

## NOTES FROM THE SOCIOLINGUISTIC UNDERGROUND

[Note from the Editor: In the spirit of James McCawley's *Notes from the linguistic underground* (1976), we present in this section an article that was written and delivered orally in 1973; it was subsequently cited widely in the literature on gender differences in language, but never published until now. Deborah Tannen, an Associate Editor of this journal, suggested that it would be valuable to publish the article as a historical document; she has also written an interpretive Foreword. The article is followed by an Epilogue, written by Lynette Hirschman in 1993.]

### Female–male differences in conversational interaction

LYNETTE HIRSCHMAN

*MITRE Corporation, MS K 329  
202 Burlington Road  
Bedford, MA 01730*

#### ABSTRACT

This article describes a preliminary experiment looking at possible differences in how females and males interact in conversation. The article analyzes data from an experiment where two females and two males talked to each other in all possible pairs; a total of 60 minutes of conversation (six dyads) was transcribed. The goal was to isolate quantifiable entities related to controlling or directing the conversation. We looked at issues such as who talked how much, how fluently or confidently – and how the two people in the conversation interacted in terms of interruptions and indications of support, agreement, or disagreement. The findings from such a small sample are only relevant to suggest hypotheses for further research. However, we noticed a number of interesting differences: the female speakers used more 1st person pronouns and fewer 3rd person references than the male speakers; the female speakers used *mm hmm* at a much higher frequency than the male speakers; the female speakers also interrupted each other more; and the female/female conversation seemed more fluent than the other conversations, as measured by number of disfluencies and number of affirmative transitions upon speaker change. All of these differences suggest that this area is a fruitful one for further investigation. (Conversational analysis, gender differences)

## ASSOCIATE EDITOR'S FOREWORD

"Female-male differences in conversational interaction" is probably the most frequently cited and infrequently read paper in the now-enormous language and gender literature. It is perennially cited for the finding that females are inclined to offer more "back-channel responses" in conversation (what Schegloff 1982 calls "continuers"), i.e. more *mhm*'s, *uhuh*'s, and *yeah*'s, than males do.

The paper is frequently cited because Hirschman's is the earliest known study to yield this finding – one which has been replicated in subsequent studies, and which fits with a range of observations on language and gender that have been accruing in the field. Indeed, it seems to be the earliest known paper on gender and language that is based on a study in which conversation was recorded, transcribed, and examined for such phenomena as amount of talk, fillers, qualifiers, personal pronouns, and interruptions: all linguistic strategies that have since become standard objects of analysis for researchers examining conversation from the perspective of language and gender. The paper is rarely read, however, because it has not been available in print. (It has not even been available in underground mimeographed manuscript, like Harvey Sacks's similarly oft-cited lecture notes, finally published in 1992.) Hirschman's study was delivered as a paper at the annual meeting of the Linguistic Society of America (LSA) in San Diego in December 1973, the same year that Robin Lakoff's groundbreaking article, "Language and woman's place," was published in *Language in Society*. A summary of it appeared in Barrie Thorne & Nancy Henley's collection *Language and sex* (1975). That bibliographical summary, along with a condensed version of it that appeared in Thorne, Kramarae, & Henley's 1983 collection *Language, gender and society*, seems to be the source of the frequent citations.

Like everyone else, I regularly cited Hirschman's findings but assumed I would never read the study itself, since neither I nor anyone else I knew had a copy of the paper or any idea where Hirschman now was; she was certainly not currently active in the language and gender field or in discourse analysis. Two things, however, conspired to bring the paper itself into my hands. First, a colleague, Catherine Ball, happened to mention on e-mail a Lynette Hirschman who works in the area of computational linguistics. I asked for her e-mail address and resolved to contact her; but I did not actually do so until spurred by a remark from Deborah James, who was writing a review of the literature on simultaneous speech (James & Clarke 1993) in which she cited the Hirschman study. Again on e-mail, James mentioned wistfully how much she would like to read the actual paper. This motivated me to dig up the e-mail address for Lynette Hirschman, and to send a message addressed to her into the electronic network. I was delighted to receive a speedy reply from the author of the classic study – who, amazingly, was unaware that her

LSA paper had become a classic. Perhaps more amazingly, she had kept a mimeographed copy of the paper, and was able to fax it to me.

Like my colleagues, I receive papers to read in the mail almost daily, but I rarely receive an accompanying gift of time in which to read them. But when the *real* "Female-male differences in conversational interaction" appeared on my desk, I gobbled it up, thrilled to be reading the paper I had so frequently cited and expected never to see.

