive utterances/turns (ie smooth speaker switches, overlaps and minimal responses[1] (legitimate turn bids or insertions)

LEVEL TWO (Speech function)

1 Clarification requests or neutral comments (eg on points of task procedure).

2 Supportive utterances (agreement, elaboration or extension of previous utterance, sentence completion).

3 Non-supportive utterances (disagreement, contradiction, sudden topic shift).

Interruptive forms and overlaps were identified according to the formal criteria, then sub-categorised according to the functional criteria above.

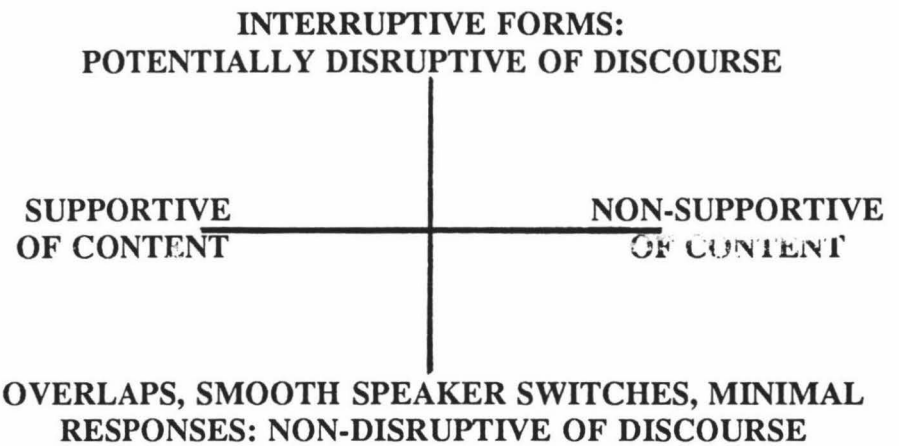

FIGURE 6.1

My point of departure when attempting to categorise utterances was the apparent intention of the second speaker (ie whether their utterance had the potential to disrupt the addressee's turn, within the framework of the turn-taking rules) rather than basing the decision on the effect of the utterance on the addressee's turn. In other words, whether the second speaker was acting in accordance with or in violation of the rules regardless of whether or not the addressee's turn was actually disrupted. I have adopted this perspective of potential disruption (cf West and Zimmerman 1983) rather than actual disruption (cf Beattie 1983, Bull 1989), as this mirrors more closely the interactional information participants have access to than a post hoc perspective does.

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1 While interruptive forms and overlaps were the focus of the analysis at this point, smooth speaker switches and minimal responses have been included here to show how they fit into the overall model.

6.2.5 *Categorisation problems*

In practical terms, this categorisation worked well. Assigning an utterance to categories A and B, using the formal criteria, was relatively unproblematical, except in a very small number of cases where simultaneous speech proved totally indecipherable, or where it was unclear either from the context or intonation whether a pause or silence at which an attempted speaker switch took place was inter or intra-turn (ie after a possible completion point or not). This was more often a problem of inconsistency in transcription, and was generally resolved by a rehearing of the tape.

Assigning utterances to sub-categories was not always quite as straightforward, and sometimes required a little more interpretation (eg making use of wider context), but generally, the sub-categories as set up fitted the data, with most utterances classified falling into sub-categories 2 or 3 (cf Kennedy and Camden 1983). Cases of indecipherable speech, or a very brief overlap or interruption, naturally made a functional classification impossible at times, because there was not enough (or ambiguous) referential content available on which to base a decision. However, while I initially feared this might be a significant problem, on average, no more than 1% of utterances classified in each transcript could not be reliably sub-categorised for this reason.

Because of the nature of the stimulus task, reading aloud often forms a significant proportion of the transcribed data. (Though the actual amount varies from dyad to dyad). This seems to be a strategy for focusing the discussion, and for indicating a topic shift; it also functions as a means of "booking" the floor in order to express an opinion at times. In some interactions, the "reader" role is taken on mainly by one person, in others it is shared (in various ways). Because they clearly do serve an interactional function, it did not seem appropriate to exclude these reading aloud sequences from the data to be analysed, or to treat them any differently from other utterances in terms of categorisation. Even though it could be argued that they are different from "spontaneous" utterances because the written text was available to both participants, this resource was used creatively, and seemed to form an integral part of the turn-taking system.

6.3 *AGREEMENT, DISAGREEMENT AND MINIMAL RESPONSES*

Turning to strategies for giving feedback, in order to do the quantitative analysis of my data necessary to test the hypotheses set out in Chapter 4, I had to identify and count tokens of agreement, disagreement, bald disagreement or challenge, and supportive minimal responses. The linguistic form of a response, together with its referential and/or affective meaning, provided the main basis for classification of the data; as for interruptive forms and overlaps, the analysis was therefore based in the first instance on the written transcripts of the data, with reference to the tape-recordings as a check where intonation or other paralinguistic features could affect the interpretation of an utterance.

The following response categories were excluded from the analysis: clarification requests, questions (unless clearly functioning to express disagreement or doubt),

answers to questions (unless in response to a direct request for confirmation of agreement/disagreement) and "no response" (ie silence or long pause).

"Side sequences" (Jefferson 1972) or comments relating to task procedure were included as part of the analysis, as were occasional responses relating to an action rather than to a previous utterance (eg partner writes down an answer with which the speaker disagrees). Several other types of supportive and non-supportive "feedback" that were not included in the response categories analysed here were also noted in the data. They warrant a brief mention at this stage, if only to demonstrate that the features selected for analysis represent just a part of the repertoire available to speakers for providing feedback of various sorts. For example, the data contains many utterances which reflect supportive active listening, but which do not fit into the categories of either minimal responses or agreements (as defined below). Sometimes these function rather like extended backchannels, and at others they are part of a collaborative construction of the dialogue or reading text, or part of what Phillips (1987) terms the "hypothetical mode" of discussion (eg saying the same thing at the same time, sentence completions, repetitions, "brainstorming" propositions). Laughter is another type of supportive response, which occurs frequently in the data. On the other side of the coin are devices which provide negative feedback. For example, brief utterances which convey negative affect, and longer utterances which "tangentialise" (Kennedy and Camden 1983) the preceding proposition by trivialising it or by ignoring it altogether (eg abrupt topic shift); laughter can also function negatively.

6.3.1 *Supportive minimal responses: "Message received and understood"*

While supportive minimal responses (SMRs) have already been defined briefly in the literature review, some further definition and discussion of their form and function follows, in order to clarify the criteria used in this analysis to identify them and distinguish them from similar utterances functioning as agreements and disagreements.

SMRs are defined here as a closed class of short, usually monosyllabic utterances (eg mm, mhm, uhuh, yeah, okay, right). They function primarily to maintain or extend the existing speaker's floorholding by signalling any of a range of supportive meanings: attention, understanding, interest, willingness to keep listening, agreeing to the current topical structure. They are typically characterised either by level intonation or a short fall or rise in tone, and mid or low pitch (Stubbs 1983:187, Bublitz 1988:184), and are usually reduced in loudness (Orestrom 1983). Their distribution is unrestricted (Bublitz 1988), although they are often inserted with great precision into "planning" and "breathing" pauses (eg Fishman 1983). They are not heard as interruptions or true speaker contributions, and therefore prompt no reaction from the "primary speaker" when used appropriately (Bublitz 1988).

Because their primary function is not to carry referential meaning but to provide interactional feedback (eg Edelsky 1981, Dittman 1972), they cannot be the focus of a question or negation (Bublitz 1988) or a response to an explicit request for agreement. On the basis of the majority of earlier analyst's interpretations, a possible gloss would be: "I'm still listening - keep going". Like head nods and similar non-verbal signals, they are a supportive "suspension of judgement" while the speaker completes their point. (This is the meaning Maltz and Borker (1982) associate with women's use of SMR's.

6.3.3.1 *Problem cases: the relationship between SMRs and agreement*

SMRs are characterised by a potential functional ambiguity: a basic meaning of agreement and confirmation underlies those forms used as SMRs, and the same forms, though with different distribution and intonation, are at times also used referentially. This potential ambiguity is often exploited by speakers as a sort of escape route to avoid having to commit themselves to a more definite agreement, or to avoid overt disagreement (eg Bublitz 1988).

It is possible to distinguish "true" SMRs from those cases where a minimal response form is used (eg yeah) but its primary function is clearly referential, and these utterances have been included in the corpus of utterances analysed for agreement and disagreement, and not as SMRs. These "minimal" agreements and disagreements have a different distribution and typical intonation contour to those defined as true minimal responses. For example:

S1: she likes everybody being TOGETHER
S2: mm + yeah + [reads] Kirsten .....

3#4BBS

Unlike SMRs, such utterances either constitute a turn in their own right, or the start of a turn, or function to "pass back" the floor (ie the first speaker has yielded the turn, expecting some response, but the second speaker does not wish to elaborate a response at that point). Bublitz (1988:187) distinguishes such "speaker contributions" from "hearer signals" (SMRs) by defining their function as reacting to a preceding statement by "stating a position" rather than simply "taking note". Thus, they are often a response to an explicit request for support or agreement (ie place 2 in a Question/Answer sequence - usually confirmation seeking questions) and/or an explicit agreement or token agreement marker preceding an elaboration. As such, they are not optional responses. When used with epistemic intonation (ie fall-rise) they are heard as expressing doubt, either as a negative response to a question, or reserving judgement. A possible gloss might be "I'm not ready to agree - convince me." When the utterance occurs in the contexts described above, and the intonation contour is a short clear fall, it is heard as an agreement.

There are also numerous examples in my data where an SMR, while retaining its primary affective function, can also be clearly heard to signal agreement with the speaker's proposition (this meaning is conveyed by the intonation, probably reinforced by non-verbal signals). Possible glosses here would be: "I'm listening and I agree", or "I agree - keep going". The primacy of the SMR's interactional function and the potential for ambiguity in these cases is illustrated nicely by the following example, where S2 requires explicit confirmation that S1 agrees, although the mm clearly sounds like an "agreeing" minimal response:

S1: Martin could live with his mum and the girls could live with their dad ++ that would be good I s'pose ( )
S2: it would be BETTER + for mum ++ WOULDN'T IT?
S1: mm
S2: yeah ++ it WOULD

3#4BBS

Such utterances have been categorised here as SMRs, and not as agreements for two reasons: firstly, because the referential "agreeing" component of their meaning, even where this interpretation seems unambiguous, is secondary to the interactional function of supporting the other speaker's turn at talk; and secondly, because in terms of their distribution and intonation they behave like SMRs as defined here, and not as "mainchannel" speaker contributions.

No attempt was made to sub-categorise SMR tokens according to whether they were primarily agreeing or non-committal, although it would have been interesting to follow up Maltz and Borker's (1982) suggestion that there are sex differences in the typical functions and interpretation of minimal responses, with males more often using them as signals of agreement, and women as attention signals. It was impractical to try and test this out with my data, however; the whole question of how minimal responses function is a very complex issue. Whilst it is easy to identify many SMRs in the data as including an "agreeing" function on an impressionistic level, there are many other ambiguous cases; in fact the ambiguity may be quite deliberate (Bublitz 1988:195). Then there is the problem of interpretation, especially problematic where there is no record of non-verbal signals; if Maltz and Borker are right, there may not necessarily be a set of clear signals anyway - the same "mm" may be heard as "I'm listening" feedback by a woman, but as "I agree" by a man. If the participants in a conversation cannot always agree, how likely is it that the analyst's interpretation will be reliable? In short, developing a set of criteria to reliably distinguish between "agreeing" SMRs and those which are purely signalling attention would require a research project all of its own.

6.3.1.2 *Definition*

My criteria for including an utterance as a supportive minimal response can be summarised as follows:

Formal criteria:

1) The utterance belongs to a closed class of minimal response forms (yes, yep, yeah, mm, mhm, uhuh, right, okay).

2) The utterance is of mid to low pitch, of relatively low volume, and its intonation contour is level, or consists of a short fall or rise.

3) The utterance is an optional "backchannel" response ie. it does not constitute a turn in its own right, but is produced in the course of the "main" speaker's turn. (ie. as defined here, it cannot be the second part of an adjacency pair, such as a question/answer sequence).

Functional criteria:

Utterances which met the formal criteria, were categorised as SMRs if they also met the following functional criterion:

The primary function of the utterance is to provide positive interactional feedback to the main speaker; ie the utterance:

1) has affective meaning only (eg. "I'm still listening, keep going").

2) has affective meaning plus a secondary meaning of implied (referential) agreement (eg "I'm listening and I agree- keep going").

6.3.2 *Agreeing or Disagreeing with a Proposition: "I hear you: now this is what I think."*

The children in this study made use of a wide range of strategies for agreeing and disagreeing, which are summarised below. It should be noted that, except for "bald" disagreement, the strategies listed are not intended to represent a formal or functional sub-categorisation; rather, they are a list of linguistic realisations which may signal agreement or disagreement (developed from my data in conjunction with descriptions of agreement/disagreement strategies in the literature (eg Atelsek 1981, Goodwin 1983, Brown and Levinson 1987, Bublitz 1988).

6.3.2.1 *Form and function*

These agreeing/disagreeing forms provided a starting point for the analysis of the data, but identification of the function of an utterance as agreement or disagreement was heavily dependent on interpretation of the context, both local and extended. The importance of context in relating form and function becomes greater as the disagreement or agreement becomes less explicit, although even apparently unambiguous tokens like yes and no require interpretation in context, as they can at times function almost interchangeably (eg Lane 1986).

A second level of analysis relates to the sub-categorisation of devices within the categories of agreement and disagreement. A speaker's selection of a strategy from a particular point on the continuum from explicit to implicit realisations is bound to have functional implications. As discussed in the literature review, there are implications for politeness (threat to face) and conversational supportiveness in choosing an explicit disagreement strategy (eg. direct contradiction) rather than an implicit one which requires more inferencing on the part of the interlocutor (eg. token agreement). In the case of agreements, such choices may reflect the "strength" or degree of commitment of the agreeing utterance, or the relative involvement of a speaker at a particular point in the interaction.

This is an area in which much descriptive work remains to be done. For this reason, and because the first level of analysis, being context-dependent, already involves a degree of subjective interpretation, the present analysis has been restricted mainly to differentiating and quantifying the two broad categories of agreement and disagreement. The only sub-categorisation attempted is of "bald" disagreements and challenges, because these are relatively easy to define, and there is already some evidence of sex differences in the use of explicit disagreement, as outlined earlier.

6.3.2.2 *Classification problems*

For the most part, the classification of utterances into categories was unproblematical. There were however a few grey areas which had to be resolved in the interests of consistency.

One of these is the partial or qualified agreement, often expressed by means of a multi-utterance turn[2], where the dividing line between agreement and disagreement was not always easily drawn. In these cases, the criterion used was the overall semantic effect of the turn. In other cases, however, best characterised as a "change of mind", multi-utterance turns include contradictory responses (eg agreement followed by disagreement or vice versa); here, the two utterances, although responding to the same proposition, were counted as two separate occurrences. The rationale for this method of counting was firstly that it reflected the intentions of the speaker more accurately, and secondly that by only counting the strategy which produced the final effect, the results could be skewed.[3]

Another decision that had to be made was what to do with "alternative" propositions or opinions which had no explicit relationship to the previous proposition. Often these simply signalled a legitimate topic shift. However, sometimes they could be interpreted as direct contradictions or as implied disagreements. The form of the utterance provided no cues in these cases, thus classification had to be based on the analyst's reading of the context, with paralinguistic cues like intonation providing an additional resource where an ambiguity remained. The same criteria applied in the case of questions and answers to questions. Most of these were excluded, but there were examples of both disagreements and agreements taking this form.

Silence or lack of a direct response were other strategies sometimes observed to convey either agreement or disagreement. However responses realised by these means were excluded from the analysis because, not surprisingly, it was impossible to devise satisfactory criteria.

6.3.2.3 *Definitions*

Agreement

Functional criteria:

The utterance clearly signals agreement with the preceding proposition.

Formal criteria:

The utterance is in the "main channel".

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2 An "utterance" is defined here as a sentence.

3 Such sequences occurred only 31 times throughout the data, but it is significant that in 20 of these cases, the disagreement came first, the reverse of what could be expected in terms of the preference for agreement, according to which disagreement tends to be delayed. If these utterances had been analysed according to "final effect", there would have been a 2:1 bias in favour of agreement, and these initial disagreements would have been excluded from the analysis altogether.

The utterance belongs to an open-ended class of forms, ranging on a continuum from explicit to implicit, and may include one of the following:

1) Explicit agreement token (eg. yes, yeah, yep, oh yeah, okay, all right).

2) Explicit agreement token + elaboration (eg.**1#2/27** I reckon b yeah; **1#3/24** yeah + they'd have to keep moving; **1#2/84** okay so three; **1#4/53** mm + that's number one + so G).

3) Partial/qualified agreement (qualifying proposition or degree of commitment) (eg. **1#1/31** okay ye-e-e-e-eah; **1#1/34** something like that; **1#1/73** yeah yeah yeah yeah I suppose; **1#3/40** yeah + probably).

4) Implied agreement such as elaboration of previous speaker's point, repetition or paraphrasing of previous speaker's proposition.
(eg. **1#1/71** you wouldn't be a friend; **1#3/47** so bad for mum... ; **1#4/10** good for Kirsty; mhm).

Disagreement

Functional criteria:

The utterance clearly signals disagreement with the preceding proposition.

Formal criteria:

The utterance is in the "main channel".

The utterance belongs to an open-ended class of forms, ranging on a continuum from explicit to implicit, and may include one of the following:

1) Unmodified direct contradiction of previous speaker's proposition.
(ie."bald on record") (eg. **1#1/19** no we did c; **2#2/51** NO-O tell your friend the truth).

2) Challenging questions (which relate to preceding speaker's proposition) (eg. **1#1/47** a very good friend? **1#2/77** do you?; **2#2/66** why? why's THAT the worst one?)

3) Contradiction of previous speaker's proposition plus qualifier/ softener/ justification (eg. **1#3/60** but but Kirsty doesn't like her mum; **2#1/23** but they might just ignore that cos they know; **2#2/29** no + TWO is I reckon that's number two; **2#3/43** oh yeah but; **1#3/63** and and Zoe wouldn't like it cos they'd be split up wouldn't they?)

4) Qualified/partial agreement (with previous speaker's proposition) and/or (hedged) alternative opinion (effect = disagreement) (eg. **1#3/36** but Kristy *(sic)* would rather stay with her um + with her father though wouldn't she

instead of (sort of with the rest of them); **2#2/56** well that- if you go -well I don't REALLY like them... you MIGHT not lose them if....).

5 Expressions of doubt (eg mm? I'm not sure)

Bald disagreement or challenge

Functional criteria:

A sub-category of disagreement, the utterance clearly signals explicit unmodified disagreement with the preceding proposition (with or without boosted negative affect).

Formal criteria:

The utterance is in the "main channel".

The utterance is spoken with non-tentative, often emphatic intonation.

The utterance is "bald on record" (ie. no qualifier, hedge, or softener, expressed directly. (See examples above)

6.3.3 *Multiple functions: issues of interpretation*

The broad classification adopted for the purposes of this analysis inevitably glosses over a number of more complex issues relating to how the target utterances function. While these issues are beyond the scope of the quantitative analysis undertaken here, they need to be borne in mind when interpreting its results, so I will discuss them briefly.

6.3.3.1 Supportive minimal responses

Speakers are able to subtly manipulate SMRs, making use of the supportive surface meaning to achieve quite different functions from the usual one of providing interactional support. Examples where sex differences have been reported include male use of non-supportive strategies such as delayed minimal feedback (eg Zimmerman and West 1978), and using minimal responses instead of full responses as a way of avoiding participation in a conversation (Fishman 1983). Bublitz (1988:184) suggests that because they can be inserted almost anywhere in the stream of talk, "hearer signals" are an excellent device for "pretending to listen", which probably partly explains Fishman's (1983) finding that the women in her couples asked so many more questions than the men, as a strategy for eliciting a meaningful response. Bublitz (1988:183, 266) also suggests that SMRs can function as a subtle topic control strategy - a sort of interactional "backseat driving", which throws a slightly different light on their role as a facilitative device. As noted above, they can also function as negative politeness strategies (eg. off-record disagreement or agreement, or as a polite means of "booking" a turn at talk).

6.3.3.2 *Agreement and disagreement*

Similarly, by the skilful use of agreement or disagreement strategies, in conjunction with other pragmatic devices, speakers create meanings in addition to or in place of the immediate semantic effect. For example, there are a number of examples in my data where an agreement on the referential level (categorised as a supportive act), actually functions non-supportively on an interactional level as a topic control device by cutting off the addressee's elaboration of their opinion, and following with a new proposition. This is illustrated by the following extract, where S2's agreement functions simultaneously to concede the point and to take the floor; this interpretation is strengthened by the fact that S1 attempts to "interrupt back" seeking confirmation that the agreement was not just a token one:

```
S1:   that's bad because Martin doesn't get on with his father
S2:                                                    oh yeah
      well I reckon|
S1:                |DOES he?
S2:   no + I reckon we should put this one second?
S1:   yeah
```

3#3GGS

There are also numerous examples of redundant restatements of agreement, particularly where a consensus has finally been reached after a disagreement sequence, which seem to have little to do with conveying referential meaning, and much to do with the affective function of building solidarity, as shown by the following example:

```
S1:   ....oh just say change it over every month or something
S2:   [laughs] okay kids or parents change over every month
S1:   yeah
```

1#3GBS

In categorising an utterance as an agreement or disagreement, I have looked at its immediate semantic effect in relation to the immediately preceding proposition, with recourse to the extended context to resolve any ambiguity. This allows, for example, responses of both positive and negative polarity to be classified as agreements (eg 1#4/84: (so it's bad for Zoe) yep; 3#4/74: (but Martin doesn't like his dad) no).

