Sex and the Question: Terminal Contours of Responses by Men and Women

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1. INTRODUCTION. Robin Lakoff (1975:17) offers the hypothesis that women, and only women, use a 'rising inflection typical of a yes-no question' when providing a declarative answer to a Wh-question. She contends that such an intonation pattern conveys indecision and a need for confirmation stemming from a lack of authority and power. This claim, if true, has far-reaching consequences for both women and men.

It is therefore regrettable that in the decade since their appearance in print, few of Lakoff's hypotheses have been given serious and comprehensive consideration (see Nelder for an exception). Research on intonation variability between the sexes, for instance, remains meager: although important contributions to the area have been made by Brend (1975), Elyam (1977), and Pellowe and Jones (1978), only Edelsky (1979) and McConnell-Ginet (1983) have explicitly addressed Lakoff's hypothesis as stated above. Moreover, the two studies reach different conclusions.

In this paper, I intend to review both studies briefly and to describe a third study designed to assess by experimental means whether more women than men use rising terminal contours (RTC) with declarative responses to Wh- questions.

2. PREVIOUS RESEARCH. Edelsky (ibid) reports a study designed to 'find out if more women than men use rising intonation when they answer questions to which only they have the answer' (15). 165 women and 154 men were approached by an experimenter and asked either where they were born or what their favorite color was. Each interview was tape-recorded, and responses (which were combined for both questions) were categorized by raters into one of four categories: straight rise, straight fall, flat, and complex rise. The latter is also referred to as 'rise-fall-rise', and is defined as a pattern 'where the lowest pitch level immediately precedes the final rise, which itself is a short glide upward from the low point' (22). In other words, the pitch on which the utterance ends is not the highest pitch of the utterance. Chi-square analyses revealed that 'both sexes used straight rising intonation rarely and equally. Women used a rise-fall-rise pattern more than men only when they were approached by a female interviewer' (15).

McConnell-Ginet (ibid), on the other hand, claims that female and male subjects who participated in her studies were differentiated in their use of RTC. Specifically, women used more complex rise and more straight rise than men did. The experimental design of this study differs slightly from Edelsky's: experimenters in the McConnell-Ginet study asked subjects (in front of a campus landmark) 'What building is this?' McConnell-Ginet claims that this is the type of question 'one expects from strangers',

whereas the questions asked in the Edelsky study are 'survey in type'. She thus attributes the different findings to the 'difference in the communicative context' used in each study.

Neither study attempts to ascertain under what conditions women and men are differentiated in their use of RTC. Given this problem and the fact that the findings of the two studies are diametrically opposed, a third study was warranted to resolve the discrepancies. In the next sections, I describe such a study and discuss its findings.

3. METHOD. Two experimenters, one female and one male, conducted rapid and anonymous interviews with 50 subjects each (25 women and 25 men) via a telephone poll. The sample was chosen randomly from a population of 40,000 by means of a telephone directory. Names and addresses had been covered so as to preserve the anonymity of the subjects, and numbers were chosen by calling the first and last number on each page of the phone book. Subjects ranged in age from approximately 14 to 70 years and represented 42 different types of occupation.

Each experimenter was given a script and strict instructions as to the speech style to be used in conducting the interviews. Before the experiment began, each interviewer was recorded while conducting a mock interview; in this way, it was possible to ascertain that the experimenters 1) felt comfortable with the task, 2) were using natural speech, and most importantly, 3) were both using approximately the same pitch variations and intonation contours.

Telephone calls were made on each of the seven days of the week between the hours 10:00 a.m. and 9:00 p.m. Therefore, the subjects polled consisted both of people who are home during the day (most of whom were either students or retired) and of people who work and are thus home only in the evenings and on the weekends. Each call consisted of the interviewers' first identifying themselves as follows:

> Hi. My name's (first name), and I'm a student at U.C. Davis. For one of my classes, I've been assigned to conduct an informal telephone poll, and I was wondering if you could help me out by answering a few brief questions.