I was sure that anyone else interested in language and gender research would approach the paper with the same eagerness. That is why I thought it should be published now in *LiS*. This publication serves a number of purposes. First, it offers the opportunity for others to read the real thing. Second, it allows us to see, and (perhaps?) to be surprised at, the small scale of the study that carries on its shoulders the weight of so many citations. It is not a criticism, but a testament to Hirschman's perceptiveness and the pervasiveness of the phenomena, that the patterns she found in a study of four speakers have since been replicated by other researchers. It is not unusual for studies of conversational interaction to be relatively small-scale, and to use anthropological case-study methods or the close textual reading of literary analysis rather than the survey methods of sociology. If one wants to examine conversation closely, it is not possible to record a thousand conversations and hire a battery of undergraduates to serve as coders. The insight must be in the texture of the particular discourse.

Much research has been done since Hirschman delivered her paper at the LSA. Much more remains to be done in designing larger-scale studies, and in examining cultural, ethnic, regional, class, and individual differences with respect to the patterns described. Nonetheless, the arguments in favor of publishing this pioneering paper now are made by the readers to whom the Editor of *LiS* sent the manuscript. One commented:

This is indeed a "classic" paper in the study of gender differences in speech. Reading it now for the first time (as opposed to reading synopses and references to it), I am impressed with the level of detail, the sophisticated way it does *not* jump to blanket conclusions about gender differences (as some research since then has, unfortunately, jumped) on the basis of its limited data, and the thoughtful way it defines itself as exploratory, yet raises hypotheses that have remained central and productive ones in this line of research (e.g. whether or not women are more facilitative in conversation, whether *mhm* is used more by men or women and what that might mean). I think it poses just the right questions, ones which . . . have even now (twenty years later!) not been answered properly, e.g. "How are things like assertiveness, verbal aggressiveness or supportiveness indicated in a person's speech?"

Another reviewer noted that the paper should be published "because of its virtues in showing us what good exploratory research looks like in sociolinguistics." In this spirit, I believe the publication of this paper makes an invaluable contribution to the field of language and gender. [DEBORAH TANNEN, *Georgetown University*]

The research discussed in this article came about as a result of an undergraduate seminar on "Women and language" that I taught during the spring of 1972 at the University of Pennsylvania. As a result of some of our work in class on conversational interaction between females and males, four members of the class (Jill Gross, Jane Savitt, Kathy Sanders, and myself) decided to pursue this research during the summer. This article summarizes the present state of our research.

Since very little detailed work has been done in this area, we started simply by making tapes of four students talking to each other; from listening to the tapes carefully and transcribing them, we developed a number of ideas about ways in which the females' and males' speech differed. The difficult part of our work came in trying to find linguistic correlates for our subjective impressions. Some of the questions we asked ourselves were: How is a conversation dominated by a person? How are things like assertiveness, verbal aggressiveness, or supportiveness indicated in a person's speech? What I present in the article are a number of linguistic variables which appear to be related to these patterns of behavior. Because of the sample size (four people), clearly it is impossible to make any kinds of generalizations about female and male patterns of conversational interaction. However, this research does enable us to construct detailed, empirically testable hypotheses about sex-related differences. The next step, of course, is to collect data in large quantities, in order to test these hypotheses.

The tapes were obtained from four University of Pennsylvania sophomores (two female, two male, all Caucasian) who participated in the following experiment. They were told that we were conducting a study of lifestyle alternatives. They were paired off, and each pair was given a question to discuss for 10 minutes in a room with a tape recorder. At the end of the 10 minutes, the two pairs were interrupted, partners were rotated, and a new question was provided. In this way, with three questions, we obtained all pairwise permutations of the four people. The questions on lifestyle were chosen in the hopes of provoking a lively discussion where both people would have definite opinions and have something to contribute (it also made more interesting listening for us). However, the questions did in fact relate to sex roles, and it is not clear what effect this might have on the data. It is also possible that the subject was of more interest to the female students than to the male students. The ordering of the questions, and which question the single-sex pairs were asked, are also variables to be controlled in future work.

Specifically, the questions used were (in order):

- (a) Is love a prerequisite for sexual relations (asked of the single-sex pairs)?
- (b) Should roles in marriage be determined by sex (e.g. male as breadwinner, female as childraiser, housekeeper)?
- (c) Do you think that the traditional commitment "till death do us part" is still valid?

The data presented in this article were obtained from the analysis of the 60 minutes of tape made in the experiment described above. Texts 1 and 2 in the Appendix are excerpts from the transcriptions of these tapes.