6.3.4 *Conclusion*

Utterances which have been classified and counted as agreements, disagreements or supportive minimal responses may function in a variety of often quite subtle and complex ways within an interaction; some of these have been touched upon briefly in the discussion above. The simple categorisation carried out here by no means does justice to the full range of strategies available to speakers to realise these functions. However, the broad categories adopted for the purposes of this analysis provided sufficient detail to investigate the hypotheses suggested by earlier research; a more delicate, functionally sensitive categorisation could prove to be a fruitful basis for future research.

6.4 *STATISTICAL ANALYSIS*

6.4.1 *Amount of talk*

The results were collated for each of the four experimental conditions (girl speaker/girl partner, boy speaker/boy partner, girl speaker/boy partner, boy speaker/girl partner), and averages and ranges were calculated. The Wilcoxon Signed Ranks Test (Conover 1980) was applied to the data from the mixed-sex context, where the word counts of the girl-boy dyads constitute ten matched pairs, to determine the level of significance of the effect, if any. This provided a two-tailed test of the null hypothesis that: "Girl words" = "Boy words" in the MS context.

6.4.2 *Interruptive forms, overlaps, agreements, disagreements and minimal responses*

Following the classification of the data, a simple counting procedure was followed to produce the raw totals for statistical comparison. Because of the symmetrical nature of dyadic interaction, no further manipulation of the figures was deemed necessary to examine the variables of agreement and disagreement.

As discussed earlier, amount of speech was measured in terms of the number of words uttered by each speaker, and this statistic was used to calculate rates of interruption and overlap. The same procedure was followed for minimal responses. In the case of interruptive forms, overlaps and minimal responses, because of the interactional nature of the events being studied, a simple comparison of raw scores was insufficient to allow meaningful comparisons between individuals or groups of speakers. Interruptive forms, overlaps, and minimal responses are produced by the "event initiator" during the course of the interlocutor's speech: it follows that the amount of talk produced by the primary speaker in a given time is an important variable. It is the relative number of times that a speaker is interrupted, overlapped or given minimal feedback that is of interest, rather than the number of actual occurrences. To take a hypothetical example, in a given interaction if Speaker A produces 200 words in 10 minutes, while speaker B produces 2000, and both produce 20 interruptive forms, it would obviously be nonsensical to suggest that the effects of the interruptions would be the same in both cases. Speaker A is being interrupted at a rate of once every 10 words, while speaker B is being interrupted only once every 100 words on average. What is in fact required is a comparison of the rates of occurrence; thus once the raw totals were obtained, these were converted into the rate of each event in relation to the partner's total word count, expressed as number of occurrences per 1000 words of the interlocutor's speech.

This issue has not been dealt with in many previous studies of interruption and overlap, where findings are often reported as tables of actual occurrences, with no attempt made to transform the data into rates to allow valid comparisons between individual or aggregated group scores to be made. One exception to this is a study by Mulac et al (1988), but here interruption rates (like 11 other non-interactive linguistic variables) were apparently calculated on the basis of the interruptor's own word count, thus producing a statistic of questionable relevance in the case of interruptions. Similarly, this relationship between minimal responses and amount of talk has not always been recognised by earlier researchers, with findings often reported simply as

actual occurrences (eg Hirschman 1974, Leet-Pellegrini 1981), or by a brief statement that an asymmetry was found (eg Fishman 1983), although Dittman (1972:413) tabulated listener responses per FJU (final juncture unit) in order to make group comparisons possible.

6.4.3 *Testing for statistical significance*

Once individual and mean rates or scores had been calculated for each of the four categories (girls/SS, boys/SS, girls/MS, boys/MS), differences between the group means were tested for statistical significance. The statistical strategy for performing each test was to assume an hypothesis of "no difference" between the perceived populations of which the groups were samples (the "Null Hypothesis"), to determine whether or not the results predicted by the alternative hypotheses under investigation could have occurred by chance. The particular test statistic employed (where appropriate) was the deviance (McCulloch and Nelder 1983), which has a limiting chi-square distribution under the null hypothesis.

6.4.4 *Testing for effects of independent variables*

A test was also carried out to establish whether there was a significant "individual effect" for each variable ie. whether any individual's score in a group was significantly different from the others'. Although there were one or two rather large residuals, the four groups were found to be homogeneous in a statistical sense, thus allowing meaningful inter-group comparison.

6.4.5 *Log Linear Model*

The statistical analysis was then taken a step further with the fitting of a log linear model. This model isolates the effects of the independent variables of sex of speaker, sex of partner and the interaction between the two. (Details of the model are provided in Appendix C).

The rationale for fitting the data to this model was, firstly, to provide at least a partial answer to a criticism which has been made of other research designs claiming to test the effect of sex of subject (Dindia 1987:346): namely, where the data from both members of a dyad is included in the same analysis, and a significant difference is found, it has often been attributed to sex of subject, whereas it may well be the result of sex of partner or an interaction between these two variables; and secondly, to "pilot" it as a potential statistical tool for this type of sociolinguistic analysis. The results of this analysis also make it possible to comment on some indicative trends in the data, even where overall differences did not prove statistically significant.

Chapter 7

RESULTS OF THE QUANTITATIVE ANALYSIS OF THE DATA

In this chapter I will present the results of the quantitative analysis of the data, the procedure for which was described in the preceding chapter. I will deal with the linguistic variables in the following order: (i) amount of speech, (ii) interruptive forms and overlaps, (iii) minimal feedback, agreements, and disagreements. The data on each variable is summarised in the tables and figures below, together with the results of the statistical tests carried out in each case.[1] These results are then discussed in terms of the specific hypotheses proposed in Chapter 5.

7.1 *AMOUNT OF SPEECH*

HYPOTHESIS 1: Girls will take a greater proportion of the available talking time than boys in informal, small group/dyadic MS (mixed-sex) contexts.

The results clearly support the first hypothesis. The data for this variable shows a statistically significant difference in the proportions of speech produced by girls and boys in the MS context, in the direction predicted by hypothesis 1.

Table 7.1 shows that overall, the girls produced more speech than the boys, both in terms of the total number of words uttered and average individual word counts. This result is clearly accounted for by the difference in the MS context, where the boys produced on average 30% fewer words than the girls, unlike the same sex dyads, where the average word count per individual is virtually identical for both sexes.

Figure 7.1 shows that there is in fact a two-way divergence taking place in the MS context, with the boys on average speaking less and girls more in comparison with the SS context; this divergence is greater in the case of the boys.

The range figures in Table 1 are included to show that although these averages do obscure quite large differences in individual scores in all three contexts, with the distributions for girls and boys overlapping to a large extent, there is nevertheless a clear sex-preferential tendency apparent in the data from the MS dyads. The SS patterns for boys and girls are not dissimilar (taking into account that the large

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1 The statistical analysis of my data was carried out with the invaluable assistance of Ross Renner form the Institute of Statistics and Operations Research, Victoria University of Wellington.

TABLE 7.1

Amount of speech (number of words spoken)

	Total words spoken		Average words per individual		Range: individual word counts	
	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS
SAME-SEX DYADS	7815	7771	781 (683)*	777	268-1846 (958)*	386-1174
MIXED-SEX DYADS	8482	5909	848	590	606-1258	251-987
TOTALS	16297	13680	815	684	268-1846 (1258)*	251-1174

* The figures in brackets ( ) represent the results for SSG if the score of one speaker, SU, who spoke considerably more than any other girl in the SSG context, is removed from the analysis.

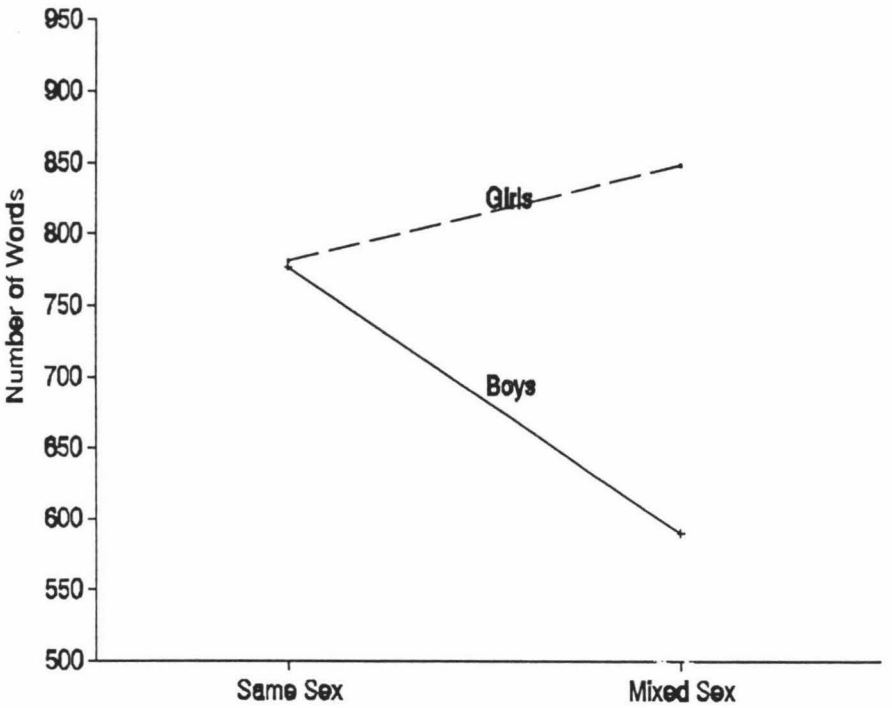

FIGURE 7.1 Average number of words spoken by girls and boys in same-sex and mixed-sex contexts.

difference at the top end of the range is produced by one girl, SU), and the overall range in the MS context is also comparable to that of the SS context. It would not be unreasonable, therefore, to expect a random distribution of boys and girls across the range in the MS context. However, this is not the case: the girls in the MS context occupy the upper 65% of the total range (606-1258) while the boys occupy the lower 73% (251-987).

TABLE 7.2

Amount of speech per dyad in each context (no. of words)

CONTEXT	SAME-SEX/ FEMALE	SAME-SEX/ MALE	MIXED-SEX
AVERAGE	1563	1554	1439
RANGE	1303 (975-2278)	467 (1204-1671)	813 1146-1959)

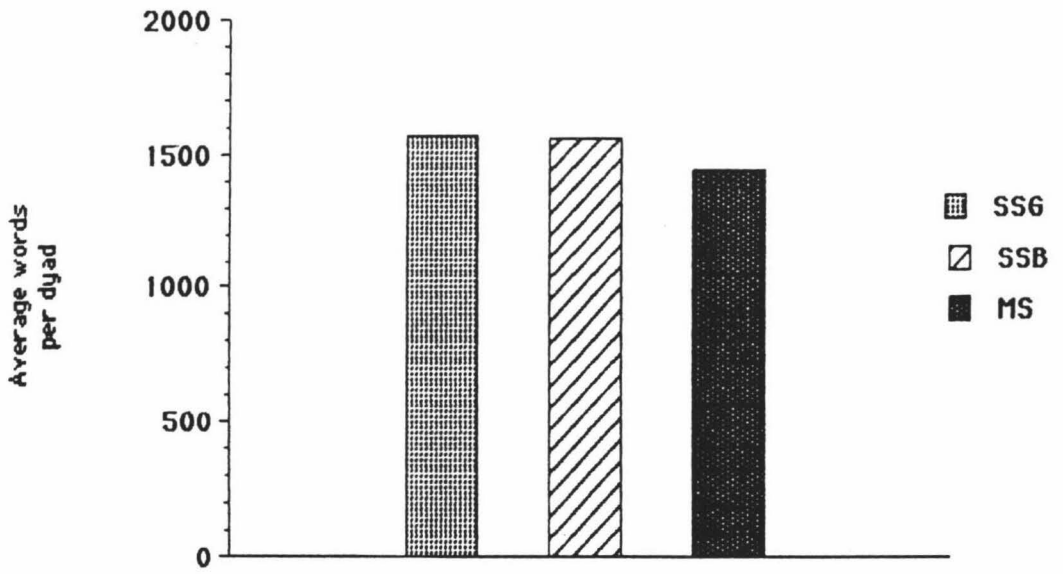

FIGURE 7.2 Average words spoken per dyad in same-sex girl, same-sex boy and mixed-sex contexts.

As Table 7.2 and Figure 7.2 show, the average amount of speech produced in each dyad is roughly comparable in each of the three contexts, thus the difference between the girls' and boys' scores, and the distribution of those scores in the MS context, must be accounted for by a systematic asymmetry in the proportions of words spoken by girls and boys in the MS context.

7.1.1 *Share of talk*

This conclusion is borne out by a more detailed analysis of the MS data, summarised in Table 7.3: on average, girls accounted for 59% of the total words spoken in the MS context, while boys accounted for only 41%, a difference of almost 20%.

TABLE 7.3

Proportion of total amount of speech produced by girls and boys in mixed-sex context

DYAD	GIRLS		BOYS		DIFFERENCE	TOTALS
	No. of words	%	No. of words	%	Girl - Boy	
(1)	656	47	753	53	-97	1409
(2)	886	52	827	48	59	1713
(3)	670	58	476	42	194	1146
(4)	672	57	515	43	157	1187
(5)	1258	83	251	17	1007	1509
(6)	972	49.6	987	50.4	-15	1959
(7)	695	56	557	44	138	1252
(8)	606	46	722	54	-116	1328
(9)	833	65	450	35	383	1283
(10)	1234	77	371	33	863	1605
TOTALS	8482	59	5909	41		14391

$p = 0.05$

This result proved to be statistically significant to at least the 5% level ($p = .0.05$), using the Wilcoxon Signed Ranks Test. Because this particular test obscures the large

magnitudes of some of the positive differences (by transforming to ranks), the significance level stated is in fact likely to be quite conservative. For the same reason, the claim for statistical significance is strong even if the large magnitude differences are regarded as largely caused by individual differences (see discussion of this point below).

The average difference in proportions can be accounted for in two ways. Firstly, in six of the seven interactions where a word count asymmetry was noted, it was a girl who spoke the most. The difference in word count is not always large, but there is nevertheless a clear pattern; moreover, in all three cases where there is a large degree of asymmetry (Dyads 9, 10, and 5) it is a girl who speaks the most. Secondly, in all but one case, the difference in word counts was larger where a girl produced a higher proportion of words than where a boy did, with the average difference in word counts between speakers 450 and 100 respectively. (A difference of 100 words is not much greater than the margin of error allowed). The hypothesis that girls would dominate the talking time in MS interaction in this context is therefore strongly supported by this data.

HYPOTHESIS 2: Talking time will be more equally distributed between participants in SS (same-sex) than in MS contexts.

This result needs to be placed in the perspective of a second interesting finding relating to the typical patterns of distribution of talking time found in SS and MS contexts. My second hypothesis was that in SS interaction there would be relatively even sharing of talk between speakers, relative to MS interaction. However, this hypothesis was not supported by the data.

It is clear from Figure 7.3, which shows graphically the relative proportions of talking time achieved by individuals within each dyad, that an asymmetrical distribution of talk between speakers was a feature of most dyads in the SS context. Interactions featuring a relatively large asymmetry between speakers were the norm, with seven of the ten SS interactions showing a difference of more than 35%. The pattern in the MS context was rather different, however: here, most interactions featured a relatively small amount of asymmetry between speakers, with the difference between speakers less than 20% in seven of the ten MS interactions, and less than 10% in four cases. For this group of subjects, then, being a girl in a mixed-sex interaction meant gaining a roughly equal or better than equal share of the talk, with the reverse being true for the boys, while speakers of either sex in a same-sex context had a more or less even chance of being the "dominant" speaker.[2] However, for most individuals, the MS context appeared to encourage a more symmetrical distribution of talk than was the

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2 The word "dominance" is used here in a relative sense. Obviously a very small difference in the number of words spoken may well be irrelevant in interactional terms. It is interesting, however, that even where the differences are very small, they continue to confirm the overall trend of the girls talking more than the boys in MS interactions.

case in the SS dyads, especially once individual effects are taken into account (see below).

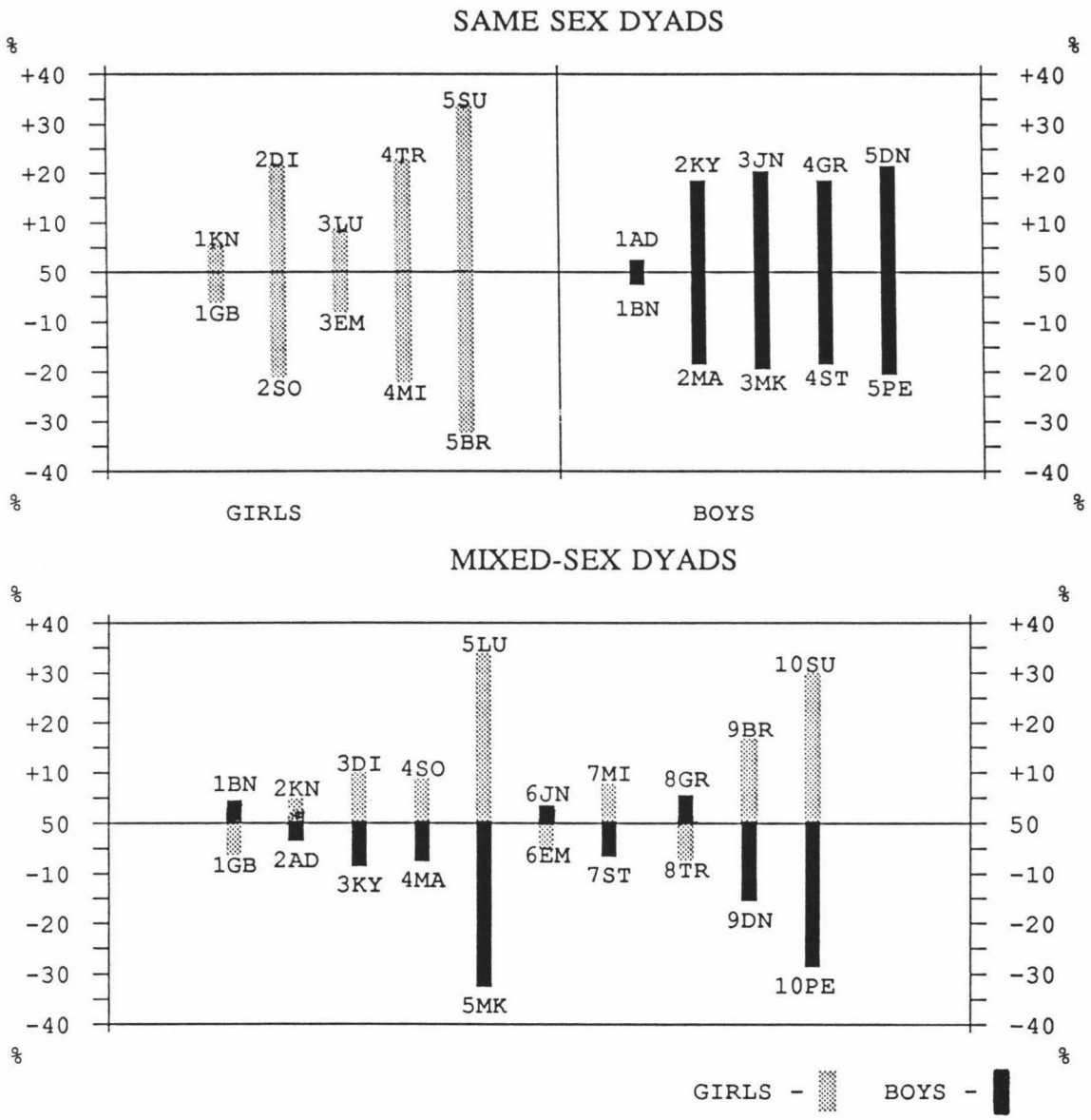

FIGURE 7.3: **Graphical representation of asymmetries in amount of speech between speakers in each context.**

% each speaker above or below 50% of words spoken

7.1.2 *Individual effects*

Predictably, individual differences had a marked effect on the patterns of interaction in some cases, although they were not great enough to mask the effect of the variable of sex of speaker/partner. On the contrary, their identification helps to explain some apparent anomalies in the overall patterns observed in the data (for example, the "outlier" results shown in Figure 7.3: SU/BR in the SSG context, and LU/MK and SU/PE) in the MS context), and make it possible to draw some tentative conclusions about the effect of sex differences on amount of speech.

In dyad SS5, SU's share of the talk is 81% to her partner BR's 29%. In the MS context (MS10) she also takes a high proportion, 77% to her partner PE's 23%; PE also produced only 28% of the talk in the SS context. Given that SU is described as "a dominant personality and bright" by her teacher, while PE is characterised as "slower", and BR as "very quiet", SU's dominance of the talking time in both contexts is quite predictable in terms of the individuals' personality profiles. (The same applies to LU/EM versus LU/MK). However, individual differences do not explain why girls who are characterised as "quiet" (BR, MI, SO), and behave accordingly in the SS interaction, are actually quite talkative in the MS context, while "talkative" boys in the SS context are less so in the MS context.

7.1.3 *Results of testing Hypotheses 1 and 2*

What seems to be happening, both in terms of actual word counts and proportions, is that girls who speak the least in the SS context talk more in the MS context, while the more "talkative" girls tend to be so in both contexts (although not always to the same extent, eg TR, DI). Boys who speak less do so consistently in both contexts; conversely, boys who speak more in the SS context produce less speech in the MS context, and there is a general tendency across the board for boys to talk less (in absolute terms) in the MS context. These patterns are the basis of the two-way divergence noted above (Fig. 7.1). However, there is also a clear trend for MS interactions to be less asymmetrical than the SS interactions, a trend which is especially marked when the two largest differences are seen to be accounted for in large measure by the interaction of the particular personalities involved.

In summary, the data presented here supports the first hypothesis: the girls took a greater proportion of the talking time (measured as number of words) in the MS context, and this difference was statistically significant. The second hypothesis was not supported as there was a clear trend for asymmetries in the distribution of talk to be smaller in the MS context for both sexes. Possible interpretations of these findings are discussed at the end of Chapter 8 in relation to the results from the other variables tested.