At this point, the subject had the opportunity to either decline or consent to participate. During a pilot study, we had discovered that many of those we called would immediately ask what class the study was for and/or what the study was about. Accordingly, we devised and used the standard response 'If I tell you now, it will invalidate your responses, but I can tell you after we've finished.' Once consent was obtained, the experimenter explained that it was necessary to ask one preliminary question so that the results would be valid, and then asked 'What's your occupation?' Following the subject's response, the experimenter said, 'Now I have four questions to ask you' and proceeded with the interview. The four questions were:

1. What's your favorite color?
2. What's the capitol of California?
3. What's your opinion on the new California State lottery?
4. What's the capitol of Nevada?

The introduction and all questions were spoken with falling intonation.

Two telephone extensions were used, and both experimenters listened to and scored each interview for sex of experimenter, sex of speaker, and semantic content and intonation contours of responses. One of the experimenters has no training in linguistics, and the other is a trained linguist. In this way, two interpretations of each interview were obtained, one linguistically naive and one linguistically sophisticated. Only those interviews on which both experimenters concurred as to type of intonational contour were used for analysis. Three types of contour occurred in the data: rising, falling, and flat.

The preliminary question was used to get a rough idea of the social characteristics (sometimes including age) of the subjects and to prevent the results from being heavily skewed towards one particular sector of the population (namely, students: the study was conducted in a college town in which students comprise one half the population). The other four questions were chosen according to their type.

Question 1, 'What's your favorite color?', is identical to that asked in the Edelsky study. It is survey in type, and was expected to be a question to which only the subject had the correct answer. Question 2, 'What's the capitol of California?', was chosen as a factual one that every subject was expected to answer correctly, given that the town in which the study was conducted is located 15 miles from the state capitol. In fact, no one answered this question incorrectly. It is also similar to the type of question asked in the McConnell-Ginet study ('What building is this?'), although it is not the type of question one 'expects from strangers' over the telephone. Question 3, 'What is your opinion on the new California State Lottery?', is also one to which only the subject has the correct answer; however, it requires the speaker to verbalize a personal opinion, and for many, is asking for a political statement. We expected a somewhat more emotional response to this question, and in most cases, our expectations were met. Finally, we expected that Question 4, 'What's the capitol of Nevada?', would receive responses of which the subjects were unsure; however, it was intended to be one at which most would at least venture a guess. (In point of fact, the capitol of Nevada is Carson City, and not Reno, as most subjects answered.) It was here that we expected to find the most RTC.

4. RESULTS. Results are given in percentages for ease of interpretation and are presented for each factor individually (i.e. Sex of Speaker, Sex of Experimenter, and Question Type) as it affects use of RTC. Analyses of variance were conducted using

99% simultaneous confidence intervals to determine the significance of main effects and two-way interactions. A three-way ANOVA was not conducted since there was only one observation per cell.

4.1. SEX OF SPEAKER. No main (that is, overall) effect was found on use of RTC for Sex of Speaker. Women used RTC 29% and men 30% of the time (see Table 1). Judging by main effect of Sex of Speaker alone, then, these data validate neither Lakoff's intuitions nor McConnell-Ginet's results, but rather, support Edelsky's finding that women and men are not differentiated in their use of RTC.

TABLE 1. Categorizations of terminal contours in percentages according to Sex of Speaker

	rising	flat	falling
F	29	7	64
M	30	7	63

Neither was the interaction of Sex of Speaker with Sex of Experimenter statistically significant. However, there was a significant interaction of Sex of Speaker with Question Type for use of RTC ($p < .02$). As can be seen in Table 2, this effect was concentrated in Questions 1 and 4. In responding to the former, female subjects used RTC 16% of the time, whereas male subjects used the pattern 34% of the time. Many of the male subjects did not know their favorite color; indeed, a few of them asked their wives for the answer. The trend is reversed for responses to Question 4, where females used 34% RTC as compared to 26% for males. Note that male speakers gave as many incorrect answers to this question as female speakers did. Thus, women and men who participated in this study used RTC differently, depending on the question type.