Our aim was to isolate a number of quantifiable entities related to controlling or directing the conversation. Specifically, we were interested in how to characterize who talked how much, how fluently or confidently, and how the two people in the conversation reacted to each other's talking: whether they solicited the other person's input or ignored it, and whether they attempted to interrupt or to show support to the person they were talking to.

To characterize how much each person talked, we did the obvious: we measured the amount of time each person held the floor, and we counted the number of words produced by each person. These data are presented in Tables 1a–b. The data from the word counts (Table 1a) show the same pattern as the data on the amount of time each person talked (Table 1b). There is a consistent pattern among the four speakers, although not particularly related to sex: F2 talks more than her partners in all three conversations, M2 talks more except in the conversation with F2, then comes F1, and finally M1 talks less than all his conversational partners.

From the data on the amount of time used by each speaker, we can also calculate the percentage of time used for talking in each conversation by adding the amounts for the two participants. For the male/male conversation, the sum of the two times is 76%. The other conversations range from 96% to 87%. This discrepancy suggests that the females may play a role in facilitating the flow of conversation, since more time is used for talking in conversations with a female present.

In connection with the confidence and fluency of the participants' speech, two variables were examined: the proportion of words used as "fillers," e.g. *um*, *you know*, and the words used to qualify a statement, e.g. *I think*, *sort of*, *maybe*. A filler was defined as a phrase which could appear anywhere in a sentence and which could be deleted from the sentence with no change in content. The words counted as fillers were *um* and its variants *uh*, *ah*; *like*, except where used as a verb or a preposition (but in these cases it is not deletable); and *well*, except in utterance-initial position (where it is counted as a response, like *oh*). These words have great freedom of distribution and clearly do not contribute to the content:

- (1) *I would uh agree with you like in from from my past experience* (F1, tape B-1, lines 98–99)

TABLE 1a. *Ratio of total number of words produced by X while X and Y are talking (%)*

X/Y	F1	F2	M1	M2	Average (%)
F1		651/1,468 (44)	706/1,364 (52)	493/1,154 (43)	46
F2	817/1,468 (56)		743/1,171 (63)	664/1,159 (57)	59
M1	658/1,364 (48)	428/1,171 (37)		506/1,224 (41)	42
M2	661/1,154 (57)	495/1,159 (43)	718/1,224 (59)		53

TABLE 1b. *Ratio of total time X talked in X and Y's conversation (time in seconds) (%)<sup>a</sup>*

X/Y	F1	F2	M1	M2	Average (%)
F1		227/572 (40)	284/597 (48)	219/480 (46)	45
F2	313/572 (55)		351/520 (68)	292/555 (53)	59
M1	234/597 (39)	109/520 (21)		163/584 (28)	29
M2	248/480 (52)	212/555 (38)	282/584 (48)		46

<sup>a</sup>These figures do not add up to 100% because not all available time was used for talking. Note that, in the F1–F2 conversation, 95% of the available time was used (the highest percentage of all the conversations); in the M1–M2 conversation, only 76% was used, the lowest percentage.

The second group of fillers counted were the phrases *you know* and *I mean*. These phrases also appear to have total freedom of distribution and do not contribute substantially to the content of the sentence. The following example illustrates this (note particularly *where* the fillers occur):

- (2) *it depends it might depend on you know like as far as the actual possibility it certainly isn't I mean the you know possibility of of having a sexual relationship* (F2, tape B-1, lines 168–73)

These examples indicate that these phrases are often used while the speaker is groping for words, but doesn't want to give up claim to the floor.

The results for proportion of fillers used are given in Table 2. The two females have a much higher percentage of fillers than the two males: 7.3% and 8.0% for the females vs. 1.6% and 3.9% average for the males. The two females show their lowest percentage of hesitations in the female/female conversation, suggesting that they may be more at ease (more fluent) with a female than with a male.

The other category examined was qualifiers. The category of qualifiers can be characterized by the fact that their deletion only changes the *degree* of assertiveness of the sentence, not *what* is asserted. A number of different

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TABLE 2. *Percentage of hesitation phrases to word count in X's speech when talking to Y<sup>a</sup>*

X/Y	F1	F2	M1	M2	Average
F1		(a) 4.5 (b) 0.8 (a + b) 5.3	(a) 6.2 (b) 1.7 (a + b) 7.9	(a) 6.9 (b) 1.6 (a + b) 8.5	(a) 5.9 (b) 1.4 (a + b) 7.3
F2	(a) 2.8 (b) 3.3 (a + b) 6.1		(a) 4.8 (b) 4.0 (a + b) 8.8	(a) 5.0 (b) 4.1 (a + b) 9.1	(a) 4.2 (b) 3.8 (a + b) 8.0
M1	(a) 1.2 (b) 0.7 (a + b) 1.9	(a) 0.7 (b) 0.5 (a + b) 1.2		(a) 0.8 (b) 1.0 (a + b) 1.8	(a) 0.9 (b) 0.7 (a + b) 1.6
M2	(a) 3.2 (b) 0.3 (a + b) 3.5	(a) 4.2 (b) 0.2 (a + b) 4.4	(a) 3.1 (b) 0.7 (a + b) 3.8		(a) 3.5 (b) 0.4 (a + b) 3.9