7.2 *INTERRUPTIVE FORMS*

HYPOTHESIS 3: Girls will tend to produce a lower rate of interruptive forms[3] than boys in both SS and MS contexts.

TABLE 7.4

Average rate of interruptive forms per 1000 of partner's words

	SAME-SEX DYADS	MIXED-SEX DYADS	TOTAL
GIRLS	14.71	18.45	16.32
BOYS	17.29	18.04	17.23

Deviance = 3.95 D.O.F. = 3 P = 0.2669

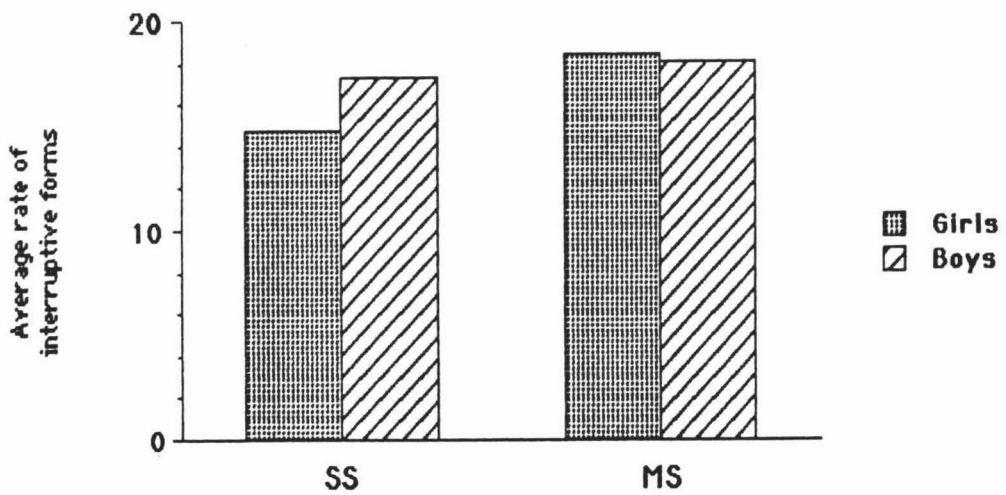

FIGURE 7.4 Average rate of interruptive forms per 1000 partner words in same-sex and mixed-sex contexts.

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3 It should be noted that, as discussed in Chapter 6, the linguistic feature analysed here was the interruptive form, regardless of its actual function in the discourse. Thus some of the events counted may well have been positive in their effect.

As clearly shown by Table 7.4 and Figure 7.4, Hypothesis 3 is not supported by the data. There were no statistically significant differences in average interruptive rate between any of the four experimental conditions. In fact, the rates for boys and girls in both contexts are remarkably similar. The only deviation from the norm is the slight trend for girls in SS dyads to produce a lower average rate of interruptive forms than is the case in the other three cells.

There are two points worth noting. Firstly, these averages are masking some quite large variations in individual rates across the two contexts. This suggests that interruption rate depends on the complex interaction of a number of factors (ie sex of partner, or the interaction of sex of partner and sex of speaker could be having an effect as well as variation caused by the interaction of different personalities), but no clear patterns are discernible in the data. Secondly, asymmetries in the rate of interruption between individual participants occur in all three dyad types (SSG, SSB, MS); there are no noticeable differences in the patterns of asymmetry according to the context. There is therefore no evidence to suggest either that asymmetries in the use of interruptive forms is more likely to occur in MS than in SS interaction, or that these asymmetries are likely to be larger in MS interaction.

It should also be noted that the actual number of interruptive forms occurring in the data was relatively small. Thus while the experiment provides no evidence to reject the null hypothesis (that there will be no difference in the rates of interruptive forms produced by boys and girls), it cannot be ruled out that significant differences do exist, even where this could not be statistically proven, and that this design was simply not powerful enough to detect them.

For this reason, it was considered worthwhile to estimate the relative effects of the three independent variables by fitting the data to the log linear model (see Chapter 6). Two very small indicative trends emerged: the effect of being a boy "interruptor" was calculated at 15% (ie boys in this study were 15% more likely to interrupt than girls), and the effect of being in a MS dyad on the rate of interruptive forms was approximately 9%. Sex of partner produced a minimal effect (2%). Taken together, these small effects account for the lower average rate recorded for girls in the SS dyads. It would be interesting to follow these trends up in a larger study as they do confirm the general trend of previous findings, namely that males interrupt more than females, and both sexes interrupt more in a mixed-sex context. Although of limited importance in this case, this analysis serves as a useful illustration of how such modelling of the data could be used in interpreting results of this kind in order to separate out the effects of the independent variables.

HYPOTHESIS 4a: A greater proportion of girls' interruptive forms will be supportive rather than non-supportive, in both SS and MS contexts.

HYPOTHESIS 4b: A greater proportion of boys' interruptive forms will be non-supportive rather than supportive, in both SS and MS contexts.

Table 7.5[4] shows that there is no evidence from this data to suggest that there is a significant difference in how interruptive forms used by girls and boys function on the dimension of supportiveness, as defined for the purposes of this analysis. No further statistical tests were carried out because the overall totals for interruptive forms were non-significant, and there were no obvious trends in the raw scores or rates for the sub-categories that would call this conclusion into doubt. Given the small numbers of tokens counted in each sub-category, a much larger data set would be required to draw any conclusions either way.

It is interesting to note that for both boys and girls, the largest sub-category of interruptive form was category I2 (supportive). As calculated on overall rates, (both boys and girls, MS and SS) supportive interruptive forms constitute 58% of the total rate, while non-supportive interruptive forms constitute 32% (60% for girls, 57% for boys).

TABLE 7.5

Average rate of "supportive" (I2) and "non-supportive" (I3) interruptive forms per 1000 partner words

	SAME-SEX DYADS		MIXED-SEX DYADS		TOTAL	
	I2	I3	I2	I3	I2	I3
GIRLS	8.32	5.76	11.51* (9.14 less GB)	5.25	9.92	5.51
	57%	39%	62%	28%	60%	33%
BOYS	9.43	5.50	10.73* (9.59 less BN)	5.54	10.08	5.52
	55%	32%	59%	31%	57%	31%

* The higher average for I2 forms for both sexes in the MS context is accounted for almost entirely by one MS interaction, which was characterised by very high rates of I2 for both participants.

4 I1 rates have not been included in the tables (see Chapter 6) but it should be noted that these, as expected, constituted only a small proportion of interruptive forms produced (4% - 13%), and their occurrence in absolute terms was very small.

7.2.1 *Results of testing Hypotheses 3 and 4*

There were no statistically significant sex differences in this data for interruptive forms. There was, however, a small tendency for the data to support Hypothesis 3 in the SS context: girls produced fewer interruptive forms than boys in this context, due to the effect of two variables: boys were slightly more likely than girls to produce an interruptive form, and both boys and girls were more likely to produce interruptive forms in the MS context (ie the interaction of sex of speaker and sex of partner).

No sex differences were found in the sub-categories investigated; there was, however, a clear trend for both boys and girls in both contexts to produce a higher proportion of "supportive" compared to "non-supportive" interruptive forms. This issue is explored more fully in Chapter 8, where some aspects of the data are analysed and described qualitatively.

7.3 *OVERLAPS*

HYPOTHESIS 5: Girls will tend to overlap their interlocutors at a higher rate than boys in both SS and MS contexts.

TABLE 7.6

Average rate of overlaps per 1000 partner words

	SAME-SEX DYADS	MIXED-SEX DYADS	TOTAL
GIRLS	11.00	11.85	11.42
BOYS	11.58	8.49	10.03

Deviance = 5.53 D.O.F = 3 P = .1369

As shown in Table 7.6 and Figure 7.5, there were no statistically significant differences in average overlap rate between any of the four experimental conditions. However, the result in the MS context, while not statistically significant, is of interest;[5] there is a strong trend in this data supporting the result predicted by the hypothesis, for girls in MS dyads to produce overlaps at a higher rate than boys. This results from boys overlapping less in the MS context, rather than the girls overlapping more.

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5 The standardised residual score (the difference between actual and expected values) calculated for this cell (MSB) was -1.9, and scores outside the range -2 - +2 may be considered to be statistically significant.

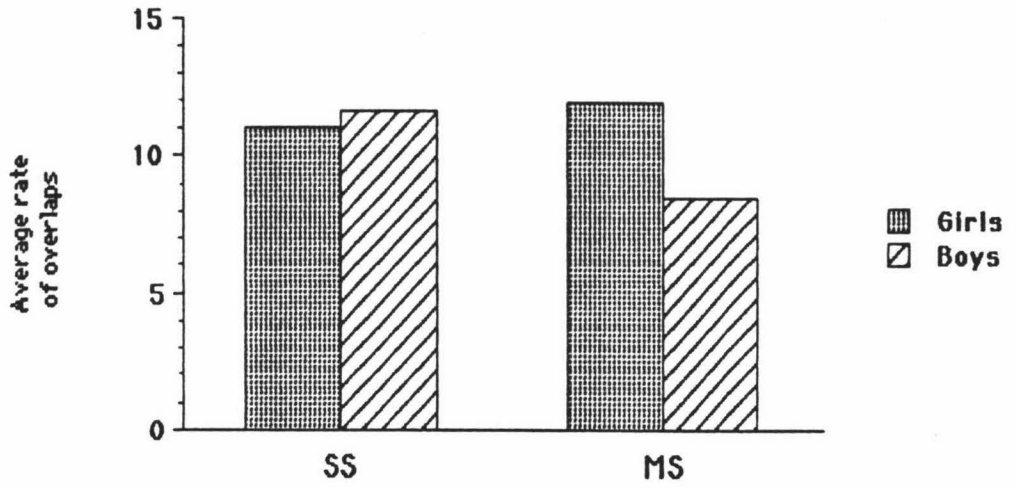

FIGURE 7.5 Average rate of overlaps per 1000 partner words in same-sex and mixed-sex contexts.

When the overlap data was fitted to the log linear model, two small effects emerged: an 11% effect for "girl overlapper", and a 21% effect for "boy partner" which taken together account for the lower average rate for boys in the MS context. In other words, for this group of subjects, there was a small tendency for a higher rate of overlapping to occur if the second speaker was a girl and/or if their partner was a boy. When neither of these variables was present the resultant lower rate almost reached statistical significance.

HYPOTHESIS 6a: A greater proportion of girls' overlaps will be supportive rather than non-supportive, in both SS and MS contexts.

HYPOTHESIS 6b: A greater proportion of boys' overlaps will be non-supportive rather than supportive, in both SS and MS contexts.

Although there was no statistically significant difference between the overall overlap scores in each cell, which implies that there is no difference between the sub-category scores either, the data in Table 7.7 does show a tendency for girls to produce both a higher average rate of "supportive" overlaps than boys, and a slightly higher

proportion of "supportive" overlaps to total overlaps in both SS and MS contexts. This is illustrated more clearly in Figure 7.6.

This trend is confirmed by fitting the data to the log linear model which measures the effect of being a girl "supportive overlapper" at 42% (as opposed to 11% for overlaps overall), with the effect of being in a same-sex context at 24%, and the effect of having a boy as a partner at 12%.

TABLE 7.7

Average rate of "supportive" (02) and "non-supportive" (03) overlaps per 1000 partner words

	SAME-SEX DYADS		MIXED-SEX DYADS		TOTAL	
	02	03	02	03	02	03
GIRLS	7.04 64%	2.05	7.95 67%	1.52	7.49 65%	1.79
BOYS	6.31 54%	2.19	5.19 61%	1.41	5.75 57%	1.80

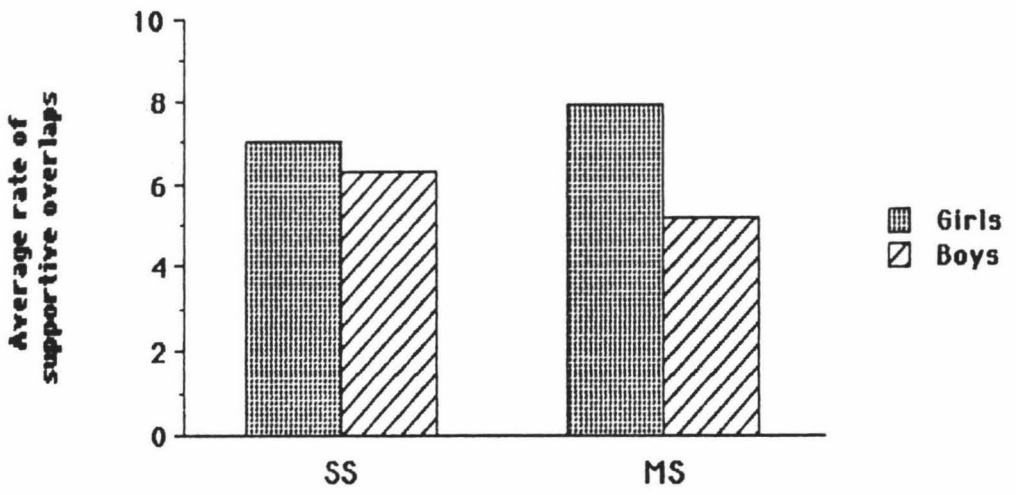

FIGURE 7.6 Average rate of supportive overlaps per 1000 partner words in same-sex and mixed-sex contexts.

7.3.1 *Results of testing Hypotheses 5 and 6*

There were no statistically significant sex differences in this data for overlaps. However, there were two interesting trends. Firstly, boys in MS dyads produced a lower rate of overlaps than girls in MS dyads and than girls and boys in SS dyads; this difference almost reached statistical significance. It was accounted for by the effects of two variables: overlap rates were higher when the "overlapper" was a girl and when either sex was paired with a boy partner.

Secondly, there was a tendency for girls in both contexts to produce a higher rate of "supportive" overlaps than boys, and for a greater proportion of their total overlap rate to consist of "supportive" overlaps; interestingly this accounts for most of the sex difference noted above. Therefore the difference in the MS context is largely a difference in the number of "supportive" overlaps. As with interruptive forms, both girls and boys in both contexts tended to produce a higher rate of "supportive" than "non-supportive" overlaps.

These trends need to be interpreted in the light of the amount of talk results: it is interesting that this should correlate with a higher rate of (supportive) overlaps, but not with a higher rate of interruptive forms. This result provides some support for the suggestion that overlaps are more likely to be a female strategy for gaining the floor (Stubbe 1978). It also suggests, in conjunction with the results for interruptive forms, that the boys were not making a lot of (unsuccessful) bids for the floor relative to the girls.

7.4 *MINIMAL RESPONSES*

HYPOTHESIS 7: Girls will tend to produce a higher rate of supportive minimal responses (SMR's) than boys in both SS and MS contexts.

TABLE 7.8

Average rate of supportive minimal responses per 1000 of partner's words

	SAME-SEX DYADS	MIXED-SEX DYADS	TOTAL
GIRLS	9.21	5.42	7.32
BOYS	7.85	8.96	8.41

Deviance = 7.69 D.O.F. = 3 p = 0.0529 (5.29%)

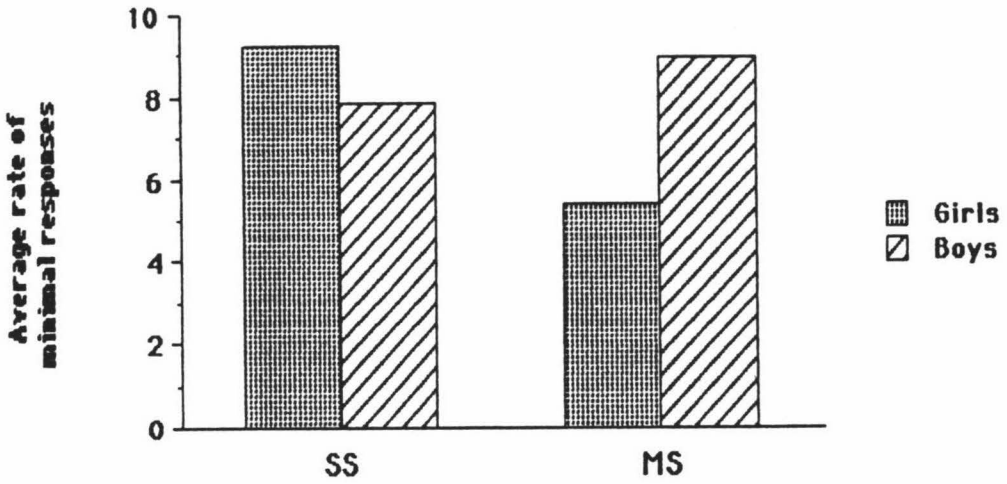

FIGURE 7.7 **Average rate of supportive minimal responses per 1000 partner words in same-sex and mixed-sex contexts.**

As shown in Table 7.8 and Figure 7.7, the hypothesis as it stands is not confirmed by the data. Looking just at the SS context, however, there is a tendency for girls to produce a slightly higher average rate of SMRs than boys, although the difference is not large enough to reach statistical significance.

In the mixed-sex context the trend appears to be in the opposite direction, with the boys producing a higher average rate of SMRs than the girls in the same context. The difference is accounted for by a two-way divergence from the SS averages (13% for boys, 42% for girls), with the boys producing a slightly higher and the girls a markedly lower average rate. The boys' MS rate is comparable to that of the girls in the SS context.

This result is of interest, as the level of significance for the differences between the four cells is very close to 5%, and the bulk of the deviance figure is in fact accounted for by the low average rate produced by the girls in the MS context; thus the difference between this data cell and the other cells may be considered to be statistically significant.[6]

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6 The standardised residual score (the difference between actual and expected values) calculated for this cell was -2.23; scores outside the range -2 - +2 may be considered to be statistically significant.

When this data was fitted to the log linear model, two small effects were isolated: 24% for being a boy "responder" and 45% for having a girl partner. The low average rate in the MS(Girls) cell, together with their higher average in the SS(Girls) cell largely account for these effects.

7.4.1 *Interaction with amount of speech variable*

However, these findings must be placed in the context of the amount of speech data (see above) which showed a statistically significant tendency for girls to speak more than boys in the MS context. Given this fact, and the reasonable assumption that there will be an inverse relationship between amount of speech and SMR rate[7], the relatively low SMR rate for girls in MS dyads is predictable; if the proportions of talk time had been reversed, it seems likely, extrapolating from the SS averages, that girls would have produced the higher proportion of SMRs.

7.4.2 *Analysis of dyads*

An analysis of the patterns of scores for individual dyads in the three contexts adds some interesting additional evidence. For girls in the SS dyads, a high SMR rate correlates closely with predominantly taking the role of listener or "secondary speaker" (Bublitz 1988) indicated by a moderate to large asymmetry in amount of speech and overlap rates, and conversely, a low SMR rate is related to the role of "primary speaker". This was the case in three of the five SS girls' dyads. (Note: these three dyads account for most of the higher SSG rate). In the other two dyads, neither speaker could be identified as "dominating" the talking time, and in these cases SMR rates were uniformly low.

No such consistency was observed for boys in SS dyads. There are four interactions where one speaker tends to dominate; only one of these follows the same pattern noted for the girls, in another the "secondary" speaker produces a high SMR rate but the "primary" speaker produces even more, and in the remaining two, being the "secondary" speaker produces no corresponding high SMR rate. In the fifth interaction, where neither speaker "dominated", SMR rates for both speakers were low, as for the girls.

In the MS context, only two interactions show a marked asymmetry in amount of speech, with girls dominating the talking time in both cases, and the boys producing a relatively high SMR rate (though not as high as girls in same role in the SS context). In a third interaction, where there is a moderate asymmetry in favour of the girl, both speakers" SMR rates are very low. In the other seven interactions, asymmetries in amount of speech are small, and SMR rates are very low for all speakers except for three boys and one girl.

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7 This assumption was borne out by an examination of the interactions on a dyad by dyad basis, and as could be expected, the inverse relationship was most marked in those cases where there was a large asymmetry in amount of speech.

Overall, then, the girls are behaving in a consistent way in both contexts. As there were no girls with very low word counts or boys with very high word counts in the MS context, this accounts for girls' low average SMR rate in the MS context. The girls appear to be operating according to a norm which requires a listener to provide a relatively high rate of interactional feedback, especially when the role of listener is prolonged.

On the basis of this data it is possible to speculate that in those interactions where talking time is more equally shared, the roles of listener and speaker are also being shared; or both participants could be sharing the role of "primary" speaker, thus making interactional feedback in the form of SMRs less essential, as content-based feedback would increase (eg agreements, disagreements, elaborations, collaborative floors).

The girls' low average SMR rate in the MS context would be consistent with this. The boys are behaving in a far less consistent way in both contexts; although there is evidence that some individuals are operating according to the same pattern as the girls, overall there does not seem to be a clear pattern as there is for the girls. The reasons are open to speculation; it may be that (some) boys use SMRs according to a different set of norms, or that SMRs perform a different function for boys (Maltz and Borker 1982). These results are also consistent with the suggestion that the boys may be attempting to converge to female norms in the MS context (cf Holmes 1988b).

It must be noted that the average SMR rates for both girls and boys are remarkably low in this data: on average, speakers received fewer than one SMR per 100 words. The explanation for this lies partly in the nature of the talk, which included a significant proportion of reading aloud of task questions; clearly minimal responses are far less likely to occur in this context. Individual differences also played a part, with rates ranging from 0 to 28 SMRs per 1000 words. Even so, the rates are still low. It is possible that this is the result of a developmental factor (cf Dittman 1972), or that non-verbal feedback (eg nods, eye contact) took the place of SMRs, given the close physical proximity of the speakers and the dyadic design of the experiment.

7.4.3 *Results of testing Hypothesis 7*

The effect of the interaction between amount of speech and SMR rate leads to the conclusion that whilst this data cannot claim to confirm previous findings that females tend to produce more SMRs in MS contexts than males, it does not provide counter-evidence either. In the SS context, the data provides some supporting evidence for the hypothesis, although the lack of statistical significance and the small sample size (both in terms of number of subjects and number of tokens counted), suggests a cautious interpretation of the results.