TABLE 2. Categorizations of terminal contours in percentages according to Sex of Speaker and Question Type

	Q1 (color)	Q2 (cap. CA)	Q3 (lottery)	Q4 (cap. NV)
F Sp				
rising	16	38	26	34
flat	20	2	4	0
falling	64	60	70	66
M Sp				
rising	34	34	30	26
flat	16	4	4	2
falling	50	62	66	72

4.2. SEX OF EXPERIMENTER. The main effect of Sex of Experimenter was significant ($p < .01$). The female experimenter

elicited 25% RTC, and the male experimenter 33% RTC. Because both experimenters elicited the same percentage of flat contours (5%), the main effect of Sex of Speaker was also significant for a falling contour ($p < .05$): the female experimenter elicited 70% and the male experimenter 62% falling contour (see Table 3). Thus, subjects used more falling contours and less RTC when interviewed by a female than when interviewed by a male experimenter.

TABLE 3. Categorizations of terminal contours in percentages according to Sex of Experimenter

	rising	flat	falling
F	25	5	70
M	33	5	62

The interaction of Sex of Experimenter with Question Type was also found to be significant ($p < .1$). This effect was concentrated in responses to Questions 3 and 4. In response to the former, the female experimenter elicited 22% and the male experimenter 34% RTC. In response to the latter, the female experimenter elicited 24% and the male experimenter 36% RTC (see Table 4). Thus, the female experimenter elicited much less RTC with responses to Questions 3 and 4 than did the male experimenter.

TABLE 4. Categorizations of terminal contours in percentages according to Sex of Experimenter and Question Type

	Q1 (color)	Q2 (cap. CA)	Q3 (lottery)	Q4 (cap. NV)
F Exp				
rising	24	34	22	24
flat	20	2	4	2
falling	56	64	74	74
M Exp				
rising	26	38	34	36
flat	16	4	4	0
falling	58	58	62	64

4.3. QUESTION TYPE. The final factor, Question Type, had a significant main effect on use of flat contours and RTC. The main effect on use of a flat contour ($p < .02$) was concentrated in responses to Question 1: 18% flat contour as compared with 4% flat contour with responses to Questions 2, 3, and 4 (see Table 5).

The main effect on use of RTC ($p < .03$) was distributed fairly evenly among the four Question Types. Responses to Question 1 had the lowest percentage of RTC at 25%. Responses to Question 2 had the highest percentage of RTC at 36%. Each of these two questions elicited RTC levels significantly different

from all other question types. Questions 3 and 4, on the other hand, elicited RTC levels significantly different from Questions 1 and 2, but not from each other, at 28% and 32%, respectively (see Table 5). Question Type, then, proved to be a significant factor in use of RTC, both as a main effect and in interaction with Sex of Speaker and Sex of Experimenter, as discussed above.

TABLE 5. Categorizations of terminal contours in percentages according to Question Type

	Q1 (color)	Q2 (cap. CA)	Q3 (lottery)	Q4 (cap. NV)
rising	25	36	28	32
flat	18	4	4	4
falling	57	60	68	64

5. DISCUSSION. Table 6 presents the results of the three-way interaction. I present them here because they are enlightening in terms of interpretation of the data, despite the fact that no statistical analyses were performed on them.