<sup>a</sup> List of phrases counted as fillers: (a) *um, uh, ah, well, like*; (b) *you know, I mean*.

qualifiers were examined. A large group is made up of the phrases of the type *I think/assume/guess* etc. (*I mean* is also included in this category.) Other qualifiers are adverbials – e.g. *maybe, probably, relatively, generally* – and adverbials used with the negative – (*not*) *really, (not) necessarily, (not) very*. Another type of qualifier is the generalized adjunct like *or something, or whatever, sort of, kind of*. A number of other qualifying expressions function in a similar manner, but cannot simply be deleted without making a slight syntactic adjustment, e.g. modals (*would, may, could*), quantifiers like *many, some*, and sentence operators like *it seems that*. A rough count of the total proportion of qualifiers did not reveal any striking differences between speakers, and therefore is not included here. Different speakers *do* use different kinds of qualifiers, which distinguishes in part the personal styles of the speakers; thus F2 uses many expressions of the type *I think, I'd say, I guess*, while M2 uses many expressions like *most people* and *many females*.

Even the count of qualifiers and hesitations does not give an accurate picture of fluency of speech. A striking difference between the speech of F2 and M2 (see Text 2 in the Appendix) is not captured by either of these counts. F2 makes many false starts, repeats words as a hesitation device, and leaves many sentences unfinished; she does not leave many long pauses unfilled (although there are many short ones). M2 generally finishes the sentences he starts, but often has long internal pauses in his utterances. This pattern is also true of the other male. What is needed to characterize these differences is a measure of sentences completed compared to sentence fragments and extraneous words within a sentence. An accurate measure of length and frequency of internal pauses would also be interesting.



TABLE 3. *Percentage of pronouns to word count in X's speech when talking to Y<sup>a</sup>*

X/Y	F1	F2	M1	M2	Average
F1		(a) 3.1 (b) 7.0 (a + b) <b>10.1</b> (c) 1.4	(a) 3.0 (b) 5.4 (a + b) <b>8.4</b> (c) 2.6	(a) 3.3 (b) 4.1 (a + b) <b>7.4</b> (c) 3.7	(a) 3.1 (b) 5.5 (a + b) <b>8.6</b> (c) 2.4
F2	(a) 6.2 (b) 7.3 (a + b) <b>13.5</b> (c) 1.2		(a) 4.9 (b) 9.0 (a + b) <b>13.9</b> (c) 2.4	(a) 7.4 (b) 5.0 (a + b) <b>12.4</b> (c) 2.9	(a) 6.2 (b) 7.1 (a + b) <b>13.3</b> (c) 2.2
M1	(a) 3.8 (b) 1.1 (a + b) <b>4.9</b> (c) 3.0	(a) 4.0 (b) 1.6 (a + b) <b>5.6</b> (c) 5.6		(a) 4.5 (b) 2.0 (a + b) <b>6.5</b> (c) 5.6	(a) 4.1 (b) 1.6 (a + b) <b>5.7</b> (c) 4.7
M2	(a) 5.6 (b) 2.9 (a + b) <b>8.5</b> (c) 2.9	(a) 6.9 (b) 0.6 (a + b) <b>7.5</b> (c) 1.2	(a) 4.0 (b) 2.6 (a + b) <b>6.6</b> (c) 6.4		(a) 5.5 (b) 2.0 (a + b) <b>7.5</b> (c) 3.5

<sup>a</sup>Listed in the following order: (a) *I*; (b) *we, you*; (c) 3rd person references: *she/he, they, someone, person/people*.

Turning to how the conversational partners interacted with each other, we examined three variables. Category (a) is the use of personal pronouns which include the other person (e.g. *we, you*), as opposed to the 3rd person pronouns and the generic phrases *someone, people, a person*. The results are given in Table 3, along with the percentages for the use of the pronoun *I*. On the average, the two females use a greater number of "personal" references (*we, you, and I*, categories a and b) than do the males. This correlated with the subjective impression from the conversations that the females tend to talk more about their own experiences and feelings, while the males tend to generalize and talk rather abstractly. In particular, the pronouns involving the other speaker (category b) occur at a higher frequency for the females than the 3rd person references (category c); but this frequency is strikingly reversed for the males; see Table 4. Certainly this use of pronouns gives quite a different tone to the females' conversational style than to the males'.