Furthermore, the data does provide some evidence for a sex difference in the typical distribution, and possibly functions, of SMRs. Of course, results from such a small sample are not generalisable, but it is interesting that they seem to confirm the trends of other results. Thus an alternative hypothesis might be supported by this data: that girls will tend to produce more instances of (supportive) minimal feedback than boys in both SS and MS contexts, in those cases where they have largely adopted the role of secondary speaker.

7.5 *AGREEMENTS AND DISAGREEMENTS*

HYPOTHESIS 8: Girls in both SS and MS contexts will produce more agreeing and/or fewer disagreeing responses than boys.

HYPOTHESIS 9: Girls will produce a higher proportion of opinion responses which are agreements rather than disagreements relative to boys.

HYPOTHESIS 10a: Boys in both SS and MS contexts will produce more "bald" disagreements as a proportion of total disagreement responses than girls; this tendency will be most marked in the SS context.

HYPOTHESIS 10b: Girls in both SS and MS contexts will produce more modified disagreements as a proportion of total disagreement responses than boys.

It is clear from the results summarised in Table 7.9 that boys and girls in both SS and MS contexts show a marked "preference for agreement" when producing an opinion response. Agreement responses outnumber disagreement responses on average by more than 2:1. These proportions are remarkably consistent across all four data cells. This information is represented graphically in Figure 7.8.

The total occurrences of both agreement responses and disagreement responses (and opinion responses overall) show remarkably little variation across the four data cells, and none of the differences was statistically significant. (From a statistical point of view the figures could all have come from the same random sample).

There is therefore no evidence from this study for Hypotheses 8 or 9, that girls will display a stronger preference for agreement than boys realised either by agreeing more and disagreeing less than boys, or by producing a greater proportion of agreement to disagreement responses relative to boys.

TABLE 7.9

Total numbers of opinion responses
(agreements and disagreements)

	SAME-SEX DYADS		MIXED-SEX DYADS	
	Girls	Boys	Girls	Boys
AGREEMENT RESPONSES	200	201	185	220
DISAGREEMENT RESPONSES	91	103	96	88
TOTAL OPINION RESPONSES	291	304	281	308

Deviance = 2.85 D.O.F. = 3 p = 0.55

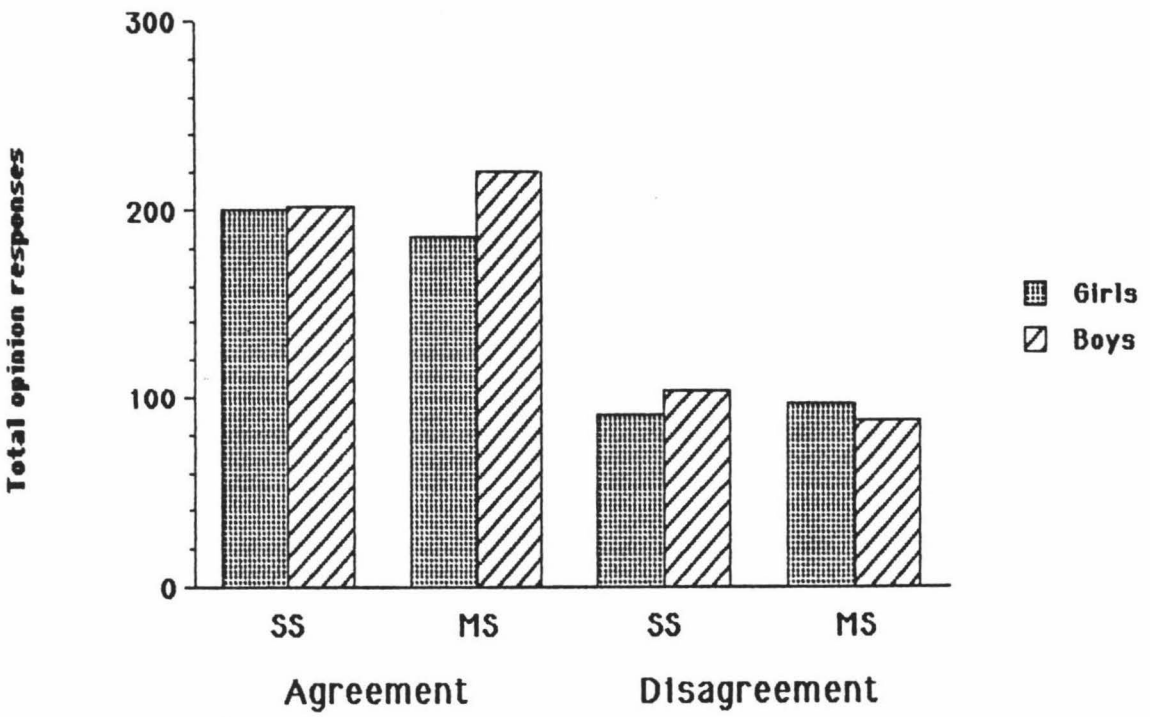

FIGURE 7.8 Total numbers of opinion responses produced by girls and boys in same-sex and mixed-sex contexts.

There is however very strong support for Hypothesis 10a, that boys in both MS and SS contexts would produce more "bald" disagreements as a proportion of their total disagreement responses than girls, and that this tendency would be most pronounced in the SS context. There is also strong support, conversely, for Hypothesis 10b, that girls in both contexts would produce more modified disagreements as a proportion of their total disagreement responses than boys.

Table 7.10 summarises the proportions of "bald" to "modified" disagreements for boys and girls in each context. The figures show a clear sex difference, which is most marked in the boys same-sex context. In both contexts, over 90% of the girls' disagreement responses were modified in some way, and fewer than 10% were classified as bald disagreements. The pattern is strikingly different for the boys: bald disagreements accounted for 30% of the total in the MS context, and 35% in the SS context. These results are illustrated in graphic form in Figure 7.9.

In interpreting Table 7.10, it is important to note that the percentage figures represent a within-sex comparison. As the overall figures were comparable (see Table 7.9), this serves to demonstrate that while both sexes made disagreeing responses in similar proportions in all contexts, there is a significant difference in the distribution of type of disagreement response for boys and girls.

TABLE 7.10

TOTALS AND PERCENTAGES OF "BALD" AND "MODIFIED" DISAGREEMENTS

		SAME-SEX DYADS		MIXED-SEX DYADS	
		Girls	Boys	Girls	Boys
"Modified" disagreement responses	No:	84	67	89	62
	%:	92%	65%	93%	70%
"Bald" disagreement responses	No:	7	36	7	26
	%:	8%	35%	7%	30%
TOTALS:	No:	91	103	96	88
	%:	100%	100%	100%	100%

Deviance = 39.78 D.O.F. = 3 p = 0.00

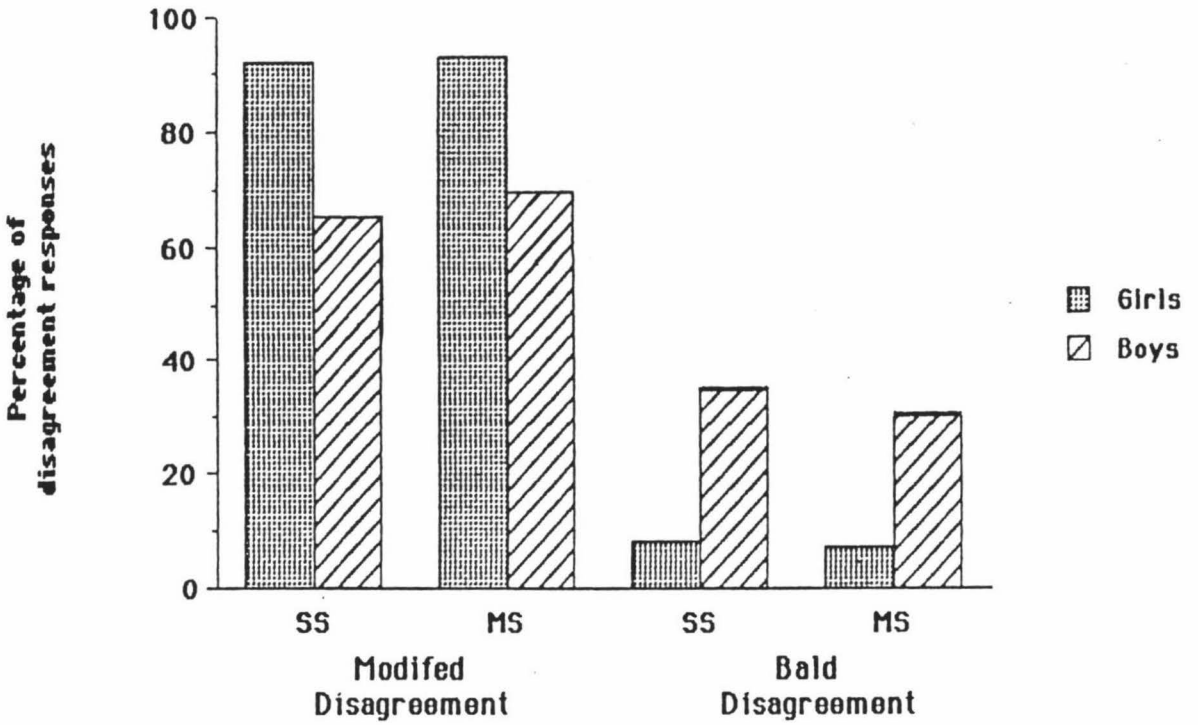

FIGURE 7.9 Proportions of "bald" and "modified" disagreements produced by girls and boys in same-sex and mixed-sex contexts.

Statistically, these results are highly significant: at least to two decimal places, there is zero probability that these results could have occurred by chance. Thus, boys produced significantly more bald disagreements than girls, and girls produced significantly more modified disagreements than boys.

Fitting the data to the log linear model showed an average effect size of 429% for boy speakers: overall, a boy was more than four times as likely as a girl to produce a bald disagreement or challenge. The model showed no significant effect for sex of partner or interaction of partner and speaker sex. However the magnitude of the difference between the girls' and boys' results has probably masked the effect of sex of partner in this case.

It is clear from the figures in Table 7.10 that boys tended to produce the most bald disagreements in the SS context, both in absolute terms, and as a proportion of their

total disagreement responses.[8] Thus, although statistical significance could not be established in this case, the hypothesis that the tendency for boys to produce more "bald" disagreements would be strongest in the SS context may be accepted with reasonable confidence.

7.5.1 *Results of testing Hypotheses 8 to 10*

These results suggest that both sexes display a "preference for agreement" in terms of the overall proportions of agreement and disagreement responses produced: there were no significant sex differences recorded in the total numbers or within-sex proportions of agreement and disagreement responses.

However, where disagreement does occur, there is a marked sex difference in preferred strategies. Boys went "bald on record" approximately half the time, with this strategy being more favoured in same-sex dyads than in MS dyads. The girls, by contrast, showed a marked dispreference for going bald on record; the overwhelming majority of their disagreements were modified in some way, either by the use of softeners or token agreements, or by the addition of a qualifying comment or elaboration.

There is strong evidence from this data therefore, that girls and boys handle disagreement differently, with girls choosing strategies compatible with a stronger preference for agreement, expressed here by avoidance of disagreement.

7.6 *CONCLUSION*

The results of the quantitative analysis of the data are interesting, but provide only mixed support for the hypotheses tested. My hypotheses were confirmed, with statistically significant differences, for the variables of amount of talk and for bald and modified disagreement. The girls took a disproportionate share of the talking time in the MS interactions, as predicted, thus supporting the hypothesis that they would take on a greater responsibility for the interaction in this informal, semi-public context. There was also a marked tendency for the girls to use mainly modified disagreements, and for boys to use a greater proportion of bald disagreements, especially in SS contexts, although there was no difference in overall rates of agreement or disagreement. These results provide some support for the suggestion that females are more "polite" speakers, as shown by a preference for indirect disagreement, while the male style is more challenging and competitive.

The results for minimal responses were mixed, with the basic hypothesis not confirmed, but some support for the alternative hypothesis that girls will provide more SMRs than boys when in the role of secondary speaker, and some evidence that the boys were accommodating to a female norm in the MS context. There was no difference found in the results for the variables of overlaps and interruptive forms,

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8 The result for boys in the SS context made the largest contribution to the total deviance, with a positive residual of 3.36.

other than a small tendency for girls to use more "supportive" overlaps, particularly in the MS context.

These no difference results are of interest, despite their failure to confirm the hypotheses. Such results often go unreported, thus giving a misleading impression of the true state of affairs. In this case, there are a number of possible reasons for these findings. Firstly, as noted earlier in this chapter, a no difference finding may be the result of using too small a sample to adequately test the hypothesis. Secondly, because my subjects were children, and most of the earlier research from which my hypotheses were drawn was done with adults, it is possible that there is a developmental explanation, namely that some of the sex differences tested for develop at a later age (cf Dittman 1972). Thirdly, the fact that the interactions studied were dyadic may well have affected the results; it has been noted, for example that interruptions may be less acceptable in this context compared to small groups (Camden and Kennedy 1983). Fourthly, particularly for the results on interruptive forms and overlaps, there were problems of definition which could well have masked the existence of a sex difference. (This point will be discussed more fully in the next chapter).

In conclusion, there is some support in this data for the existence of sex-differentiated interactive styles. However, the small size of the sample studied, and the complex nature of this type of data make it difficult to interpret quantitative results like these with any degree of confidence. For this reason, as well as to meet the other objectives of this study, the next chapter goes on to look at the data in more detail, this time from a qualitative perspective. The results presented here will be discussed and interpreted at the end of Chapter 8 in the light of this descriptive analysis.

Chapter 8

DESCRIPTIVE ANALYSIS

8.1 *INTRODUCTION*

This chapter focuses on qualitative aspects of the data, and will consist of the descriptive analysis of selected extracts from the data transcripts, with two aims in mind. The first is to provide some further insight into the richness and complexity of the data that formed the basis of the quantitative analysis presented in the previous chapter, and to investigate the relationship between the interactive strategies analyzed in this study, and the quality of discussion from a pedagogical point of view. Secondly, I will discuss to what extent my analysis of the data supports the existence of different male and female styles in the context of this study, how these results might be interpreted, and their implications for the way children learn through talk.

8.2 *GENERAL IMPRESSIONS*

As discussed in Chapter 5, the stimulus tasks were designed to get the children thinking about and exploring issues collaboratively in relation to their own knowledge and values. From a teacher's perspective, the requirement to solve a problem provided a meaningful framework within which the pupils could practise and develop their discussion and thinking skills; mastery of the content as such was not the object of the exercise. There was a degree of structure imposed on the discussions, but within this structure the children were free to approach the tasks as they wished.

The overall impressions gained from classroom observation of the interactions were that the children were interested and involved in the discussions, that they remained very largely "on task", and that, on the whole, the activities met the educational objectives for which they were designed. Follow-up discussions between the teacher/researcher and small groups, which gave an opportunity to assess to what extent the children had elaborated their thinking in relation to the problems discussed, confirmed this. The overall tone of the discussions was observed to be cooperative, as would be predicted both from previous research on this type of interaction (eg Phillips 1987, Barnes 1976), and from the way the tasks were designed. This impression was further reinforced by listening to the audio-tapes and reading the transcripts, although the degree of collaborativeness was more marked in some interactions than in others.

A closer reading of the transcripts shows that there was a good deal of variation between particular dyads and individuals in their patterns of interaction, in the types of interactional strategies used, and in how thoroughly the issues under discussion were explored; the quality of discussion was therefore better in some interactions than in others.

8.3 QUALITY OF DISCUSSION

The following section explains how the quality of discussion in each interaction was assessed, and the results of that assessment in terms of sex differences.

8.3.1 *Criteria for identifying effective discussion*

To illustrate the criteria that were used to identify examples of effective versus poorer quality discussion, it will be useful to look in some detail at data extracts at each extreme of the continuum.[1] Extract 1 is a well-developed example of effective discussion. Here, the children are trying to reach a consensus as to what action to take in a problem where they suspect their "best friend" may have stolen fifty dollars.[2] Once JN has read out the question, the discussion begins with a proposition followed by a counter proposition, which is then challenged in its turn. At this point EM restates and elaborates her opinion, and JN acknowledges its validity by agreeing and incorporating it into his own position. At each subsequent point in the discussion JN and EM can be seen to modify their own and each other's thinking, linking their statements to previous utterances, and adding new reasons and evidence as support, until finally JN allows himself to be persuaded to agree with EM's position. At this point EM adds one final "clinching" argument, and JN restates his agreement that this is now their shared position, before going on to the next question. This extract is typical of most of this particular dyad's interaction.

EXTRACT 1

JN: *I'd probably go for a*

EM: *tell the teacher*

JN: *about your friend's fifty* ***dollars***

EM: ***I'd go*** *for b|*

JN: *|would you? (hold on) warn your* ***friend***

EM: ***I'd- I'd*** *warn your friend + um* ***+ and hope + and and and*** *advise them=*

JN: ***but it mightn't even be stolen***

EM: *=to um + put it back you know + slowly*

JN: *yeah + I + I think I'd do a AND b cos tell the teacher about the FRIEND's fifty dollars not to say the friend NICKED fifty dollars say cos-|*

EM: *|no well THAT'S what they mean I think*

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1 See Appendix A for two full sample transcripts. Sample I is an example of an interaction of relatively high quality (Category A), and Sample II is an example of a poor quality discussion (Category C).

2 See Appendix B: Task B, Problem 6.

JN: *true but um + mm cos I wouldn't say* ***(he's nicked it)***

EM: ***cos I- I*** *wouldn't want to peep on my friend +* ***not unless I*** *really really had to*

JN: ***no neither would I*** *yeah but I might tell the teacher that I saw it in her wallet ++ that my friend's GOT fifty dollars in his wallet do you want me to do anything about it that's what I might ask the teacher that sort of thing*

EM: *m-mm + I wouldn't + I don't* ***think I-*** *I don't think I'd tell the teacher*

JN: ***wouldn't you?*** *mm*

EM: *I think I'd advise the um ++ if you advised your friend then your friend might + realise I mean that* ***+ that they're going to get into*** *trouble*

JN: ***that- yeah (you might persuade him)*** *yes ( ) that's cool ( )*

EM: ***that way you're not*** *really + cos if you tell the teacher and and your friend finds out then +* ***you know they*** *won't really like you any more*

JN: *( ) yeah that's true + right ( )*

GP3#2GBF

The children are clearly engaged with the topic, exploring it fully with an open-minded, questioning attitude. There is evidence of hypothesizing, use of reasons and evidence, both based on the text and on personal experience. The quality of argument is high, involving the elaboration and interrelationship of ideas, the incorporation of alternative viewpoints, and providing and responding to referential feedback. These are all representative of the cognitive strategies described by Barnes (1976) that characterise effective exploratory talk.

Extracts 2 to 5, on the other hand, have been taken from interactions which either produced little or no elaborated discussion, or where the quality of discussion was inconsistent. They stand in clear contrast to the well-developed discussion of Extract 1, although there appears to be a variety of reasons for this.

The boys in Extract 2 seem preoccupied with working through the various components of the task as quickly as possible; their focus is not on the process of reaching a conclusion, but on finding the answer, and moving on to the next question. The discussion in this extract, which is typical of the interaction as a whole, consists entirely of unsupported opinions about the relative rankings of the alternatives, interspersed with simple agreements or procedural questions (eg lines 5-7). The participants show little or no interest in why their partner holds a particular opinion or in negotiating the answer. As a result little collaborative learning, or indeed learning of any kind, is likely to have taken place.

EXTRACT 2

GR: *you think your friend is taking drugs do you + tell your friend + all you know about the dangers of drugs tell his her present- parents*

ST: *(parents yeah)*

GR: *tell the school nurse + or your class teacher + um have nothing more to do with it|*

ST: *|so d would be* ***one***

GR: ***mhm*** *+ yeah yeah it'd be one + (tell) that'd be number two wouldn't it?*

ST: *what? tell her tea-CHER mm ++*

GR: *oh no that would be number THREE ++ cos tell your* ***friend all you know*** *about would be number=*

ST: ***yeah I know*** *I know*

GR: *=two ++ and number four would be tell + his her parents which is third (2) and that's number two ++ ( ) um let him her copy your answers that's number one ++ most certainly + number two do the questions together that's number four + um tell her to do homework alone + would that be number two? no that'd be number- yeah that'd be number two + mm suggest that she he ask the teacher for extra work would be number ( ) + yeah*

ST: *( )*

GR: *what do we do now?*

ST: *the next one*

(4#2BBF)

A similar pattern of interaction occurred in another interaction involving two girls, but in this case there was clearly a different dynamic at work. These girls seemed reluctant to come to terms with conflicts of opinion, and where they could not agree they often abandoned the attempt and wrote down two alternatives. They were, however, perfectly capable of a more elaborated style of discussion as they demonstrated later in the same task, when they were asked to go back over those questions where they had taken the "easy option", as seen in Extract 3, where the discussion starts to have a little more depth.

EXTRACT 3

MI: *your best friend buys a pair of new jeans + you think + that she looks terrible in them*

TR: *well telling your friend the truth isn't exactly very nice|*

MI: *|yeah but + she might have- they might (like) if she'd just bought them + she could take them back and get them refunded +*

TR: *mm (doubtful) ++ but if you say like the old pair better + it wouldn't be so- be incr- you know really horrible as saying ++ telling um the truth and it wouldn't- also it wouldn't be* ***lying or saying*** *+ she looked great in them*

MI: ***mm yeah***
+ mm ( )

(4#1GGF)

This suggests that, in this case, the initially poor quality of discussion may have been caused by too great a concern with agreement and social harmony; when required by the teacher to resolve conflicts of opinion, the girls were clearly able to elaborate their opinions to an extent, and negotiate a consensus position.