TABLE 6. Categorizations of terminal contours in percentages according to Sex of Speaker, Sex of Experimenter, and Question Type

S x E	Q1 (color)	Q2 (cap. CA)	Q3 (lottery)	Q4 (cap. NV)
F x F				
rising	16	36	20	24
flat	24	0	4	0
falling	60	64	76	76
F x M				
rising	16	40	32	44
flat	16	4	4	0
falling	68	56	64	56
M x F				
rising	32	32	24	24
flat	16	4	4	4
falling	52	64	72	72
M x M				
rising	36	36	36	28
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falling	48	60	60	72

5.1. QUESTION 1. The first column of Table 6, which gives the interaction between Sex of Speaker, Sex of Experimenter, and Question 1, shows that male speakers used significantly more RTC than females did when responding to Question 1, regardless of Sex of Experimenter. Lakoff hypothesizes that interest in color and command of color terminology is a female quality. In other words, we can say that the realm of color is a female domain. Thus, the high rate of RTC used by men in response to this question reflects their unease with the female domain of color in general. This hypothesis finds some support in the semantic content of their responses. First, recall that many men did not have an answer to this question. Second, those male speakers who did provide an answer used only primary color terms. In fact, only two different answers to this question were elicited from men: 'blue' and 'red', whereas women used terms such as 'aqua', 'burgundy', 'mauve', 'peach', and 'dusky rose', in addition to more basic color terms.

5.2. QUESTION 2. Looking at the second column of Table 6, we see that Question 2 elicited significantly more RTC than any other question; this was an unexpected finding since all speakers answered this question correctly. Clearly, the use of RTC in this instance is not a reflection of insecurity. Rather, the contour reflected many speakers' surprise at the simplicity and unexpectedness of the question. I propose that the first question sets up an expectation in the mind of the speaker for subsequent questions to be similar in nature. In this case, speakers would expect the next question to be innocuous, non-factual, and semi-personal. Instead, it is a factual (geographic) question that is surprisingly simple. Many lexicalized their surprise (e.g., 'Are you serious? [Laughs.] Sacramento'), but just as many expressed their reaction intonationally. A modification of the experimental design could easily resolve this problem, namely a reorganization of the questions in such a way as to order similar questions consecutively. Obviously, such a modification could affect the rate of RTC used in responding to Question 2.

5.3. QUESTION 3. Turning now to the data from Question 3, recall that the two-way interaction between Sex of Experimenter and Question Type was significant, and that the effect was concentrated in responses to Questions 3 and 4. Specifically, subjects used more RTC when responding to a male than when responding to a female interlocutor. The data from Table 6 indicate that this effect was not concentrated in the responses from speakers of one sex, but rather is significant for both female and male speakers. Female speakers used 20% RTC with a female and 32% RTC with a male experimenter, and male speakers used 24% RTC with a female and 36% RTC with a male experimenter. In other words, in response to Question 3, both female and male speakers used more RTC with a male experimenter than with a female experimenter.

This result may also be explained in terms of the hypothesis regarding female and male domains. Question 3 is essentially a political question, and politics is stereotypically considered to be a male domain. Thus, both male and female subjects perceived

whereas the questions asked in the Edelsky study are 'survey in type'. She thus attributes the different findings to the 'difference in the communicative context' used in each study.

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This result may also be explained in terms of the hypothesis regarding female and male domains. Question 3 is essentially a political question, and politics is stereotypically considered to be a male domain. Thus, both male and female subjects perceived

the male as more threatening than the female interlocutor in terms of this question, since it represents a male domain. Thus, when speakers are asked to voice their political opinions to a male interlocutor, they exhibit a higher degree of insecurity (as reflected by a higher degree of RTC) than when responding in kind to a female interlocutor.

An alternative explanation for the high rate of RTC used with the male experimenter is that male interlocutors are perceived as poorer listeners than females and thus require more interactional cues. Although this may be true in general, I reject such an explanation for the present phenomenon on the grounds that a telephone poll does not represent a standard interaction. In such a question/answer structure, a response, in and of itself, is a strong interactional cue, signaling the interviewer to resume the floor.