Another indication of how the listener reacts to the speaker can be gotten by examining *responses* made to the speaker. Many of these occur in the middle of the speaker's utterance (e.g. saying *mm hmm* while the other person continues to speak – see Appendix Text 2, lines 12–13). The other responses occur mainly when there is a speaker change, and the new speaker begins by reacting to what the other person has just said, e.g. by starting their utterance with a phrase like *well, but . . .* or *oh, I think that . . .* – see Appendix Text 1, lines 16, 22, 24. There were a small number of frequently used words



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TABLE 4. *Differences in person reference*

	Category b ( <i>we, you</i> )	Category c (3rd person)
M1	1.6%	4.7%
M2	2.0%	3.5%
F1	5.5%	2.4%
F2	7.1%	2.2%

which indicated a response. These were divided tentatively into two categories: “affirmative” (*yeah, ok, right, all right*), and “other” (*oh, well* in utterance-initial position).

All occurrences of these words were counted, and are presented in Tables 5a–b. An exception was *well*, since two uses were distinguished: *well* in utterance-initial position appeared to be a response to what had previously been said, but *well* in the middle of an utterance (particularly in the middle of a sentence) was counted as a filler similar to *um*. In principle, other responses could have been counted, such as *no, mm mm*, but very few negative responses of this sort occurred in the conversations examined. This may be a function of the situation, where people were being rather polite. The form that the negative responses took in some of the conversations were more on the order of *yeah, but . . .* (polite negation, rather than outright negation). In any case, the words listed are by far the most frequent short phrases used in responding to another speaker.

The sub-category of “affirmative response” is slightly misleading. The term is not meant to imply that the respondent agreed with the speaker, but simply that the word used had a positive denotation compared to other possible responses (e.g. using *yeah but*, instead of *no* or *well*, to introduce disagreement or reservations). Not only is *yeah* often used to introduce an objection, but *OK* and *all right* are used similarly. Actually these words seem to mean “I have followed what you said,” rather than necessarily “I agree with you.”

Table 5a shows a detailed breakdown of responses, both “affirmative” and “other.” Table 5b gives percentages of responses to the total word output of the *other* person. This ratio was chosen because it seemed reasonable to expect that the number of responses would be proportional to how much the *other* person spoke, by definition of the term *response*. The single-sex pairs gave each other a substantially higher frequency of affirmative responses than did the mixed-sex pairs. The person having the highest frequency of affirmative responses was a female, and the one having the lowest frequency was a male. However, the other male had a higher frequency than the second female. Interestingly, the most voluminous speakers were at the two

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TABLE 5a. *Breakdown of person's responses in conversation with other three people*

F1	F2	M1	M2	F2	F1	M1	M2
Words	817	658	661	Words	651	428	495
<i>oh</i>	0	0	2	<i>oh</i>	9	1	4
<i>hmm</i>	0	1	2	<i>hmm</i>	0	0	0
<i>well</i>	4	8	5	<i>well</i>	6	5	1
Total	4	9	9	Total	15	6	5
<i>yeah</i>	3	5	7	<i>yeah</i>	15	5	5
<i>mm hmm</i>	11	0	2	<i>mm hmm</i>	10	5	5
<i>OK</i>	0	1	1	<i>OK</i>	5	2	8
<i>right</i>	4	0	0	<i>right</i>	9	0	4
<i>all right</i>	0	0	0	<i>all right</i>	0	1	0
Total	18	6	10	Total	39	13	22

  

M1	F1	F2	M2	M2	F1	F2	M1
Words	706	743	718	Words	493	664	506
<i>oh</i>	1	1	3	<i>oh</i>	2	0	0
<i>hmm</i>	0	0	0	<i>hmm</i>	0	0	3
<i>well</i>	4	3	4	<i>well</i>	1	1	7
Total	5	4	7	Total	3	1	10
<i>yeah</i>	12	13	20	<i>yeah</i>	3	1	4
<i>mm hmm</i>	0	0	0	<i>mm hmm</i>	0	1	0
<i>OK</i>	0	0	0	<i>OK</i>	0	0	0
<i>right</i>	0	1	1	<i>right</i>	0	0	1
<i>all right</i>	0	0	1	<i>all right</i>	0	2	3
Total	12	14	22	Total	3	4	8

TABLE 5b. *Percentage of X's responses to Y's word output in conversation between X and Y<sup>a</sup>*