The boys in Extract 4, like those in Extract 2, seem to be distracted from both the process of problem-solving and their progress through the tasks by an overriding preoccupation with procedural matters, such as where to write the answers, or whether they have completed a certain task yet. As a result, the talk is extremely disjointed throughout their interaction, with many pauses, comments which bear little relation to what has gone before, limited feedback, and needless to say, very little elaboration of ideas. This pre-occupation with negotiating the structure of their progress through the task occurs at the expense of any sort of depth to the discussion.

EXTRACT 4

KY: *which of the three options d'you think (are best for ++) FAMily + if they|*

MA: *|oh yeah*

KY: *her*
(2)
MA: *her* ***+ I mean +*** *HER him* ***her***

KY: ***yeah ok*** ***where*** *d'you put the- d'you just put it IN the box?*

MA: *um (2)*

KY: would choose ++ ( )

MA: **what do we PUT?** oops + an asteriks [sic] or what? ( ) [laughs] [whispers]put an asteriks [sic] beside them in the margin

KY: [reads] can you think of any
(2)

MA: any other **possible solutions**

KY: **look + decide +** which of the three options + you think each family member would choose

MA: did we do number two?

KY: oops

MA: what? ++ what?

KY: oh no + oh let's see

MA: what (do you have to do?) do you put in an asteriks or what (2)

(2#3BBS)

In Extract 5, some worthwhile ideas are raised, but they are not developed beyond their initial introduction by either participant, although BR does attempt to give DN an opening to do so to which he does not respond. In this case it seems as though DN has largely lost interest in the task, and as a result is just "going through the motions". (This was borne out by my field notes). This lack of interest by the boy DN, associated with a reluctance or inability by the girl BR to pursue discussion points further, characterises much of the rest of this dyad's interaction, and results in a poor quality of discussion overall.

EXTRACT 5

BR: and that can be three (3) decide which one of the three options you think each family member sh- would choose (3) hmm + which one do you think each family member would choose (3) well dad would probably choose (tha-at) + cos +

DN: because uh| [yawning]

BR: |he's only got one child to look after

DN: yeah + but he's got more time off

BR: yeah

DN: now he's goin' to be made redundant (but +) tough bikkies

BR: so ++ dad would probably choose this (3)

(5#3GBS)

These less successful discussions all share a number of characteristic features. Firstly, the approach to the task tends very often to be closed; this is shown by a relatively large number of unsupported opinions or, where reasons are given, a low level of explanation. Participants seem to be easily satisfied with such solutions, with few questions or challenges, little elaborated referential feedback of other kinds, and a failure to build on the ideas of others. All of these factors result in a superficial level of discussion which sticks rigidly to the task structure, with little or no exploration of the topic before moving on to the next question.

In some of the interactions, one of the participants used, or tried to use, an open approach, while the other's contributions were of a more closed nature. This conflict of styles obviously affected the quality of the discussion overall, and therefore the outcome for individual students. Extract 6 is a good example of this type of interaction.

EXTRACT 6

PE: *mum ++ a good option*

SU: *oh it would be good for- um dad could live alone*

PE: *yeah cos he would- he wouldn't really know + um|*

SU: *|he wouldn't- I mean it was- it's not his fault + why should she get to look after the children and he shouldn't? ++ and then ( )*

PE: *yeah what shall I put for that + then? ++ mum (( )*

SU: **um**

PE: *b? ( )*

SU: ***yes*** *no cos yeah + u-um + it'll be bad for Kirsty + but for mum she- that's what she wants so +*

PE: *a G + (**okay**) G?*

SU: ***u-um*** *++ yeah + u-um ++ it'd be good for Zoe if she stayed with her mum because + um she's just moved into this new school*

PE: *yeah shall I put G there?*

(5#4GBS)

SU consistently tries to elaborate her reasoning, but her partner seldom follows this up with a response or elaboration of his own, except to clarify what the "answer" is, or where he should write it. It seems clear that a much better discussion would have resulted if both children had collaborated in exploring the problems. Good exploratory talk is, by definition, collaborative. To achieve it, both participants must adopt an open approach; it is not enough for only one to do so.

The essential difference, then, between discussions which are of high quality from a pedagogical perspective, and those of poorer quality, is the degree of openness they achieve and the extent to which ideas are explored. Where an open approach is adopted, the discussion process is elaborated in the ways described above, and the children seem concerned to consider as many "angles" to the problem as possible before reaching a conclusion. Where a more closed approach is taken, reaching agreement on the "answer", preferably as quickly as possible, seems to become an end in itself, with little concern for how and why agreement is reached. Table 8.1 summarises the differences between these two approaches, which can be seen as the two ends of a continuum, with the more open approach producing the best results from a pedagogical viewpoint.

TABLE 8.1

Characteristics of open and closed approaches to discussion

OPEN APPROACH	CLOSED APPROACH
Open-minded, questioning attitude	Easily satisfied, few questions, challenges
Expressing reasons to back up opinions	Unsupported opinions
High quality of reasons, logical steps to a conclusion, use of evidence	Low level of explanation, spurious reasons, little use of evidence
Referential feedback, often elaborating and linking ideas	Lack of referential feedback, and/or elaborated responses
Incorporating new/opposing ideas relating concepts to existing knowledge	Failure to build on ideas of others
Engagement with topic/exploring it fully	Lack of engagement with topic/little or no exploration before moving on

(Based on Barnes and Todd 1977)

8.3.2 *Assessing the quality of discussion*

I was able to make an impressionistic assessment of the quality of discussion in each interaction by looking at the characteristics summarised in Table 8.1. The typical length of sequences based on a particular sub-task or question, and the extent to which these "topics" and related arguments were elaborated and fully explored by one or both of the participants, provided broad guidelines. Although the quality of discussion may obviously vary between different parts of the same interaction, it was generally possible to see clear tendencies towards either an open or closed approach throughout the interaction as a whole. In some cases, the assessment was less clearcut, either because, as in Dyad 4#1 (see extract 3 above), the same interaction displayed both relatively in-depth and superficial discussion, or because the discussion displayed features of both approaches to the task, resulting in a limited amount of exploratory talk, as exemplified in extract 6. I therefore classified the interactions into three broad categories along a continuum:

CATEGORY A: "HIGH" where the discussion was largely open-ended, of a high quality, and met the learning objectives of the activity

CATEGORY B: "MEDIUM" where the discussion met these criteria in a substantial proportion of the interaction (about 50%), or where there was clearly some attempt at exploring or elaborating topics, but this fell short of meeting the criteria fully.

CATEGORY C: "POOR" where the discussion was largely "closed", of poor quality, and failed to achieve the learning goals of the activity.

8.3.2.1 *Results of classification*

The results of this classification are summarised in Table 8.2. There is a clear polarisation between the SSG and SSB dyads, with the girls consistently achieving an equal or better standard of discussion than the boys in this context. None of the SSG interactions were classified as "poor", two out of the five were rated as "medium", and three as "high"; the pattern for the SSB interactions is a mirror image of this, with none being classified as "high", two as "medium", and three as "poor". The mixed-sex interactions are spread more evenly along the continuum, but the majority are classified as reaching a medium to high standard.

These patterns are represented graphically in Figure 8.1. Clearly, the female SS dyads (SSG) in this study provided the best context for good exploratory talk, with mixed-sex (MS) interactions coming a close second; the male SS context (SSB) was the least favourable of the three.

TABLE 8.2

Effect of dyad composition on quality of discussion: number of interactions in each category

Category	Same-sex		Mixed-sex	Totals
	Girls	Boys		
A HIGH	3	0	4	7
B MEDIUM	2	2	4	8
C POOR	0	3	2	5
TOTALS	5	5	10	20

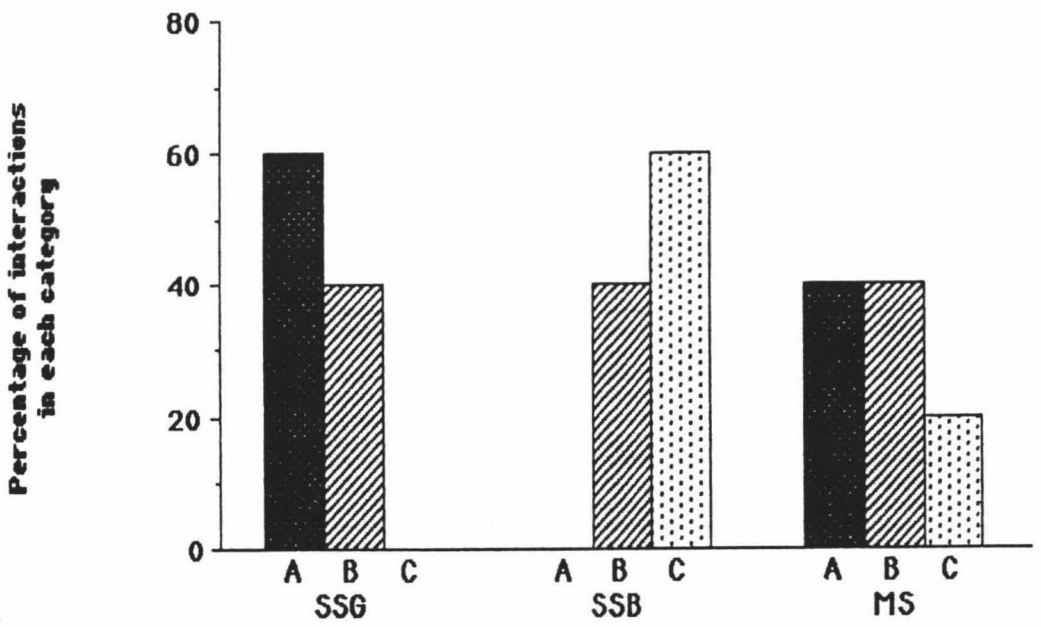

FIGURE 8.1 Effect of dyad composition on quality of discussion: Percentage of interactions in each category.

In order to investigate the effect of sex of partner, this analysis was followed up with a comparison of the classifications of the interactions in both contexts for individual speakers. This information is summarised in Figure 8.2. For thirteen of the twenty subjects (six girls and seven boys), the interaction involving a female partner produced a higher standard of discussion than the interaction with a male partner. For three individuals (all girls), the interaction reached a higher standard when their partner was a boy, and for the remaining girl and three boys, there was no correlation between sex of partner and the quality of discussion achieved.

Clearly, the girls in this study tended to provide a more favourable context for generating effective discussion than the boys. This conclusion is supported both by the evidence on the effect of partner sex, and the effect of dyad composition on the quality of discussion in particular interactions. The trend is clearly illustrated by Figure 8.3, which shows the comparison between the indexed scores for the three contexts.

Thus, discussions involving two girls reached the highest standard on average, while those involving two boys tended to the lowest average standard; mixed-sex interactions tended to advantage boys and disadvantage girls relative to same-sex interactions. The rest of this chapter will be concerned with exploring the relationship between this result, and how the sex differences in the interactive strategies discussed in Chapter 7 might influence the production of effective exploratory talk.

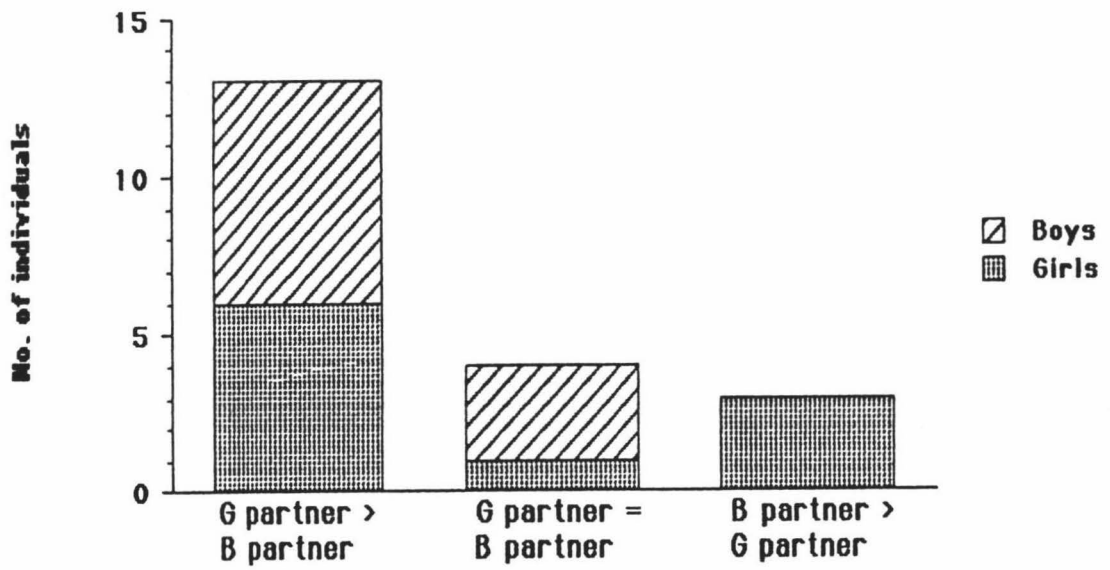

FIGURE 8.2 Effect of sex of partner on quality of discussion.

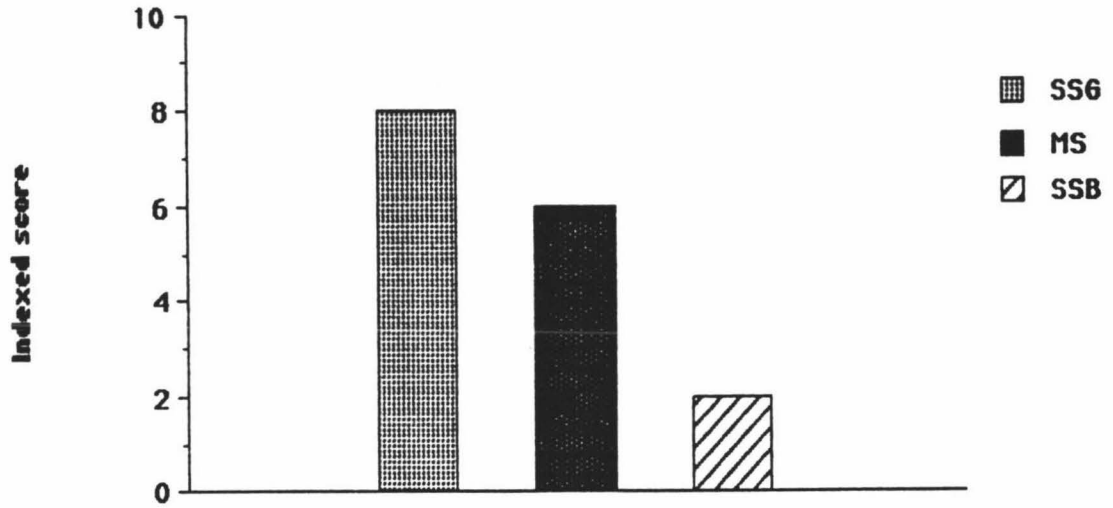

FIGURE 8.3 Effect of dyad composition on quality of discussion: Indexed scores for each context (same-sex girls. same-sex boys, and mixed-sex).

8.4 *INTERACTIVE STRATEGIES*

A prerequisite for successful exploratory talk is collaboration in the negotiation of meaning, as discussed above and in Chapter 4. This implies that good discussions will be characterised by facilitative interactive strategies which provide a basis for such collaboration, while poor discussions will be characterised by non-supportive strategies. The qualitative description that follows provides some examples of both supportive and non-supportive interactional strategies, and examines how these strategies function, in context, to affect the quality of discussion. It also explores further the recurring theme throughout this study that there is no fixed relationship between the form and function of an utterance: the same forms can function either supportively or non-supportively in interactional terms depending on the context and the goals of the speakers. This is a crucial issue in the interpretation of the results of the quantitative analysis presented in Chapter 7, and their relationship to the qualitative issues discussed in this chapter.

8.4.1 *Turn-taking strategies*

Barnes (1976) claims that one notable feature of good exploratory talk is its low level of competitiveness for turns at talk; conversely, where interactants take a competitive approach to turn-taking, the collaboration which is the basis of good discussion is less likely to occur. I attempted to measure this by quantifying the rates of interruptive forms and overlaps produced by the speakers in an interaction in the manner described in Chapter 6. The fact that interruptive forms, although potentially disruptive, are not necessarily all "competitive", was taken into account by sub-categorising them as supportive or non-supportive on a referential level.

In addition, the qualitative analysis of my data confirms the observation reported by other researchers (eg Edelsky 1981, Bennett 1981, Murray 1985, Coates 1988) that there is a crucial difference, on an affective level, between interruptive forms which function to control the interaction or restrict the contributions of other participants in some way, and those which function as part of a collaborative construction or to facilitate the other speaker's part in the interaction. (This distinction can be made independently of whether the content of the utterance is supportive or not on a referential level). There are examples in my data of interruptive forms functioning in both ways, as I will illustrate below.

8.4.1.1 *Interruptive forms used disruptively*

The potentially negative effect of interruptive forms on a discussion can be easily demonstrated. In the following extract, for example, BN's interruptions serve to cut off AD's statement of his opinion, and later, his justification of that opinion. While there is some elaboration of ideas here, it is likely the discussion would have been less superficial if AD had been allowed to say everything he wanted to say without BN pressing on with his own opinions.

EXTRACT 7

AD: b (2) eight [reads] your best friend isn't good at maths ++ um + suggest that oh + that's being ++ that's not + not **a friend at all**

BN: **not a very good** not a very good friend

AD: yeah not a friend at all

BN: not a VERY good friend + cos you're not really helping them that much

AD: oh but you're telling them **not to do it so you're NOT +**

BN: **oh yeah ( ) so it'd BE a** good friend not NOT a very good friend

AD: **yeah** two and what was it? it was d

BN: mm (3)

(1#1BBF)

It is interesting that where this disruptive, turn-competitive type of interruption occurs in my data, it often seems related to a desire on the part of the "interruptor" to speed up the process of completing a section of the task, rather than to a desire to hold forth on the topic themselves. Extract 8 provides a classic example of this type of interruption:

EXTRACT 8

AD: *I reckon that's a BAD one for the kids cos they'd be getting switched round all the time +*

KN: *yeah + they'd have to keep moving +*

AD: *yeah so + bad + do you reckon?*

KN: *yeah (2) they should* ***they should have- mm [laughs]***

AD: ***bad + bad bad + bad bad***

KN: *okay + um the family could stay together or- + but* ***the parents wouldn't like it + =***

AD: ***good good good good good=***

KN: ***the parents don't like each other***

AD: ***=yeah + bad***
bad + good good good [chuckles]

KN: *yeah*

(1#3GBS)

As in Extract 7, the effect on the discussion is to cut short the interlocutor's attempt to make a point, and to focus on the end result (writing down "the answer") rather than on the process of reaching a joint solution.

8.4.1.2 *Interruptive forms as supportive strategies*

On the other hand, interruptive forms often seem to function as supportive strategies (on the affective level) in this data, signalling close involvement in the interaction, and as a strategy for active listening. In some such cases, the interruptive form seems to function much like a backchannel response, (what Edelsky (1981) refers to as a "non-floor-holding turn", and French and Local (1983) as a "non-competitive incoming"), serving to encourage the mainchannel speaker to continue, or to affirm what they are saying. There are two clear examples of this sort of strategy in Extract 1, where JN interjects "no neither would I" and "wouldn't you?".

Another example of how interruptive forms may be used as a collaborative strategy is seen in "sentence completion", where a second speaker predicts, usually accurately, how the first speaker will finish a point, and "chips in" before the other speaker has

completed their utterance. The interjection "that- yeah you might persuade him" in Extract 1 provides an example: the "interruption" is clearly not a disruptive strategy in this case, but rather, is a sign of how closely JN is following EM's thought processes.

Sometimes this second strategy develops into a longer collaborative sequence (similar to Edelsky's (1981) concept of a "collaborative floor"), where the speakers seem to be jointly constructing and developing a single train of thought, almost as if they were speaking with one voice, rather than following a "one at a time" rule. In this data, these sequences most often occur in interactions classified as producing a good quality of discussion. Extract 9 is a typical example of such a collaborative sequence.

EXTRACT 9

BN: *[reads] dad could have the kids during the week + mum could have the kids during the weekends and during the holidays ++ that's-(2)*

GB: *that would be-/*

BN: */good for ALL of them?*

GB: *[laughs] no-o ++ because then the mother well HE'D have them ++* ***through the-*** *yeah ++ the father would have=*

BN: ***all the time***

GB: *=them MOST of* ***the time***

BN: ***so it's BAD*** *for the mum*

GB: *yeah +* ***it's good for dad***

BN: ***it's good for dad*** *++ for* ***KIRSty yeah*** *it's good=*

GB: ***it's good for Kirsty***

BN: *=for Kirsty ++ good for Martin + oh ++ he liked his mum doesn't he?*

GB: *yeah*

(1#4GBS)

It is difficult to capture the dynamics of these sequences in a transcript alone. When heard on a tape, they are remarkable for the degree of precision timing displayed by the speakers; at the same time, the tempo usually increases, but the tone is one of enthusiasm rather than urgency, and instead of the speakers competing for the floor, there is a marked sense of collaborative construction of the dialogue.

8.4.1.3 *Implications*

These examples show that it is clearly simplistic to relate a strategy such as using interruptive forms to a single function in terms of the discourse. It is not possible to predict from either its form alone, or from its supportiveness on a referential level (agreeing or disagreeing), whether an interruptive form actually functions disruptively on an interactional level, by interfering with the other speaker's turn at talk, and disorganising the ongoing construction of the topic (cf West and Zimmerman 1983). These observations could apply equally to overlaps or even smooth speaker switches; it is not necessary to interrupt another speaker in the formal sense in order to violate their perceived "completion right" by cutting short their elaboration of a point (Murray 1985), or in order to force a sudden topic shift (cf Camden and Kennedy 1983). Conversely, the same forms can all clearly function facilitatively; it is noteworthy that some of the most successful discussions in this data, both in terms of their degree of collaborativeness and quality of discussion, were characterised by a higher than average rate of interruptive forms and overlaps from one or both participants.