5.4. QUESTION 4. Finally, the data from column 4 of Table 6 reveal a particularly interesting discrepancy in use of RTC by female speakers responding to Question 4; when responding to a male experimenter, they used 44% RTC (their highest overall score for RTC) as compared to 24% when responding to a female experimenter. The reverse trend is evident in the percentages for falling contour (56% with a male and 76% with a female experimenter), since none of the female subjects used a flat contour when responding to this question. Thus, in response to Question 4, female speakers used much more RTC when responding to a male than when responding to a female experimenter.

We do not find the same pattern among the male speakers. When responding to Question 4, male speakers used 28% RTC to a male experimenter and 24% RTC to a female experimenter. They used 72% falling contour to both male and female experimenters. Thus, comparing responses of female and male speakers to a male experimenter, we see a major difference: for RTC, females had a score of 44% as compared to 28% for males, and for falling contour, females had a score of 56% compared to 72% for males. Hence, when responding to Question 4 as asked by a male experimenter, female speakers used a great deal more RTC (and conversely, less falling contour) than their male counterparts did in the same situation.

I suggest two possible interpretations of these data. The first is that female speakers were more willing to reveal that they were unsure of the answer to Question 4. However, if this is true, why didn't they use equal amounts of RTC with both experimenters? Recall that their score for RTC with the male experimenter was 44% for this question, the highest found in the study. Furthermore, the data from Question 3 do not support such an interpretation. Many women were unsure of their answers to this question, as is reflected in the semantic content of their responses (e.g., 'I'm not sure', 'I don't know'). Nevertheless, they used only 26% RTC, almost half the rate used with responses to Question 4. Hence, this interpretation fails to explain all the facts.

A second possible interpretation is that women felt insecure about answering Question 4. I maintain that this is a better explanation and that it may be articulated in terms of female and male domains. Specifically, I claim that female speakers viewed this factual-type question as a male domain; that is, they saw it as a request for information that they expect men to know. Two types of data lend support to this contention. First, women used far more RTC in responding to a male experimenter than in responding to a female experimenter, indicating that the insecurity reflected by the high rate was provoked by the factor Sex of Experimenter. Second, the semantic content of some of the responses implies such an attitude. For example, many female speakers responded 'My husband would know' and several even said 'Just a minute' and asked a male speaker for the answer.

In terms of the low rate of RTC used by male speakers in response to this question, recall that just as many men as women gave incorrect answers to Question 4. If the rising terminal contour reflects unease, then its converse should reflect sureness, or at least an appearance thereof. Thus, male speakers adopted a confident contour even when giving incorrect answers to a factual question. Lexical frames validate this interpretation. For example, a male speaker would use falling intonation with the response 'Uhm ... I don't know ... Reno'. Male speakers, then, whether consciously or unconsciously, manipulate their intonation contours in such a way as to give the appearance of confidence, even when their lexical frames deny the impression.

The data from Question 4, particularly those regarding female responses, raise some interesting questions. For instance, why do we not find similar patterns in male responses to Questions 1 and 4? Specifically, if Question 1 represents a female domain, why didn't men use more RTC with a female than with a male experimenter? And if Question 4, like Question 3, represents a male domain, why didn't male speakers use more RTC with a male than with a female experimenter, as their female counterparts did? Clearly, female and male speakers do not perceive these domains in the same way. I do not propose to address this question in any more detail here. I merely delineate problems for future research.

A final note on Question 4 concerns the high percentage of falling terminal contour used. This was an unexpected finding, given the uncertainty with which many subjects responded. As we have seen, the high rate of falling contour used by male speakers contributed significantly to this effect. Another contributing factor, however, was the fact that subjects always knew that there were only four questions. Thus, many used rising intonation for the first three answers (interpreted by this researcher as an anticipatory contour), but used falling intonation with the final answer, as if to complete or terminate the previously defined structure of four questions and four answers. Clearly, this is a problem with the experimental design; however, the effect could easily be counteracted by simply randomizing the order of the

questions and refraining from informing subjects of the number of questions to be asked.