X/Y	F1	F2	M1	M2	Average
F1		(a) 0.5 (b) 2.2 (a + b) 2.7	(a) 1.4 (b) 0.9 (a + b) 2.3	(a) 1.4 (b) 1.5 (a + b) 2.9	(a) 1.1 (b) 1.5 (a + b) 2.6
F2	(a) 2.3 (b) 6.0 (a + b) 8.3		(a) 1.3 (b) 3.0 (a + b) 4.3	(a) 1.0 (b) 4.4 (a + b) 5.4	(a) 1.5 (b) 4.5 (a + b) 6.0
M1	(a) 0.7 (b) 1.7 (a + b) 2.4	(a) 0.5 (b) 1.9 (a + b) 2.4		(a) 1.0 (b) 3.1 (a + b) 4.1	(a) 0.7 (b) 2.2 (a + b) 2.9
M2	(a) 0.8 (b) 0.8 (a + b) 1.6	(a) 0.2 (b) 0.6 (a + b) 0.8	(a) 2.0 (b) 1.6 (a + b) 3.6		(a) 1.0 (b) 1.0 (a + b) 2.0

<sup>a</sup>(a) "other" responses; (b) affirmative responses.

extremes in frequency of response: F2 had the highest frequency, and M2 the lowest. Thus frequency of response is *not* correlated with verbosity for these speakers.

The other striking fact about responses was that *mm hmm* appears to be used almost exclusively by the women in these conversations: 1 instance of *mm hmm* is found in the speech of the two males, compared to 33 for the two females. In addition, the females use *mm hmm* with each other much more frequently than with the males: 22 of the 33 occurrences are in the female/female conversation, the other 11 in the four female/male conversations. The use of *mm hmm* by a male occurs in a conversation with a female who uses it herself five times in that conversation. *Mm hmm*, from these data, appears to be a predominantly female speech form.

Interruptions were also investigated as a possible indicator of how the two people in the conversation interacted with each other. An interruption was defined as a period of overlapping speech where the interrupting speaker is trying to obtain the floor. This definition therefore excludes overlaps like *mm hmm*, *oh yeah* etc., which clearly are not (by themselves) an attempt to gain the floor. The interruptions were divided up into successful and unsuccessful interruptions, defined in the obvious way: in a successful interruption, the original speaker cedes the floor to the interrupter; in an unsuccessful interruption, the original speaker retains the floor and the interrupter falls silent. In Appendix Text 1, line 16, there is a successful interruption; in Appendix Text 2, line 28, an unsuccessful one. The overlap may last only a syllable, or it may go on for a sentence or so. There is also a third category of interruption, where both speakers fall silent.

There was no readily discernible pattern to the interruptions in the six conversations, except that the two females talking to each other interrupted with a much higher frequency than any of the other pairs. It also may be necessary to refine the definition of interruption to exclude overlapping that occurs when one speaker anticipates the end of the other speaker's utterance. (Such a distinction might explain part of the high frequency of interruption in the female/female conversation.) Differentiating these cases, however, would require a much more sophisticated understanding of the set of cues used to signal the end of an utterance.

The last area which we investigated was the plotting of the "flow of conversation." In the flows, we attempted to describe who started a particular topic and how a topic was followed up by the other speaker (further elaboration, disagreement etc.) We also noted who asked questions and who answered. It was found that the first few words of an utterance were very helpful in categorizing the speaker's response to the previous utterance: a large number of utterances begin with expressions like *yeah*, *but* (indicating disagreement – see Appendix Text 1, line 24) or *well*, . . . (often introducing a change of focus – see Appendix Text 1, line 16). In the conversation

between the females, a number of utterances began with *right, also . . .* or *right, so that . . .*, indicating agreement and elaboration of the other person's utterance. A statement of the flow of conversation seemed to get closest to a description of the real dynamics of the interaction between the two people. The females, when talking to each other, tended to elaborate on each other's utterances; the males tended to argue. Several of the female/male conversations fell into a question-answer pattern, with the females asking questions and the males answering, but not asking the females questions in return.

The flow of conversation characterizes the function of each major utterance in carrying the conversation along. It appears to be a very promising approach; however, the categorization of utterances needs a great deal of refining before it can be used with any measure of confidence as an analytical tool.

From these limited data, we cannot, of course, draw conclusions about differences in speech patterns between females and males. However, we *are* in a position to formulate and test some interesting hypotheses. The data suggest that women may be able to talk more easily to each other than to men that they do not know (none of the participants knew each other prior to the experiment). Indications of this are (a) a greater proportion of affirmative responses and a lower number of fillers when the females talk to each other than when they talk to the males; (b) a high percentage of time used for talking, and (c) a tendency to build on the other's statements. This seems not to be true for the men in the male/male conversation.