The critical point here seems to be the relationship between turn-taking and topic-management; it has been argued that the degree to which an utterance is facilitative or disruptive in interactional terms should be measured by the extent to which it allows or discourages others to elaborate their points (cf Bennett 1981, Murray 1985). As noted above, speakers who engage in sudden topic shifts or discourage others either from speaking at all, or from elaborating on a point, tend to produce discussion which is somewhat disjointed and of a lower standard from an educational point of view. Good quality discussion on the other hand is facilitated by strategies which lead to topical coherence, for example by allowing a speaker to build on previous utterances. As we have seen, to assess how such strategies might affect the quality of discussion, it is necessary to analyse how speakers manipulate turn-taking rules and strategies as one of a number of ways to achieve their particular conversational goals (Edmondson 1981).

8.4.1.4 *Sex differences*

The brief qualitative discussion above shows the complex nature of the data with respect to turn-taking. This makes it difficult to directly relate the numerical results on turn-taking to the quality of discussion. It is not possible, for example to draw any conclusions about whether the boys were more or less likely than the girls to use interruptive forms in a disruptive manner, as this issue could not be adequately addressed by the model used. (This problem of definition has not yet been resolved in the existing literature on turn-taking, and remains to be addressed by future research).

It is, however, possible to make some general comments. There were no significant differences between boys and girls in their overall use of interruptive forms in either context, and the interactions in this data were characterised by a relatively low rate of these forms. The descriptive analysis above demonstrates that a significant proportion of these may be assumed to function facilitatively. It is clear, therefore, that the interaction of both sexes is characterised by a very low level of turn-competition,

one of the prerequisites for successful collaboration. This is consistent with the fact that fifteen of the twenty interactions could be classified as producing a moderate to high quality of discussion.

This result is interesting in the light of the finding reported earlier in this chapter, that boys were advantaged and girls disadvantaged, in terms of the overall quality of discussion produced, by being in a mixed-sex group relative to a same-sex group. Clearly, in this instance, other factors are causing the qualitative difference between the sexes; while turn-competition is likely to be an important variable in other situations, it is not the case here that the boys used disruptive turn-taking strategies to dominate the discussions, as I hypothesised on the basis of the literature review.[3]

While there was no evidence to suggest that boys interrupted more often than girls, as noted in earlier research (eg Stubbe 1978), there was a small tendency for girls to make more use of overlaps as a means of gaining the floor, particularly in the mixed-sex interactions, where they produced a larger proportion of the talk. Whilst only speculative, this could be interpreted as a non-competitive strategy used by the girls to achieve active involvement in a discussion. Whether this is an accurate assessment or not, the data certainly suggests that use of this strategy did not disadvantage the girls' interlocutors in terms of the quality of discussion produced.

8.4.2 *Providing and responding to feedback*

The amount and type of both affective and referential feedback speakers provide for each other, and how they respond to this feedback also affect how collaborative a discussion will be. The two main sets of feedback strategies which it has been suggested facilitate collaboration include: providing encouragement via positive affective feedback, including overt support or agreement, minimal responses and other signals of active listening; and referential responses which provide links with the previous contribution, such as qualified or elaborated agreements and disagreements.

8.4.2.1 *Affective feedback: Providing encouragement*

Positive feedback facilitates good discussion for two reasons. Firstly, because it encourages other speakers to participate actively, and helps to establish that a shared framework exists, both obviously prerequisites for truly collaborative interaction; and secondly, because it encourages the receiver to elaborate further on their ideas. A lack of affective feedback does seem to adversely affect the tone and depth of a discussion (see extracts 2 and 6 above). Extract 10, in contrast, nicely illustrates several different types of encouraging feedback. SU and BR are discussing question 3 in the "Friends" task:

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3 It is likely that the dyadic design of the interactions was an important factor in reducing the amount of competition for the floor, in concert with the stepwise structure of the tasks.

EXTRACT 10

SU: ....++ um I would say ++ um +
changing the subject because if you- + if you said she looked better in the old pair ++ it's it's like=

BR: **she might**

SU: =s- saying tell the truth + but=

BR: **yeah**

SU: =if y' you know if you sort of + if you- she might- if you tell the truth + ( ) **because** + she'd

BR: **(then she might feel) put down**

SU: =be you know she might be- she might feel a bit rejected but **if** you DID tell the truth it's because you're =

BR: **mm**

SU: =truthful to your friend + and 'n 'n say that so I=

BR: **yeah**

SU: =think it would be + if you said you liked the old pair better it would be LIKE + saying your friend looks great ( ) when you don't think she does look great in them + so that's- I think you could say you liked the old pair better and that'd be a little lie cos that's (almost) saying like putting- trying to put her down

BR: **ye-ah**

SU: um/ + **tell the tr- tell your friend the truth or change the subject=**

BR: /**but ++ I can't tell the truth**

SU: =I wouldn't tell the truth cos it would hurt her I (think) I'd just change the subject cos I mean you're not **making** a comment on any of them? ++

BR: **yeah**

(5#1GGF)

In lines 7, 15, 17, 24 and 31, BR gives minimal responses (eg mm, yeah), while in line 11 she produces a "backchannel" sentence completion ("then she might feel put down"), which foreshadows SU's subsequent comment neatly. In line 26, her statement "but I can't tell the truth" acts as a prompt to remind SU of a point she has already made earlier (in line 12). Thus although BR takes on the role of "secondary speaker" or listener here, as she tends to do throughout this interaction, she is by no means a passive participant in the discussion. On the contrary, her active listening skills here help to develop the line of reasoning in a reasonable amount of depth. (This is in marked contrast with Extract 6, where, although the interactions look superficially similar, PE is providing very little active encouragement).

Speakers sometimes provide encouragement in more direct ways too. This strategy may lead to a better, more balanced discussion, as long as the other person co-operates by responding to the attempt to elicit a response. In Extract 11, for example, TR is not happy just to receive supportive feedback herself, but checks that MI has said all she wants to, and repeatedly tries to elicit contributions from her, but with little success:

EXTRACT 11

TR: *is that all?*

MI: *yeah*

TR: *all right I reckon it's + um someone who you can trust ++ who doesn't go off with someone else and just sort of leave you stranded ++ and someone who is + caring + um=*

MI: *mm*

TR: *=++ u-um ++ someone you like*

MI: *yeah [agreeing]*

TR: *and what else? um (2) oh yes + fun to be with*

MI: *mm*

TR: *a-and ++ you say some more things too*

MI: *oh*
(2)

(4#1GGF)

8.4.2.2 *Referential feedback*

While affective feedback is important in building a co-operative framework, encouragement is not usually enough on its own to produce effective discussion. The amount and kind of referential feedback, and how it is responded to in turn, is probably one of the most crucial factors determining the quality of talk. The best kind of referential feedback has both social value and cognitive value (Barnes and Todd 1977): it encourages a sense of "shared validity" and facilitates a co-operative "groping towards meaning" by producing the cognitive conflict required to take the discussion beyond a superficial trading of opinions (cf Phillips 1987).

Socially skilled speakers seem to recognise the importance of referential feedback, and seek the active participation of others in a discussion; they seem to intuitively understand that good discussion is a two-way process, and will often elicit feedback if it is not forthcoming. This can be seen in Extract 12, where LU seeks confirmation that MK actually agrees with her, despite his regular contribution of minimal feedback:

EXTRACT 12

LU: *okay + your best friend + oh ( ) um + who cheats in an exam so + um ++ um tell the teacher because you don't think it's fair that she should that she he + should get better marks than you I THINK ++ I think C's the worst eh? I do + tell the person=*

NE: ***yeah*** ***mm***

LU: *=cos + then he'd just get into- she or he would get into trouble? + d'you agree?*

NE: ***mm*** *yeah I think so*

(3#1GBF)

The importance of elaboration

However, while simple agreement or disagreement provides useful feedback, it will be remembered that one of the criteria discussed earlier for defining good exploratory talk is the presence of elaborated responses, which encourage the justification of opinions with reasons and evidence, and the weighing up of alternatives to reach a reasoned consensus view. Extract 13 provides an excellent example of the importance of such elaboration:

EXTRACT 13

KN: *okay ++ right um ++* ***should it be one month or two months that they ( )?***

AD: *( )* ***that they + take + take turns each YEAR?***

KN: *well mm + hm*

AD: *no that wouldn't be good*

KN: *[laughs] what about every two months + I reckon*

AD: *okay + take turns every two months*

KN: *all right the kids swap from family- from parent to parent every two months*

AD: *but not house + the parents chan- the parents change in the houses + but the* ***kids sta-***

KN: ***the PARENTS swap?***

AD: *the parents swap houses ++ cos otherwise the kids would=*

KN: ***[laughs]***

AD: *=have to move you know all the time*

KN: yeah but ( )

AD: **you know one could live in his flat** [loud] and ( ) could have the house + and they live in the flat
20 and they live in the house then they live in the house and they live in the flat

KN: [laughs] but + but all their stuff would be in this house and then they have to move and live at the other guy's place (person's stuff)

25 AD: NO-O + you see the kids stay in the house all the time + and say one month dad is here then he moves out to the flat + and the mum comes in and stays in there + and then the dad moves out + oh just say + change it over month by month or something

30 KN: **[laughs]**
okay kids or parents change over every month

AD: yeah

(1#3GBS)

Here, AD and KN initially reach agreement quite quickly, but when KN recapitulates on what she assumes to be the consensus view, AD realises they are at cross-purposes after all, and restates his opinion in a modified form. This leads to a much more extended discussion of his rather novel point of view, which is then accommodated in a "compromise" solution.

Constructive disagreement

The increased depth of this discussion seems to stem from the juxtaposition of alternative points of view, with the children having to either accommodate the alternative, or else persuade their partner that theirs is the correct opinion. The main strategy used to achieve this here is constructive disagreement, which functions to develop a line of thought, not to cut it off. Disagreements which are modified in some way (eg line 18: "yeah, but...") serve to acknowledge the validity of the other person's point of view, thus reaffirming that this is a shared problem; where they are also qualified with reasons or counter-evidence (as in lines 11, 19, 24, 26), they strengthen the discussion by adding further points for consideration, and providing links with previous utterances. Both strategies seem to foster an open approach to the issue under discussion, and hence a deeper exploration of the topic.

Bald disagreement

Bald challenges or disagreements can sometimes function to elicit further elaboration, particularly if framed as a question requiring clarification of the preceding utterance. In Extract 13, KN's challenge "the PARENTS swap?" results in AD reaffirming his opinion, and providing a justification for it. In the next extract, a bald disagreement also sets off a sequence of elaborated opinions:

EXTRACT 14

DI okay + the worst thing you could do is to + **tell your friend** she looks great in them +

KY **tell the truth** NO-O tell your friend the TRUTH

DI no the worst thing is to tell your friend that + because then they'll go outside and show off and everything + ( )

KY **but if you told them the truth** you'd lose your friend

DI well that- if you go- well I don't REALLY like them particularly you should have got a different pair you say they're not all that good then + you MIGHT not lose them if they're a good friend

KY oh it wouldn't matter with some of my + OLD friends ++

DI mm

(2#2GBF)

Generally, however, the strategy of bald disagreement is more likely to be non-facilitative, both in interactional terms, and in promoting elaborated discussion. Bald disagreements may convey negative affect, and because they do nothing to acknowledge the validity of the previous utterance, are likely to be less conducive to collaboration. They include no elaboration of the topic, and may discourage further discussion, resulting in simple trading of opinions, a lower level of reasoning, or less linking of ideas and evidence; in short, they reflect a closed approach. The next two extracts illustrate these points:

EXTRACT 15

BE: ..record + would be three I think

JA: **AND** AND (never lend your friend a record again)

BE: I wouldn't do that|

JA: |wouldn't you?|

BE: |no|

JA: |I think I would though

BE: I wouldn't ++ (disgusting)

(3#2GBF)

EXTRACT 16

KY: *so let's see what's the worst one here [whispers text]*

DI: *THAT'S the worst I reckon*

KY: *do you?*

DI: *yeah*

KY: *why?*

DI: *I don' know*

(2#2GBF)

Agreement

Elaborated agreement is another strategy that seems to promote an open approach. Extract 17 provides an example of two speakers who quickly agree, but nevertheless explore some of the reasons for justifying their solution, rather than being satisfied with the initial agreement:

EXTRACT 17

SU: ***um + ask*** *your friend to stay at home until she has calmed down that might be a good one (2)um*

BR: *I'd persuade my friend + (my**self**)*

SU: ***I*** *think I'd try 'n- I would ask her to stay at home till she's calmed down probably + if she ran away she'd calm down then when she's calmed down ++ sh- if she ran away +*

BR: *she wouldn't **really calm down because she's (mad)***

SU: ***she'd- she wouldn't calm down actually*** *because she'd be still angry*

BR: *and she'd be + upset and stuff*

SU: *yeah + and when she ca- does calm down she'll think oh I don't see why I should + like being ( ) so she **wouldn't** calm down*

BR: ***yeah*** *d'you still want that for this one then?*

(5#1GGF)

The collaborative sequences described above are another context where this strategy seems to be used in a constructive way.

However, agreement does not always facilitate exploratory talk. Although overt agreement may well function to encourage another speaker, it does not automatically lead to a high quality of discussion, but can sometimes represent a strategy for opting out of more elaborated discussion. as illustrated by Extract 2 above. As discussed earlier, this may happen because of an over-emphasis on the social or affective dimension of the interaction, or because of a reluctance to become engaged in "unnecessary" discussion of a point, where an instrumental motivation dominates. Although there is no quantitative data to support it, my impression is that this strategy is more prevalent on the part of boys in this data, which would be consistent with previous research.[4]

8.4.2.3 *Implications*

It is not possible to relate the interactive strategies of minimal feedback, agreement and disagreement in a straightforward way to the quality of discussion, because their precise function depends on the context in which they are used. Moreover, their effect on the interaction is largely determined by how the other participant responds. It is clear, however, that supportive minimal responses and explicit agreements provide a favourable context for collaboration, and that in this context, elaborated agreements and qualified disagreements are important strategies for producing effective, open-ended discussion.

8.4.2.4 Sex differences

When taken in conjunction with the results of the quantitative analysis, these conclusions provide some explanation for the finding reported earlier in this chapter, that interactions involving girls in this study tended to produce a higher standard of discussion.

As reported in the previous chapter, the minimal response data was consistent with the hypothesis that girls will tend to produce more instances of positive minimal feedback than boys when they are in the role of secondary speaker or hearer. This suggests that to some extent the boys in this study tended to be less supportive interlocutors than the girls. However, the fact is that overall, the boys SMR rate was comparable to that of the girls, particularly in the mixed-sex context, and that both sexes produced comparable numbers of agreement responses. This leads to the conclusion that, as with interruptive forms, the explanation for the differences in quality of discussion lies largely elsewhere. It is not possible to conclude that the boys in this study were significantly less likely than the girls to contribute to the development of a collaborative mode of interaction because they provided less affective feedback.

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4 This observation is supported by a piece of anecdotal evidence: one boy interviewed after the pilot study commented that in discussions with a girl, he only disagreed if he felt really strongly about an issue, otherwise the discussion would "drag on" for too long.

However, the quantitative analysis did reveal a marked gender effect in the use of disagreement strategies: while the overall numbers of disagreements produced were comparable, the girls produced four times as many qualified disagreements as boys. The descriptive analysis above shows quite clearly that this strategy has a positive effect on the quality of discussion. Clearly, this difference in interactive style must provide at least part of the explanation of why the girls in this study tended to provide a more conducive environment for exploratory talk than the boys. It is possible that a similar pattern exists for agreement strategies, but as these were not analysed quantitatively, this must remain as speculation.

8.5 *DISCUSSION OF RESULTS*

The discussion which follows has two aims: firstly, to summarise the extent to which the data from this case study provides evidence to support the existence of different female and male interactive styles, and secondly, to explore some possible interpretations of the results.

The descriptive analysis of the data leads to two main conclusions. Firstly, it shows that interactions involving girls tended to produce a higher standard of discussion, with the same-sex/girl dyads providing the most favourable, and the same-sex/boy dyads the least favourable context; the girls in this study were more likely than the boys to facilitate effective exploratory talk. Secondly, it confirms that the interaction strategies investigated here all have the potential to affect the quality of the talk in educational terms, although their exact function is heavily context-dependent.

In this chapter, and in Chapter 4, I suggested a link between the interactive and cognitive strategies typically associated with an open approach to discussion, and the collaborative interactive style typical of females. Except for a small tendency for girls in same-sex pairs to use more minimal feedback than boys in either context, this study did not confirm previous research suggesting that females are more likely to use facilitative interactive strategies such as minimal feedback and explicit agreement, and that males are more likely to use disruptive turn-taking strategies.[5] The explanation for the gender effect found in the qualitative analysis of this data must, therefore, lie elsewhere.

The quantitative analysis does reveal significant differences for two of the variables studied; namely, the results on amount of talk, which confirmed the hypothesis that in this context the girls would talk more than the boys in MS dyads, and a very marked sex difference in the strategies used by girls and boys to express disagreement. It is possible that the girls are making more use than the boys of other collaborative strategies, as outlined earlier, in particular the elaboration and linking of ideas, and constructive disagreement, strategies which are facilitative on both the affective and cognitive levels. These two results can therefore be clearly related to the girls'

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5 Factors which may have affected this result are outlined below.

tendency to facilitate good exploratory talk, as well as providing quantitative evidence to support the existence of distinct male and female styles.

The differences in style observed in this data seem to relate most closely to the way that the girls and boys perceived their respective roles in an interaction, and to their norms for the management of topic flow and shift (cf Maltz and Borker 1982). There was some evidence, for instance, of a greater tendency for the girls to focus on the processes of interaction, and thus to conform to the actual agenda of the tasks, which were designed as a vehicle for discussion. The boys, on the other hand, seemed to focus more on meeting the literal task requirements. It may be that the task design harnessed a natural propensity on the part of the girls to talk issues through (Tannen 1990b), to be "talk-centred" rather than "task-centred". This difference in focus should be viewed as existing along a continuum rather than as a dichotomous distinction, as the observed differences were sex-preferential rather than sex-exclusive, and there is, moreover, some evidence to suggest that the boys were accommodating to female norms in the MS context (ie. there was an increase in the boys' rate of minimal responses, and a decrease in their rate of bald disagreements in the MS context compared to the SS context). It is clear, however, that in the context of this study, "talk-centred" strategies such as elaborated disagreement were more characteristic of the girls' interaction style, and also related closely to an open approach to the problem-solving, with a positive effect on the quality of discussion, and therefore, arguably, on the quality of thinking generated, while "task-centred" strategies were linked to a closed approach, and a poorer quality of discussion.

The finding that the girls contributed more than the boys in the mixed-sex interactions, and that these interactions tended nevertheless to be more symmetrical than the same-sex interactions, also suggests that girls and boys may perceive their roles in an interaction differently. The girls in this study seemed to do what was necessary to facilitate the interaction, which might mean being a supportive active listener in one context, or taking the responsibility for sustaining the discussion by assuming a more dominant role in another (cf Fishman 1983). This interpretation would explain the observation made in Chapter 7, that girls who contributed little actual content in a same-sex context, invariably contributed an equal or greater than equal share in a mixed-sex context, while boys who contributed little did so in both contexts. It would also be consistent with the finding that girls' dominance of the talking time in MS and SS interactions was not achieved by disruptive strategies, but was rather associated with a higher rate of supportive overlaps and elaborated disagreements.

The quantitative data on the variables of amount of talk and disagreement strategies also support the suggestion that females and males have different norms relating to topic management (eg Maltz and Borker 1982, Fishman 1983). The qualitative analysis shows there are clearly different routes to good discussion. There are examples in the data of very good discussions where one speaker largely adopts the role of "primary speaker" (Bublitz 1988), with the other as "secondary speaker" or "hearer" throughout (eg Extract 10); in other cases the same pattern results in far less effective talk (eg Extract 6). Similarly, a discussion is not necessarily better overall simply because both partners are contributing more or less equally. What seems to be most important is not how much each partner contributes, but to what extent they are both actively engaged

in developing the current topic. The fact that girls consistently spoke the most in MS interactions, but that the asymmetry between speakers tended to be smaller than in SS interactions, suggests that the girls were concerned with fostering participation and communication rather than with domination, but also that they were doing more to produce elaboration of topics, as reflected in the predominance of qualified disagreements among the girls. By acknowledging the previous contribution and building on it, a modified disagreement is both polite, and allows further discussion to take place on the topic. This contrasts with the disjointed nature of talk which may result from the frequent use of strategies such as bald disagreement.

8.6 *CONCLUSION*

In discussing the significance of these results, it must be noted that a number of factors other than gender are likely to have affected the strategies used, thus reducing the potential size of any gender effect. For example, the dyadic design of the experiment, together with the nature of the tasks, reduced the need to compete for the floor, and the children's previous experience of small group work meant that they were relatively skilled in the dynamics leading to co-operative interaction. The task content and the use of peer interaction were designed to make the activities "girl-friendly", in order to compensate for the asymmetries in access to talk by girls and boys commonly found in other classroom contexts, and to provide a context where collaborative interaction would be encouraged. It is also likely that the combination of working co-operatively in dyads on a teacher-initiated activity, and in a semi-formal context would make gender less salient, particularly in mixed-sex interaction (Thorne 1986), and encourage the boys to take on a more interpersonal orientation (Aries 1976). Individual differences clearly also affected the pattern of results, and in a small study such as this were more likely to mask the effect of other variables such as gender.