6. CONCLUSION. This study examined the question of whether more women than men use RTC when providing a declarative answer to a Wh- question. The most important finding overall is that consideration of only the factor Sex of Speaker does not provide a comprehensive answer to this question.

In this study, there was no main effect for Sex of Speaker; female and male speakers used RTC equally. However, main effects were found for the factors Sex of Experimenter and Question Type. Subjects used more RTC with the male than with the female experimenter and used different rates of RTC when answering different questions.

Moreover, the interactions Sex of Speaker x Question Type and Sex of Experimenter x Question Type had a significant effect on use of RTC. Female speakers used different amounts of RTC from male speakers when responding to the questions 'What's your favorite color?' and 'What's the capitol of Nevada?'. Specifically, males had the higher RTC score for the former and females the higher score for the latter. The male experimenter elicited higher scores for RTC with responses to the questions 'What's your opinion on the new California State Lottery?' and 'What's the capitol of Nevada?' than with responses to the questions 'What's your favorite color?' and 'What's the capitol of California?'.

I concluded that these findings can be explained in terms of 'domain of activity/knowledge' (Shibamoto, personal communication). That is, use of RTC with declarative responses may reflect a speaker's unease or unfamiliarity with a particular realm of knowledge or activity. I claimed further that such domains may be related to sex roles. A conclusion that cannot be drawn from these data is that women are in general more insecure than men. I also claimed that use of RTC cannot always be interpreted as an indicator of a speaker's insecurity. I suggested that the pattern may also indicate incredulity or anticipation, as well as function as an interactional cue.

Lakoff's intuitions, then, were not validated by the evidence in this study. However, as Edelsky points out, interviews with strangers comprise only a small portion of average verbal interaction, and results from a study of this kind should not be generalized to all spheres of verbal behavior. Clearly, there is a need for further research in the area. For example, the following three questions would provide valuable information. First, do the types of situations in which women use more RTC than men occur more frequently than those in which the reversed pattern is found? If the answer to this is affirmative, it could explain and validate Lakoff's intuitions. Second, are these same patterns of usage found in interactions which take place in more traditional settings, i.e. where the interlocutors know one another, and participant roles are clearly defined? Finally, are these patterns evidenced and perpetuated by cultural stereotypes such as soap opera characters, for instance?

As Lakoff has demonstrated, the issue of the differences between women's and men's speech is not only a linguistic but also a political issue. If 'how we say it' is as important or more important than 'what we say', both male and female speakers should be aware of the attitudes that different intonation patterns produce. Only then can speakers control such patterns and hence convey only those messages they wish to convey, rather than allowing their speech to send out signals that may be inaccurate as well as damaging to their credibility.

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the male as more threatening than the female interlocutor in terms of this question, since it represents a male domain. Thus, when speakers are asked to voice their political opinions to a male interlocutor, they exhibit a higher degree of insecurity (as reflected by a higher degree of RTC) than when responding in kind to a female interlocutor.

An alternative explanation for the high rate of RTC used with the male experimenter is that male interlocutors are perceived as poorer listeners than females and thus require more interactional cues. Although this may be true in general, I reject such an explanation for the present phenomenon on the grounds that a telephone poll does not represent a standard interaction. In such a question/answer structure, a response, in and of itself, is a strong interactional cue, signaling the interviewer to resume the floor.

5.4. QUESTION 4. Finally, the data from column 4 of Table 6 reveal a particularly interesting discrepancy in use of RTC by female speakers responding to Question 4; when responding to a male experimenter, they used 44% RTC (their highest overall score for RTC) as compared to 24% when responding to a female experimenter. The reverse trend is evident in the percentages for falling contour (56% with a male and 76% with a female experimenter), since none of the female subjects used a flat contour when responding to this question. Thus, in response to Question 4, female speakers used much more RTC when responding to a male than when responding to a female experimenter.

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