Differences between the sexes may be found in (a) frequency of use of fillers, (b) frequency of affirmative responses made to the other speakers, (c) frequency in the mention of oneself and/or one's conversational partner, and (d) possibly in frequency of attempted and successful interruptions (although this is not borne out by this particular set of conversations). The use of different kinds of qualifiers reflects a difference in style, which may be related to a difference in assertiveness. The discrepancy in frequency of affirmative responses and proportion of fillers used by the most voluminous female speaker, compared to the much lower figures for the most voluminous male speaker, is interesting. It can be hypothesized that voluminous female speakers compensate for their possible aggressiveness by increased indications of hesitancy and increased responsiveness to the other speaker, in a way that aggressive male speakers do not.

The data on the flow of conversation also point to some interesting hypotheses, related to the role of the female as facilitator of the conversation: the female asks the male questions, the male answers. This question-answer pattern is not found in either of the single-sex conversations. Also, the males tend to dispute the other person's utterance or ignore it; but the females acknowledge it, or often build on it.

Clearly, at some stage, it will be necessary to demonstrate the relation of the linguistic variables discussed here to certain psychological states, e.g. the relation of the use of fillers to a feeling of unsureness, or the use of continual question-asking as a method of deferring to the other person. What we *have* been able to do here is to suggest where to look for measurable differences in female and male conversational behavior. It remains for researchers to gather sufficient data to test for these differences.

## AUTHOR'S EPILOGUE

It is gratifying to see the recent upsurge of interest in the area of gender-based differences in language. I became aware that this topic was attracting widespread interest when a friend gave me Deborah Tannen's book, *You just don't understand* (1990) and when a colleague showed me an interview in the *Washington Post*, where Tannen mentioned my work. This renewed interest spawned several requests for the original version of my paper, and Tannen eventually "found" me via electronic mail. Our interchange led me to retrieve the paper from a box of long-stored material on "Women and language," and to look into the possibility of publishing it.

The paper was not published originally, because it was very exploratory research done in conjunction with a Women's Studies program that had just been started at the University of Pennsylvania in 1973. It was written just after I received my Ph.D. (in a very different area, computational linguistics). To verify the hypotheses formulated in the paper, I would have needed substantial funding in order to collect, transcribe, and analyze enough data to obtain statistically significant findings. Those resources would have been extremely difficult to obtain, given the highly questionable status of research on gender-based language differences at the time. Indeed, this paper was presented at the 1973 LSA meeting only as part of a special session, organized by the LSA Women's Caucus; it was not even part of the main session.

Pressure to find a job led me reluctantly to abandon this line of research and to take a research position in computational linguistics, which had more established funding sources. However, job pressures aside, the most important impediment to pursuing this line of research was the absence of the infrastructure to support large-scale research on conversational interaction.

Amazing though it seems to me now, all the analysis of the experimental data in my original paper was done by hand, with no automated support: the transcriptions were handwritten, the counts were done by hand, even the paper itself was done on a typewriter. For submission to *Language in Society*, I used an optical scanner to scan the text into my PC, then edited it to format the tables and to fix typos – a curious juxtaposition of 20 years of technology.

The advances have not just been in document preparation: an infrastructure is now developing to support the collection and sharing of high-quality on-line language corpora. Ironically, much of this infrastructure has been built to support further advances in the area of computational linguistics and speech recognition, and not particularly with sociolinguistic research in mind; nonetheless, it will provide valuable resources for the study of conversational interaction. The Linguistic Data Consortium (LDC), headed by Mark Liberman at the University of Pennsylvania, is the focal point of this effort. LDC has recently made available (among other corpora) the SWITCHBOARD corpus, consisting of 240 hours of fully transcribed, time-aligned telephone conversations from over 500 speakers. Such a corpus could easily be used to validate the early conjectures made in my paper (which were based on one hour of speech!) In addition, these resources are on-line, and computer-based tool sets exist to facilitate the analysis.

For these reasons, I see the publication of this paper as coinciding with some major developments in the field:

- (a) A revival of interest in female/male conversational interaction.
- (b) An increased interest in conversation and its dynamics, spurred, in part, by advances in speech recognition and natural language processing that begin to bring conversational interaction into the realm of goals achievable for computer interfaces.
- (c) An infrastructure capable of supporting large-scale research, including the development of on-line corpora and associated tool sets for their analysis.