However, while there is an imperfect correlation between the results of the quantitative and qualitative analyses, they are not inconsistent with one another. On the contrary, by taking both into account, it is possible to gain a much clearer picture of the processes at work in these interactions than would otherwise have been possible. It is clear that the children used whatever interactional strategies were available and appropriate to meet their communicative goals at a particular point in an interaction. Although there were differences in the specific strategies typically used by girls and boys in this study, their main importance lies in the extent to which they reflect different norms and expectations of interaction, which in turn influence the quality of discussion achieved. It is significant that in spite of all the factors mitigating against the occurrence of sex differences, a clear gender effect did emerge in this study.

Chapter 9

CONCLUSIONS

9.1 *INTRODUCTION*

This study had two main purposes: first, to investigate the existence of sex differences in interactional style for a particular group of New Zealand schoolchildren, and second, to examine the implications of any such differences for the children's learning in the context of peer interaction. These aims, together with the more detailed research questions and hypotheses set out at the end of Chapter 4, were based upon a comprehensive review of the literature relating to sex differences in conversational style, with a focus on strategies for turn-taking and providing affective and referential feedback, and also on recent research on sex differences in classroom interaction patterns. The data collection was designed as a case study, with control over as many non-linguistic variables as possible. These variables included sex of speaker, sex of partner, age, ethnic and social background of subjects, setting, and task content, structure and sequence. The data was then transcribed and subjected to both quantitative and qualitative analysis in order to test the hypotheses.

The results of the data analysis, when interpreted in the light of the evidence reviewed in the first part of the thesis, lead to two main conclusions. These conclusions will be discussed in this final chapter, together with some of their sociolinguistic and pedagogical implications. I will then briefly review some of the problems arising out of the analysis and interpretation of the results, on which I base some suggestions for further research.

9.2 *SEX DIFFERENCES IN INTERACTIONAL STYLE*

When both the quantitative and descriptive analyses are taken into account, the data from this study is consistent with the general pattern of sex differences in interactive style summarised in the literature review. Namely, the girls were inclined to use a more collaborative, polite, affiliative style of interaction, while the boys were more task-oriented, paying less attention to the face wants of their interlocutors and the processes of interaction. This conclusion may not seem warranted on the basis of the quantitative analysis alone, where the results were somewhat mixed, but as discussed in the conclusion to the previous chapter, once the descriptive analysis is taken into account, together with the effects of a number of non-linguistic variables (eg task-type, dyadic design), it becomes clear that the data provides both direct and indirect support for the existence of sex differences.

On the one hand, there was little evidence from this study to suggest that the boys were more directly competitive or aggressive in their style of interaction, as reflected in the fact that there was a low level of competition for turns overall, and no significant differences were found between girls and boys in the turn-taking strategies

used. This was accounted for, at least in part, by the effects of pair versus group interaction, and the generally co-operative nature of this type of discussion (Phillips 1987). However, other systematic differences, consistent with the results of previous research, were observed. The girls produced more talk relative to the boys in the mixed-sex context; minimal responses were distributed differently, suggesting different norms as to their use and function; and the relative proportions of the strategies of modified and bald disagreement were markedly different. All of these linguistic variables relate closely to the issue of topic management, and the differences in their use suggests that girls and boys may perceive their roles in an interaction rather differently. The strategies and patterns of interaction used by the girls are consistent with a preference for being polite and supportive of other speakers, for making explicit connections with previous utterances, and for the joint construction of topics; those more typical of the boys are consistent with a focus on the immediate task and its end result, rather than on the social and cognitive processes of achieving it, and reflect a fairly narrow definition of topic.

9.3 *SEX DIFFERENCES IN THE QUALITY OF DISCUSSION*

The descriptive analysis confirms previous findings that collaborative interactive strategies facilitate good exploratory talk. It also suggests that for this group of children at least, the sex composition of the dyads was an important variable in determining the overall quality of discussion, and therefore the potential learning outcome, in the interactions studied, with the girls more likely to facilitate open-ended, elaborated discussion than the boys.

This gender effect cannot be accounted for by a difference in the use of disruptive turn-taking strategies, as there was a low level of turn-competition from both the boys and girls in this study. It is, however, consistent with differences found in the use of facilitative interactive strategies, particularly those associated more strongly with the girls such as modified disagreement, supportive overlaps and supportive minimal feedback, which have been shown in previous research to contribute to effective discussion. The strategy most strongly associated with the boys was bald disagreement, which is less likely to lead to elaborated discussion. Interestingly, there was also evidence of the boys accommodating their linguistic behaviour to some extent when paired with a girl, as shown by their tendency to produce fewer bald disagreements and more supportive minimal responses in this context. Again, this is consistent with the finding in this study that interactions involving girls produced a higher quality of discussion.

9.4 *IMPLICATIONS*

9.4.1 *Pedagogical implications*

A number of factors clearly affect the quality of discussion achieved in peer interaction. The children in this study had regular experience of working independently in pairs and small groups, and were also accustomed to working with a range of classmates of both sexes (cf Barnes and Todd 1977). They also came from classrooms where a co-operative and open approach to learning and interpersonal relationships

was encouraged. The generally collaborative nature of the interactions studied, and the fact that the discussions were of a reasonably high standard overall, reinforces the importance of establishing such a classroom environment, and the value of teachers organising learning in small groups or pairs, if exploratory talk is to be encouraged. In addition, the relatively informal context in which the data was collected, and the nature of the tasks selected (both in terms of their content and the fact that they were "talk-centred"), also helped to encourage the girls, in particular, to participate in open-ended discussion. These observations suggest that it is possible for teachers to manage children's learning so that girls are not disadvantaged as much as they tend to be in other classroom contexts. However, despite all these balancing factors, participant sex remained an important variable in determining the outcome of the interactions, with both boys and girls benefiting more from being paired with a girl than with a boy. By virtue of their command of "female style", girls clearly have many interactional skills at their disposal which it would also be useful for boys to include in their verbal repertoires. The teacher's task is to make sure that all pupils have the opportunities to make use of and develop such skills to facilitate their own learning without disadvantaging others in the process.

9.4.2 *Sociopragmatic implications*

The problems encountered in devising satisfactory definitions and categories for the quantitative analysis of the data, and the descriptive analysis of the various interactive strategies studied, both highlighted the fact that the same linguistic forms can be used as strategies to produce very different interactive outcomes. Thus, in different situations, an interruptive form may be disruptive or supportive of the other speaker's utterance, an agreement or minimal response may serve both to encourage the elaboration of a point or to cut it short, and dominance of the talking time may reflect control of a conversation or a greater preparedness to do the interactional work. The strategies selected and how they function will reflect the communicative goals of the speaker and the interactional resources available in a particular context: there is no invariant relationship between form and function.

This has important implications for research into sex and language. For example, the conclusions drawn from studies focusing on quantitative sex differences will be rather simplistic if a particular interactive feature, such as interruptions, for instance, is related in a straightforward way to a single function like conversational dominance, without adequate consideration of contextual factors. This helps to explain why much of the existing evidence on sex differences in language use seems contradictory at one level of detail, even though the overall trends are quite clear. This was certainly the case for the present study; the quantitative results could be interpreted far more satisfactorily when put into the overall context of a descriptive analysis. Although this may seem a very obvious point, it is one which has often not been adequately recognised and dealt with in the past.

9.5 *SUGGESTIONS FOR FURTHER RESEARCH*

Not surprisingly, this study seems to have raised more questions than it has answered. The analysis of the linguistic variables suggests two potentially fruitful areas of further research. Firstly, a more detailed descriptive analysis of disagreement strategies would be of interest, especially the sub-category of "modified" disagreements, which embodies a range of strategies not differentiated for the purposes of this study. There may well be more sex differences in the use of disagreement strategies than the one identified here. The same is true of agreement strategies, which were not distinguished here for the purposes of the quantitative analysis. Although there is no direct parallel with disagreements, it is nevertheless possible that the apparent lack of difference between the sexes in the total number of agreement responses similarly masks a sex difference in preferred agreement strategies. It would be of particular interest to look at agreement responses which function to develop or elaborate a topic, as opposed to those which function as a means of topic shift.

Secondly, the issue of defining interruptions and how they function in turn-taking and topic management needs to be addressed. In fact, a number of the assumptions of the Sacks, Schegloff and Jefferson (1974) model, widely used as a basis for studies of interruption, have been increasingly called into question by a number of researchers (eg Bennett 1981, Edelsky 1981, French and Local 1983, Murray 1985, Coates 1988). It has become increasingly clear to me during the course of this study that more descriptive and theoretical work is urgently needed to provide an adequate basis for the quantitative analysis and interpretation of sex differences in interruption behaviour and other aspects of the turn-taking system.

The other facet of this study, the relationship between sex differences in interactive style and how children learn through talk, provides equal scope for further research. There is, firstly, a need for more empirical investigation into the exact nature of the link between exploratory talk and learning. Moreover, much descriptive work remains to be done on the exact relationship between particular interactive strategies (such as agreement and disagreement strategies or questions) and exploratory talk, and how this might relate to sex differences in interactive style. Finally, for those with an interest in promoting gender equity in education, there is a need to develop and test teaching and learning strategies which provide girls and boys with equal opportunities for learning through talk, despite their different interactive styles.

Appendix A

SAMPLES OF TRANSCRIBED DATA

KEY TO TRANSCRIPTION CONVENTIONS

The following symbols have been used in the data extracts reproduced in this appendix and in the body of the thesis. With the exception of the method adopted for showing simultaneous and contiguous utterances, which I devised myself, they are based largely on the transcription conventions developed at Victoria University for the Wellington Corpus of Spoken English (ACCENZ).

General principles:

Data extracts have been labelled using the following code: eg 5#1GGF means that the extract comes from group 5, dyad 1, consisting of two girls, and discussing task A ("Friends"). The code GG stands for a same-sex girls' dyad, BB indicates a same-sex boys' dyad, and GB indicates a mixed-sex dyad. F stands for Task A ("Friends"), and S stands for Task B ("Split").

Speakers are labelled using two uppercase letters from an assigned name.

No punctuation or capital letters have been used, except for proper names and I, and apostrophes.

Where it is clear from the tape that the children are reading aloud, this is indicated in the transcription by [***reads***]

Transcription in doubt:

( ) Speech indecipherable

(***sure***) Transcriber's best guess at unclear utterance. Length of parentheses indicates utterance length.

Intonation:

? Signals rising or question intonation

\- Hyphen indicates incomplete or cut-off utterance

Stress:

GOOD? Capitals to indicate emphatic stress

Noises:

mm Minimal feedback

mhm yes

[***voc***] Non-speech vocalisations eg clicks, nonsense syllables

Paralinguistic and relevant non-verbal features:

[***loudly***]
[***groan***]
[***laughs***] Description of paralinguistic feature

[***ye-es***] Hyphen in middle of word indicates drawn-out syllables

[***nods***] Description of relevant non-verbal features

[***writes***] Description of relevant action accompanying pause or utterance

Pauses:

\+ Short pause (up to half a second)

++ One second pause

(4) Longer pause: length indicated by noting number of seconds in brackets

Simultaneous speech and contiguous utterances:

Tabulation and bold typeface indicates starting point and boundaries of simultaneous or overlapping speech

```
S1:   + it's got G G G + and then g and a B   ++     and a B
S2:               yeah I know I know it's what I said
```

Interlineal format: = indicates the same utterance continues on to the next line allocated to that speaker.

```
S1:   mm no + we can't + no ++ no u-m + finally decide on=
S2:         mm
S1:   =the one + best + solution
```

| plus tabulation indicates "latching", where the second utterance immediately follows the first.

```
S1    yeah cos she likes everybody except for when they|
S1                                                     |argue
```

SAMPLE TRANSCRIPTS

SAMPLE I:

Mixed-sex interaction
Task A: "Friends"
Category A

EM = Girl; JN = Boy

GP3#2GBF
Total recording time: 19 minutes
Transcribed: 10 minutes

EM: *[reads question 5]*

JN: *d*

EM: *I think I'd take c 'n d*

JN: *( ) c 'n d ( ) yeah either ( )*

EM: ***cos you** know you could you could + tell your friend to ignore the teasing + and not worry + AND tell your class teacher or your form teacher about what's happening*

JN: *mm COULD tell them but + sometimes teachers don't always help that much + you know what I mean*

EM: *oh yeah [doubtful] but they're not exactly going to **join in the teasing***

JN: ***no I know + I know** (but + stick up for your friend + the) fights that'd cause (ya-ay)*

EM: *join in the teasing*

JN: *that's (stupid) **(a good friend**)[fades]*

EM: ***I think I'd do c and d** what- **I mean**=*
JN: ***mm***

EM: *=what one would- do **you-***

JN: ***I'd** go for d definitely but + c? I'd probably tell the teacher but maybe not straight away + you know + I'd wait to see if the + name calling per**sists***

EM: ***yeah** cos + um if she or or he + um ++ ignores the teasing but it still goes on she might + or he + might get **really um + offended***

JN: ***really (offended)** yeah so I think c 'n d 'd be good I'd wait for a while till I see ( )*

EM: ***yeah I'd** wait for a while ( ) okay*

JN: *[reading] fifty dollars goes missing at school + the headteacher says that if the money isn't found the police*

will be called in + you saw a fifty dollar note in your friend's wallet at lunchtime + do you a + tell the teacher about your friend's fifty dollars + b + warn your friend that she or he will get in + trouble c do nothing and hope your friend owns up + d tell your friend you will tell no-one if he or she gives you + twenty dollars **[laughs]**

EM: **[laughs]**

JN: I'd probably go for a

EM: tell the teacher

JN: about your friend's fifty **dollars**

EM: **I'd go** for b|

JN: |would you? (hold on) warn your **friend**

EM: **I'd- I'd** warn your friend + um **+ and hope + and and and** advise them to um +

JN: **(but it mightn't even be stolen)**

EM: put it back you know + slowly

JN: yeah + I + I think I'd do a AND b cos tell the teacher about the FRIEND's fifty dollars not to say the friend NICKED fifty dollars say cos-|

EM: |no well THAT'S what they mean I think

JN: true but um + mm cos I wouldn't say **(he's nicked it)**

EM: **cos I- I** wouldn't want to peep on my friend + **not unless** I really really had to

JN: **no neither would I** yeah but I might tell the teacher that I saw it in her wallet ++ that my friend's GOT fifty dollars in his wallet do you want me to do anything about it that's what I might ask the teacher that sort of thing

EM: m-mm + I wouldn't + I don't **think I-** I don't think I'd tell the teacher

JN: **wouldn't you?** mm

EM: I think I'd advise the um ++ if you advised your friend then your friend might + realise I mean that **+ that they're going to get into** trouble

JN: **that- yeah (you might persuade him)** yes ( ) that's cool ( )

EM: **that way you're not** really + cos if you tell the teacher and and your friend finds out then + **you know they** won't really like you any more

JN: ( ) yeah that's true + right ( )

EM: [laughs] ++ YOU think your friend is taking drugs + DO YOU + a tell your friend all you know about the dangers + of taking drugs + b tell his or her parents + c tell the

school nurse or your class teacher + d have nothing more to do with him or her

JN: a + I think + tell your friend + ALL you know about the dangers of taking drugs + probably (2) cos I wouldn't tell his parents

EM: oh + yeah + I'd **do a as well**

JN: **(a)** mm (2) yeah + okay ++ okay + [reads] your best + friend isn't very good at maths ++ he or she + can't do the maths homework ++ your friend asks you if he or she can copy your maths homework DO YOU + a + let her or him copy the answers + b + do the questions together and help him or her to understand + c + tell her or him to do + the homework alone + d + suggest that he- + she or he asks the teacher for extra help

EM: I would- **+** I think I'd **do + b** do the questions together=

JN: **mm B + yeah**

EM: =and help her to understand

JN: yeah

EM: [aside] I was just wondering if (there's something in here) ALL RIGHT ++ all right okay now + with your partner work out a way of scoring the questionnaire + go through the questions again and score each of the possible answers from 1 to 4 + use the chart to record your decisions + **four** is + a very good friend + 3 a GOOD=

JN: **four**

EM: =friend + two +|

JN: |NOT a very good friend + and one not a **friend at all** that's (cute) ( )

EM: **friend at all** **what** do you think we should do from this? I think-|

JN: |okay [reads] your best friend's sits next to the cleverest student in class + you see your friend cheating in the exam DO YOU? + okay I- I don't know- A-|

EM: |TELL the teacher + is + um + because ++ your friend's gonna get + better marks than you + isn't a very good friend at all|

JN: |no + it's not a very good friend + okay + so I put a one there ++ and b + say nothing that's- **++ I reckon** that's a- NOT a very good=

EM: **that's um-**

JN: =friend but oh **+ yeah**

EM: **yeah +** I think it's NOT a **very good friend**

JN: **not a very good friend** ++ so you'd tell the person whose paper she + or he was copying ++ [fades] that-|

EM: a-and ++ |D would be three + I think **++=**

JN: **yeah**

EM: =TELL the person whose- + and then THEY'LL be ( )=

JN: **yeah**

EM: =don't you think? ++ well + cos- + they have- the one YOU choose might not always be the BEST one ( ) **choose**

JN: **yeah you might I** know but + but in this case I think it IS basically the one warn your friend- that they might get caught

EM: mhm ++ YOUR [reads] best friend decides to run away from home because + da da da dah + u-um ++ ( )|

JN: |A|

EM: |go with your friend because you think there is safety in numbers

JN: um I'd say that's + NOT a- NOT a good- ah + not a very good friend + that's about **+ two**

EM: **yeah I** think that too

JN: yeah ++ **um** phone your parents + your friend's parents=

EM: **u-um**

JN: =and tell them where your friend is? I'd say that's not a friend at all + ( )|

EM: |oh + no but- +

JN: hold it ( ) **try to persuade** your friend NOT to=

EM: **(oh they might- oh)**

JN: =run away + ask your friend to stay at home until he-|

EM: |phone your parents I'd put ++ one **++ or-**

JN: **one yeah +** probably + cos I mean that's just + ( )

EM: **(if you- you can)** because they obviously- obviously they are ++ annoyed with their **parents ++ ( ) yeah**

JN: **parents and if you make-** (yeah) they'll just get annoyed with them + could be even worse

EM: yeah **++** [reads] try and persuade your friend not to run=

JN: **um**

EM: =away I think|

JN: |that's + the HIGHest (level)|

EM: |or ASK your friend to stay at home until + I think THAT probably- ++

JN: OH they're both GOOD ones (**good)**

EM: **try and persuade** your friend not to run away + AND ask your friend to stay at home until she or he has calmed down

JN: hm (a video)

EM: I think + oh wow-

JN: that's hard

EM: a-aah + mm + I think it + goes four three + I think try=

JN: **yeah**

EM: ='n persuade your friend is four

JN: four yep ++ and three + that's (about) right mm

EM: oKAY

JN: [reads] your best friend buys a new pair of jeans you think they look terrible da da da **da da da da da da**

EM: **da da da da da da** **okay**

JN: **tell** your friend- A + tell your friend that + you + think + she or he looks + great in them + THAT is a BAD friend

EM: we-ell + I think that + that's just- ++

JN: a BAD friend?

EM: I reckon that's NOT a very GOOD friend + I think change the subject is quite a bad friend cos that's just **avoid**ing the whole-/

JN: **yeah** /change- yeah that's not- **okay two**

EM: **so we put** two for that

JN: two for-? C + two + for-/

EM: /oh I don't know I think that one's probably better [laughing] cos it wouldn't hurt **their feelings**

JN: **say you like the** old pair better?

EM: oh I **don' KNOW**

JN: **and c** + change the subject + which is c + c **(would be) about** ONE + yeah

EM: **I think that's ONE**
yeah cos that's just avoiding **the whole** issue

JN: **(the whole thing)**
[reads] tell your friends the truth and say you like the old pair better? which would you go for? ( )

EM: tell your friend the truth + or say you like the old pair better + what would YOU do REALLY?

JN: really? I would probably + say-/

EM: /I would SAY- I would say to them ++ um I'd tell them the truth AND say I liked the old pair better so they won't worry about it say **okay** +=

JN: **yeah**

EM: =well they don't look particularly good but I like the old pair **better** so you should wear them

JN: **better** so you'd put ( )

EM: but we have to deCIDE at which ones which one do you think would be **(it)**

JN: **okay** I'd say b-|

EM: |I'd I'd say that you **say say the old ++ I think d's the** BEST?

JN: **b + b's the best I think d'you? oh-** cos that way they'll be a bit **+ um**

EM: **because that-|**

JN: |mm + depends what you go for really cos + if you s-|

EM: |yeah well I think d IS the BEST + come to think of it

JN: and b is about the second best + that makes sense doesn't it?

EM: yes okay + you lend YOUR best friend your favourite **record** okay **++** ASK your friend to buy you a r- a **+** new=

JN: **record that comes- new**

EM: =record **+** would be three I think

JN: **AND** AND (never lend)

EM: I wouldn't do that|

JN: |wouldn't you?|

EM: |no|

JN: |I think I would though

EM: I wouldn't ++ (disgusting)

JN: [tee hee hee hee] **(** **)**

EM: **yeah um (** **)**

JN: okay + say nothing + that's not + I don't think that's a great thing to do|

EM: |say nothing + I think borrow a record from your friend and **SCRATCH it + that's the worst thing**=

JN: **scratch it is the worst**

EM: =to do

JN: so that's d ONE

EM: okay ++ um

JN: say nothing + um + that's about ++ say nothing's not very nice though + put two for that

EM: I wouldn't **+ I- I'd** put + never lend your um um I'd put=

JN: **wouldn't you?**

EM: =um + say nothing for FOUR + I think that's the best thing to do

JN: say NOTHING?

EM: yes

JN: you reckon?|

EM: |well + out of the choices I personally think that talking to them about + about what they're doing and asking them not to do it again but NOT exactly ask them for a new record **++** but I'd put say nothing for four

JN: **right** would you?

EM: and ask your friend to buy you a new record three + and never lend your friend anything ever again two

JN: mhm + yeah ++ right

EM: a-and
(2)

JN: you'd say nothing for a WHILE then probably (ask) your friend- TALK to them about it + you know

EM: ye**h**

JN: **okay** + [reads] your friend's father gets caught shop**lifting- lifting** the class teases them

EM: **YE-AH**

JN: okay um ++

EM: I think joining in the teasing is the probably the worst thing **to do**

JN: **that would** be stupid I- that is just TERRIBLE [laughs] ++ never mind + okay + yeah that's ( ) okay put four- **ah one one**

EM: **one one one** for that one

JN: um + **tell** your class teacher or the headteacher about it I'd say that's **about** three|

EM: **I-** |I think that's three yeah

JN: all right + now|

EM: |four is tell your friend to ignore the teasing|

JN: |no it's stick up for your + friend + 'n fight 'n you know + **start** fighting for the ( ) I don't know **cos that would probably-**

EM: **I- I- I don't think** that's the best way to solve anything but it it's obvious that you + like- + I'd put two for that one

JN: yeah

SAMPLE II:

Same-sex/boys interaction
Task B: "Split"
Category B

KY = Boy; MA = Boy

GP2#3BBS
Total recording time: 13 minutes
Transcribed time: 10 minutes

KY: *[reads] Martin could live with his mum and the girls could live with their dad ++ good + good + good + good + good*

MA: *oh + oh hold it*

KY: *BAD*
(1+)
MA: *yeah|*

KY: *|bad or good yeah bad ++ okay + [reads] Kirsty could live with her dad + Martin and Zoe could live with their mum ++*

MA: *hmm + oh yeah*

KY: *good + good*

MA: ***good** + good + ( ) is that **+** really good?*

KY: ***good***
good ++ BAD

MA: *(Zoe's) always BAD **++ ( ) simple one***

KY: ***[laughs] Kirstie- +** [reads] Kirstie could live with her mum ++ and Martin and Zoe could live with their dad + bad + bad + bad ++ bad + bad*

MA: *( ) another line*

KY: *right [laughs] let's see|*

MA: *|that was easy **ye-ah***

KY: ***let's SEE** [coughs] [reads] decide together on the three best options + put + a + asteriks ++ beside them in ++ the margin ++ thr- three best options okay let's see **+ which** were all the=*

MA: ***um ah***

KY: *=goods? + this is one + one ++*

MA: *well that's- + oh- oh well where's all the goods? + where's that line of goods?*

KY: *there ++ and there*

MA: *yeah*

KY: *we have to decide another one ++ we have to go for THREE goods + one two three yeah okay*

MA: *[laughs] + yep*
(2)
KY: *stay together? foo-oo ++ I wonder*
(4)
MA: *(we have to)*

KY: *okay + **um** ++ decide- +*

MA: ***two*** *what is the pros and cons? + hmm +* *( )*

KY: ***oh + for each one?***
(2)
MA: *[reads] deCIDE **which one of the three opinions you think=***

KY: *[reads]**and try to rank them from one to three***

MA: *=each family member would choose*

KY: *ONE for the best + three for the worst*

MA: *what's two?*

KY: *which one? ++ what's this one d'you reckon?*

MA: *oh (4) ( )*

KY: ***hey um*** *what are the pros and cons?[addressed to researcher]... oh + oh yeah okay ++ um ++*

MA: *where does it say pros and cons?*

KY: *there discuss the pros and cons of each one and try to rank them from one to three + one for the best and three for the worst + so THAT is ++ one would be + (mum or dad) ++ number three + TWO*

MA: *so- +*

KY: *two + two + **two** + two + three + three + three + one +=*

MA: ***(what's three?)***

KY: *=one one + two + two ++ that'll do + eh?*

MA: *yep (Ithink that that'll do)* ***[laughs]***

KY: ***[laughs]***

[Researcher interrupts here to correct task procedure]

KY: *three what?[three choices} from one to three? oh]*

KY: ***whoops [laughs]***

MA: ***whoops [laughs]*** *um + and-*

KY: *rank them from one to three*

MA: *ooh ( )*

KY: *[laughs] one for the worst (three) okay + decide which of the three oftens- three options you think + each family member would CHOOSE + **I think-** + =*

MA: ***U-UM***

KY: =they would choose ++ each one of the family members + they + Zoe would choose this one

MA: mm|

KY: |I mean THAT one +

MA: yeah **yeah**

KY: **which** of the three options d'you think (are best for ++) FAMily + if they|

MA: |oh yeah

KY: her
(2)

MA: her + **I mean** + HER him **her**

KY: **yeah ok** **where** d'you put the- d'you just put it IN the box?

MA: um (2)

KY: would choose **++** ( )

MA: **what do we PUT?** oops + an asteriks or what? ( ) [laughs] [whispers]put an asteriks beside them in the margin

KY: [reads] can you think of any
(2)

MA: any other **possible solutions**

KY: **look** + **decide** + which of the three options + you think each family member would choose

MA: did we do number two?

KY: oops

MA: what? ++ what?

KY: oh no + oh let's see

MA: what (do you have to do?) do you put in an asteriks or what?
(2)

KY: [whispers] ( )

MA: [laughs]

KY: um ++

MA: [to researcher] excuse me + do you put in an asteriks on number two? + on **( ) box?**

KY: **whaddaya do for** number two? + just + is that-? ....

MA: just talk about them + oh-

KY: okay + whaddaya reckon + that one that one or that one would be best for her ++ **oh** no + she can't go with both=

MA: **no**

KY: = + parents + because they don't want to live together

MA: *um|*

KY: *|who does ZOE LIKE? she'd prob'ly like + the **sis**ter better eh?*

120 MA: ***she-***
*she likes the ++ children yeah (**older brother)***

KY: ***I know but which-which kid** would she like better?*

MA: *the older sister ++ or the- I'll do it|*

125 KY: *|(wait up) wait up [laughs] let's see + dad-*

MA: *Zoe could live with her dad and the others live BAD for **Zoe***

KY: ***no** + no um|*

130 MA: *|Zoe could live with MUM + BAD*

KY: *no + Zoe Zoe could live with d- with (2)*

MA: *mm|*

KY: *|no maybe- maybe that one would be good for Zoe*
MA: *what is it? **dad could-***

135 KY: ***dad could** have the kids during the week + mum **could** have them during the holidays*

MA: ***yeah***
yeah ++ mm

KY: ***cos** then she'd get to see both parents*

140 MA: *mm*

KY: *okay|*

MA: *|mm|*

KY: *|that'd be best for ALL of them maybe*
(7)
145 MA: *u-um*
(7)
KY: *um ++ that'd be best for all of them wouldn' it?*

MA: *(yep) u-um + **yeah***

KY: ***apart** from the mum*
150 *(2)*
MA: *because (taking them-) yeah yeah ++ so what do we put?*

KY: *u-um +*

MA: *(we'll) talk about it eh? + yeah **that'**d be best + ( )*

KY: ***u-um***
155 *(6)*
MA: *u-um*
(4)

KY: *[reads] finally + decide + can you think of any possible solutions that would be better?*
160 *(2)*
MA: *um ++ not really?*
(4)

KY: yeah I know ++

MA: hold on that that's good + that-|

KY: |I reckon we've done that one wrong

MA: what? + why?

KY: dad should have the kids during the week + mum should have them during the weekends + **cos**

MA: **no Zoe** would ++ disagree to that because + she wants + both of them all the time ++ because if **(um)-**

KY: **no but** otherwise she wouldn't see the other parent at all so + maybe that'd be good + no we'll put a question mark +

MA: okay
(3)
KY: yeah ++

MA: right + now what are we going to do?
(2)
KY: I don' know
(2)
MA: are we done?

KY: no because + look we gotta think of **the** other three so=

MA: **( )**

KY: =that + this'd be best for ++ Zoe and that'd be best for Zoe

MA: ( ) be best for **Zoe** ( )

KY: **and there's** no other good ones + for Zoe

MA: okay|

KY: |no maybe- yeah
(2)
MA: yep

KY: ( ) **um**

MA: **[giggles]**

KY: what do you do next? [reads] why is it so difficult (to decide what to do in a situation like this what factors do you need to take into account) [mumbling] ++ (wait up) + decide on the one best solution overall ++ um + I reckon THAT one ++ kids during the week + **mum** can have them during the holidays

MA: **yeah**
yep + oh hold on ( ) the family-

KY: stay together?

MA: could stay together

KY: oh yeah but +

MA: but they don't like each other

KY: yeah the + parents want to split up ++

MA: yeah weekends and **(holidays)**

KY: **or maybe they** could + yeah|

MA: |but the problem with the weekends and holidays is + that the holidays + don't come for a LONG time + in some places

KY: yeah but there's a long time for the holidays like christmas holidays is **about two months**

MA: **yeah yeah + okay** yeah

(2)

KY: yeah okay + well this is our best one

MA: tick it

KY: tick

MA: right +

KY: next ONE

MA: yeah + the next ++ um

KY: [whispering] + we've finished haven't we?

MA: u-u-um

KY: wait up wait up + um ++ what'd be (the three) best for mum + that one THAT one and THAT one **++** no (2) yeah ok=

MA: **mhm**

KY: =then + and + best for the dad + that one that one that one and that one THAT one

MA: that one that one that one [giggles] that one

KY: but dad's got ALL goods see ++ ok for KIRSTIE + she'd prob'ly like to live with **+** the DAD Martin and Zoe=

MA: **dad**

KY: =could live with mum- no ++

MA: yep

KY: no that would- (whoa)

MA: uh-huh ++

KY: BAD (3) ( ) (1) **++ Martin** could live with ( ) whoops

MA: **(?)**

(hang on)

KY: ooh that's good

MA: [laughs] we'll already DONE that

KY: yeah I know but I thought I'd read it wrong + and I had and then I read it right again

MA: [laughs] okay + we're done

(8)

KY: (this'd be best) + mum could keep the children + dad could live alone

MA: *that's BAD + for dad*

KY: *(no) but it's good for Martin ++ yeah bu- + yeah that's one of the best for Martin the family could stay together that's the other one + and (3)*

Appendix B

STIMULUS TASKS

The following are duplicates of the task sheets on which the tape recorded discussions were based. Each pair had a task sheet between them, and recorded their decisions directly onto the sheet. The written instructions were supplemented by an oral "briefing" as described in Chapter 5.

These tasks were adapted from two problem-solving exercises in:

Waters, Deborah and Chris Culshaw 1986. English Headwork Book 4. U.K.: Oxford University Press. 56-59.

TASK A

How good a friend are you?

What to do

A Read each problem and discuss with your partner the action you would take. Talk about why you would choose that action. Put a ✱ next to your choice.

1 Your best friend sits next to the cleverest student in the class. You see your friend cheating in the exam. Do you:
- a) Tell the teacher because you don't think it is fair that s/he should get better marks than you.
- b) Say nothing.
- c) Tell the person whose paper s/he was copying from to hide the answers in the next exam.
- d) Warn your friend that s/he might get caught next time.

2 Your best friend decides to run away from home because s/he thinks her/his parents are always picking on her/him. S/he tells you where s/he is going. Do you:
- a) Go with your friend because you think there is safety in numbers.
- b) Phone your friend's parents and tell them where your friend is.
- c) Try and persuade your friend not to run away.
- d) Ask your friend to stay at home until s/he has calmed down.

3 Your best friend buys a new pair of jeans. You think s/he looks terrible in them. S/he asks you what you think. Do you:
- a) Tell your friend you think s/he looks great in them.
- b) Tell your friend the truth.
- c) Change the subject.
- d) Say you liked the old pair better.

4 You lend your best friend your favourite record. S/he brings it back covered in scratches. Do you:
- a) Ask your friend to buy you a new record.
- b) Say nothing.
- c) Never lend your friend anything again.
- d) Borrow a record from your friend and scratch it.

5 Your friend's father is caught shoplifting. The rest of the pupils in your class find out and tease your friend. Do you:
- a) Stick up for your friend by fighting the name callers.
- b) Join in the teasing.
- c) Tell your class teacher or the head teacher about what is happening.
- d) Tell your friend to ignore the teasing.

6 Fifty dollars goes missing at school. The headteacher says that if the money isn't found the police will be called in. You saw a fifty dollar note in your friend's wallet at lunch time. Do you:
- a) Tell the teacher about your friend's fifty dollars.
- b) Warn your friend that s/he will get into trouble.
- c) Do nothing and hope your friend owns up.
- d) Tell your friend you will tell no one if s/he gives you twenty dollars.

7 You think your friend is taking drugs. Do you:
- a) Tell your friend all you know about the dangers of taking drugs.
- b) Tell his/her parents.
- c) Tell the school nurse or your class teacher.
- d) Have nothing more to do with him/her.

8 Your best friend isn't very good at maths. S/he can't do the maths homework. Your friend asks you if s/he can copy your work. Do you:
- a) Let her/him copy the answers.
- b) Do the questions together and help her/him to understand.
- c) Tell her/him to do the homework alone.
- d) Suggest that s/he asks the teacher for extra help.

B THEN:

With your partner, work out a way of scoring the questionnaire: go through the questions again and score each of the possible answers from 1 to 4. Use the chart to record your decisions.

4 = a very good friend 3 = a good friend
2 = not a very good friend 1 = not a friend at all

	1	2	3	4	5	6	7	8
a								
b								
c								
d								

WHAT TO DO NEXT: Discuss :" A good friend is someone who..."
What is your definition of a good friend?

TASK B

The Split

Anne and Rob Jones have been married for twenty-one years. They have three children. Anne and Rob are not very happy together. For many years they have stayed together for the sake of the children but now they have decided that they should separate. Anne thinks that the many arguments they have are bad for them. But they can't decide what should happen to the children.

Kirstie is fifteen.
Martin is thirteen.
Zoe is six.

Anne thinks that she should keep all three children. She thinks that Rob should go and live by himself somewhere.

Rob was made redundant last year so he has plenty of time these days. He has applied for many jobs but has had no success. He thinks that Anne should get a flat and live by herself. Why should he suffer just because he is a man? He would like to have a go at running the house and looking after the children for a change.

Kirstie is just about to take her exams. She has lots of friends and goes out a lot. She often argues with her mum about clothes and what time she gets home. She gets on well with her dad.

Martin is a bit of a loner. He finds it difficult to make friends. He has just settled down at the High School. He doesn't get on with his dad. They are always arguing.

Zoe has just started at infant school. She gets very upset when her parents argue. She is very attached to her older brother and sister.

What to do

One day Anne and Rob made a list of the possible options.

A Discuss the options with your partner, and decide together how each member of the family might feel, and why. Use this code:

B = a bad option G = a good option

		Mum	Dad	Kirstie	Martin	Zoe
Mum could keep the children. Dad could live alone.	1					
Dad could keep the children. Mum could live by herself.	2					
Dad could have the kids during the week. Mum could have the kids at weekends and during the holidays.	3					
The family could stay together.	4					
Zoe could stay with her mum. The others could live with their dad.	5					
Zoe could live with her dad and the others could live with their mum.	6					
Martin could live with his dad and the girls could live with their mum.	7					
Martin could live with his mum and the girls could live with their dad.	8					
Kirstie could live with her dad and Martin and Zoe could live with their mum.	9					
Kirstie could live with her mum and Martin and Zoe could live with their dad.	10					

B
1 Decide together on the three best options (put a ★ beside them in the margin). Discuss the pros and cons of each one, and then try to rank them from 1 to 3 (1 for the best, 3 for the worst).
2 Decide which of the three options you think each family member would choose.
3 Can you think of any other possible solution(s) that might be better?
4 FINALLY: Decide on the one best solution overall.

WHAT TO DO NEXT: Discuss:

Why is it so difficult to find a solution in a situation like this? What factors do you need to take into account?

Appendix C

STATISTICAL ANALYSIS

The following statistical model was devised by Ross Renner from the Institute of Statistics and Operations Research, Victoria University, to estimate the effect size of the two variables of sex of speaker/event initiator, sex of partner and the interaction between them (ie effect of being in a same-sex or mixed-sex dyad).

THE MODEL:

A log linear model was adopted, using the dyad as the 'case' (NB a log linear model always implies a multiplicative model, as defined by equation (A)).

	G 1	B 2
G 1	x_{111} x_{112} ...$x_{11.10}$	x_{121} x_{122} ...$x_{12.10}$
B 2	x_{211} x_{212} ...$x_{21.10}$	x_{221} x_{222} ...$x_{22.10}$

where x = rate of event (eg interruptive form)

EQUATION (A)

$X_{ijk} = ma_i\ b_j(ab)_{ij}e_{ijk}$ = (total proportion of events per partner's word flow)

where:

row suffix	i= 1,2
column suffix	j= 1,2
individual suffix	k= 1,2, ..., 10.

m = an overall effect
a_1 = effect due to female "event initiator"
a_2 = effect due to male "event initiator"

b_1 = effect due to female partner
b_2 = effect due to male partner
$(ab)_{11}$ = interaction due to female event initiator/female partner
$(ab)_{12}$ = interaction due to female event initiator/male partner
$(ab)_{21}$ = interaction due to male event initiator/female partner
$(ab)_{22}$ = interaction due to male event initiator/male partner
e_{ijk} = error

Thus:

EQUATION (B)

$$\begin{aligned} Y_{ijk} &= \log(X_{ijk}) \\ &= \log m + \log a_i + \log b_j + \log (ab)_{ij} + \log e_{ij} \\ &= \mu + \alpha_i + \beta_j + (\alpha\beta)_{ij} + \varepsilon_{ijk} \end{aligned}$$

Taking the means in each cell, approximately

$$Y_{ij} = \mu + \alpha_i + \beta_j + (\alpha\beta)_{ij}$$

This approximation assumes that the mean log error, ε_{ij}, is negligible, which is a workable assumption for the purposes of the following computation.

In order to solve, we impose the following conditions:

$$\alpha_1 + \alpha_2 = 0$$

$$\beta_1 + \beta_2 = 0$$

$$(\alpha\beta)_{11} + (\alpha\beta)_{12} = 0$$

$$(\alpha\beta)_{21} + (\alpha\beta)_{22} = 0$$

$$(\alpha\beta)_{11} + (\alpha\beta)_{21} = 0$$

$$(\alpha\beta)_{12} + (\alpha\beta)_{22} = 0$$

The values determined for each variable being tested were then fitted according to the conditions of the model, using the following procedure:

1) calculate rates per partner word count (= proportion)

2) calculate logs (natural logarithm to base e)

3) calculate mean log (proportion) for each cell in the grid (1-1(**GG**), 1-2(**GB**), 2-1(**BG**), 2-2(**BB**)).

4) Calculate overall mean log

Using the figures derived in steps 3) and 4):

5) Calculate α_1 & α_2; β_1 & β_2; $(\alpha\beta)_{11}$, $(\alpha\beta)_{12}$, $(\alpha\beta)_{21}$, $(\alpha\beta)_{22}$.

6) Take antilog e

7a) Calculate the proportions of a_1:a_2 and b_1:b_2 to determine the size of the two main effects, sex of event initiator and sex of partner respectively.

7b) Calculate the proportions of $(\alpha\beta)_{11}$:$(\alpha\beta)_{12}$, $(\alpha\beta)_{21}$:$(\alpha\beta)_{22}$ to determine the effect size of the interaction between the two main effects.

EXAMPLE CALCULATION : INTERRUPTIVE FORMS
(All sub-categories combined).

Steps 1 - 3:

	G 1	B 2
G 1	-4.2706	-4.1564
B 2	-4.0418	-4.0983

Step 4:

$-4.2706 = \mu + \alpha_1 + \beta_1 + (\alpha\beta)_{11}$

$-4.1564 = \mu + \alpha_1 + \beta_2 + (\alpha\beta)_{12}$

$-4.0418 = \mu + \alpha_2 + \beta_1 + (\alpha\beta)_{21}$

$-4.0983 = \mu + \alpha_2 + \beta_2 + (\alpha\beta)_{22}$

$\mu = 1/4[\ -4.2706\ -4.1564\ -4.0418\ -4.0983]$
$= -4.141775$

Step 5:

$\alpha_1 = 1/2[\ -4.2706\ -4.1564] - \mu = -0.071725$

$\alpha_2 = 1/2[\ -4.0418\ -4.0983] - \mu = 0.071725 = -\alpha$

$\beta_1 = 1/2[\ -4.2706\ -4.0418] - \mu = -0.014425$

$\beta_2 = 1/2[\ -4.1564\ -4.0983] - \mu = 0.014425 = -\beta$

$(\alpha\beta)_{11} = -4.2706 - \mu - \alpha_1 - \beta_1 = -0.042675$

$(\alpha\beta)_{12} = -4.1564 - \mu - \alpha_1 - \beta_2 = 0.042675$

$(\alpha\beta)_{21} = -4.0418 - \mu - \alpha_2 - \beta_1 = 0.042675$

$(\alpha\beta)_{22} = -4.0983 - \mu - \alpha_2 - \beta_2 = -0.042675$

Step 6:

$a_1 = e^{\alpha 1} = 0.9308$, $a_2 = e^{\alpha 2} = 1.0744$,
$b_1 = e^{\beta 1} = 0.9857$ $b_2 = e^{\beta 2} = 1.0145$

[NB a_1, b_1 etc are terms in the model]

$e^{(\alpha\beta)11} = 0.9582$
$e^{(\alpha\beta)12} = 1.0436$
$e^{(\alpha\beta)21} = 1.0436$
$e^{(\alpha\beta)22} = 0.9582$

Step 7:

a) $a_2/a_1 = e^{\alpha 2}/e^{\alpha 1} = 1.1542$

ie: Effect due to male interruptor of approximately 15%

$b_2/b_1 = e^{\beta 2}/e^{\beta 1} = 1.0292$

ie: Effect due to male partner of approximately 3% (negligible)

b) $(ab)_{12}/(ab)_{11} = (ab)_{21}/(ab)_{22} = e^{(\alpha\beta)12}/e^{(\alpha\beta 11)} = e^{(\alpha\beta)21}/e^{(\alpha\beta)22} = 1.0891$

ie: Effect due to mixed sex context of approximately 9%

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