As a result, there is now the possibility of significant interaction among the fields of sociolinguistics, computational linguistics, and spoken language research. This interaction will enable researchers to tackle problems many times more ambitious than what we were able to undertake 20 years ago – and to answer many more interesting questions about how people speak and interact, and what effect this has. From a personal point of view, it has led me full circle back to this research begun 20 years ago. [LYNETTE HIRSCHMAN]

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APPENDIX

Below are excerpts from two transcriptions of conversations between a male (M) and a female (F). The following symbols are used in the transcriptions:

- (P) pause  
 \* \* symbols marking the beginning and end of overlapping speech (overlaps appear on the same line of the transcription)  
 \ falling intonation (period or comma)  
 ? rising intonation (question)  
 \_\_\_\_\_ word strongly emphasized (underlined)  
 ( ) indistinct words, transcribed as well as possible  
 [ ] other sounds made by the speaker: laugh, cough, sigh etc.

TEXT 1

<p>M1</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5 Not sex itself I guess it's the personal</p> <p>6 opinions of the co of each couple\ (P)</p> <p>7 uh (P) it's more likely that these things</p> <p>8 are determined by the sex I mean if you</p> <p>9 took statistics on (P) on this you'd find</p> <p>10 that (P) it is determined by sex often</p> <p>11 (P) but it doesn't <u>need</u> to be \ it's it's</p> <p>12 more like an old custom I guess *(P)*</p> <p>13 but I think there is some part instinct</p> <p>14 female instinct to want to take care of</p> <p>15 the children and instinct for the men to</p> <p>16 be the breadwinner \ (P) *I'd I think*</p> <p>17</p> <p>18</p> <p>19</p> <p>20 Yeah (P) even that (would be) yeah</p> <p>21</p> <p>22 Yeah I would use animal behavior in that \</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p>	<p>F1</p> <p>So y you really (P) so I don't think we</p> <p>really think that sex determines (P) the</p> <p>roles \</p> <p>(P)</p> <p>*Yeah*</p> <p>*Well well what* are you using for the</p> <p>basis of this (P) statement like animal</p> <p>behavior?</p> <p>(P)</p> <p>(P)</p> <p>(P)</p> <p>Yeah (P) but (P) we're not animals \ (P)</p> <p>and like there aren't that many (P)</p> <p>well there <u>are</u> physical characteristics</p> <p>that differentiate the male from the</p>
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28 female \ but they're not like the same  
 29 thing like (P) the male (P) like in birds  
 30 I think the male is more highly colored  
 31 (P) because the female has to sit on the  
 32 eggs and she has to blend in with the  
 33 (P) scenery around her \ (P) for  
 34 protection \ but I mean like we don't  
 35 have any o like those drastic  
 36 differences like that make survival  
 37 differences \

TEXT 2

<p>M2</p> <p>1 I dunno \ (P) um (P) I think certain              2 (P) um (P) (say) (P) I think women are              3 supposed to have <u>better</u> (P) um (P) fine              4 hand control \ (P) so perhaps in some              5 jobs (P) that require *(P)* <u>work</u> like              6 that \ *(P)* um women will predominate \              7              8              9              10              11 um \ I don't know \ cause I haven't              12 done that work *myself and* I haven't              13 read enough on it \ *(P)* but (P) I              14 think it would be an innate characteristic              15 cause I don't think there's any reason              16 for it (P) to be an acquired one \              17              18              19              20              21              22              23              24              25              26              27              28 *I*              29              30              31              32              33              34 I just don't think that (P) um most of              35 the (P) stuff which *(P)* um (P) girls              36 do? (P) is fine (P) um handwork \ (P)              37 <u>sewing</u> is to a <u>small</u> extent \ but (P)              38 even most sewing I think isn't that (P)              39 fine a work</p>	<p>F2</p> <p>*[sigh]*              *mm hmm*              (P)              D'you (P) d'you think that (P) (women)              (P) have that as innate? (P) um              characteristic?                *Yeah [laugh]*              *mm hmm*              (P)              Oh I would (P) I would definitely say              so \ because (P) um (P) you know if if              (P) delicate work (P) has been (P) n (P)              ya know (P) light work with the hands  <u>has</u> been (P) stressed and emphasized \              n (P) in a <u>girl</u> (P) ya know \ (P) from              when she's growing up? it's like              [inhale] um it's like the stress on (P)              athletics (P) innn the <u>male</u> I mean (P)              I do (P) you know there's (P) de a              definite difference *in* potential \ (P)              but it (P) um (P) I mean in in sports              but it (P) um (P) I would say that if              she has (P) concentrated on that that              she's bound to be (P) better              (P)              *[clears throat]*</p>
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