I was testing on the second day, I attempted to avoid bias in a judgment of when an animal had stopped exploring by raising the cage as soon as the rat released it. This interval never exceeded 30 seconds.

The median changes in latencies are shown in Table 1. The median was preferred over other measures of central tendency for two reasons. Variabilities were large and unequal (see the semi-interquartile ranges in Table 1); and the distributions of scores of shocked animals were highly skewed because the animals were removed from the platform after 60 seconds on the test trial. I handled the animals in the second experiment because I expected this treatment to reduce the variability in their latency scores (*6*). Handling did seem to reduce variability in group SH. Group H was included to test for transfer of fear of the oven to the box and to control for any effects due to heating alone. Multiple comparisons were made with a two-tailed Mann-Whitney U test (*7*). First, the t_1 scores of all the unhandled rats were compared with the t_1 scores of all the handled rats to determine if there was an overall bias introduced by handling. I expected handled rats to have a shorter latency because of decreased timidity (*6*), but there was no difference between the two groups. The median of all t_1 scores was 4.5 seconds. Next, multiple comparisons were made among the eight treatment combinations on t_1 to determine if there was a bias that might affect the change in latency. There were no differences. Finally, multiple comparisons were made among the eight treatment combinations on $t_2 - t_1$, the change in response latency. Probabilities of .05 or less, associated with the appropriate U's, are shown in Table 2; only U's with probabilities of .01 or less are considered significant. Heating alone had no effect on response latency. Shocked rats tended to acquire a conditioned avoidance response, but the large variation in their scores prevented the data from reaching the desired level of confidence. Contrary to expectation, unhandled rats that were heated after receiving shock-avoidance training acquired a conditioned avoidance response. This acquisition is apparent whether the animals are compared with their own controls ($p < .002$) and heated group ($p = .000$) or handled controls ($p < .002$) and heated group ($p < .002$). On the other hand, handled rats that were heated after receiving shock-avoidance training did not acquire a conditioned avoidance response when compared with unhandled SH rats ($p = .01$) or the control groups.

To determine if the radiation impaired the rats' ability to learn a complex task, I evaluated the performance of the handled animals in a 14-unit T maze. Thirty days after the one-trial avoidance learning, the animals from the second experiment were put on a 24-hour food deprivation schedule over a 5-day period. They were then pretrained for 5 days to run for food in an L maze, receiving one trial a day. Finally, they received one trial a day for 20 days in the T maze. They were allowed to eat wet mash for 20 minutes in the goal box after every trial. An error was recorded each time an animal moved into a blind as far as the base of his tail. A plot of mean errors in the maze versus days for heated and unheated animals showed no differences. Justesen, Pendleton, and Porter (*8*) showed that heating by 7-cm microwave radiation impaired the ability of rats to learn a similar maze. However, their animals were weanlings when they were heated, they received six treatments instead of one, and they were tested in a water maze. Their results are not comparable to the present study.

It is not clear why handling should predispose an animal to a retrograde amnesia from microwave radiation; however, it is clear that handling is an important variable in studies of retrograde amnesia.

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Speech Duration Effects in the Kennedy News Conferences

Abstract. *Transcripts of the 61 regular Kennedy news conferences were examined in an attempt to provide a replication of the "speech duration effect" previously found in two-person interviews and during manned space flight. A positive relation was found between the length of the reporters' questions and the length of the President's answers.*

The relation between the lengths of astronaut and ground communicator statements reported by Matarazzo *et al.* (*1*) supports approximately a decade of research on the subject of speech durations during interviews.

Matarazzo has found, almost uniformly, that the length of response by the interviewed individual is positively associated (that is, the longer the question the longer the answer) with the duration of the interviewer's speech "unit." This positive relation was demonstrated in medical interviews, psychotherapeutic interviews, civil service and department store job interviews, and in "free" conversation between two persons (*2*).

The astronaut-ground communicator study, an ingenious extension of the aforementioned series of replications, involved examination of speech durations during the two three-orbit manned space flights of the U.S. Mercury program. The rank order of orbits, on the basis of mean speech duration, was identical for ground communicators and astronauts in both space flights.

The study of speech duration can be extended to another situation—the presidential press conference. In comparison to the situations studied earlier, even that of the astronaut, the press conference is a situation in which the typical relation of speech lengths would not be expected to occur. It is less a "free," nondirective situation, with many of the reporters' questions having been prepared in advance. The President too has been briefed on the questions likely to be asked.

Matarazzo used an interaction chronograph to study the length of the speeches. In our study, duration was inferred from a count of lines in the transcripts of the 61 regular Kennedy news conferences held in Washington (*3*). Although the line-count method does not take the speed of talking and the pauses directly into account, Mata-

razzo (*4*) has suggested that transcript counts are highly correlated—over .900 —with timing methods of producing duration data. Moreover, the line count method appears reliable.

Thirty-five students from communication research courses at Northwestern University participated in this research. When some of the participants did not understand exactly what the question-answer unit was, there was an initial error (subsequently corrected) in five of the conference line counts. The reliability of the line count method was gauged by correlating the line counts made on the same conference by different individuals. Each of three pairs of individuals counted lines from each of three different conference transcripts taken from Chase and Lerman (*3*). This resulted in six correlations (one for question lengths and one for answer lengths for each of the three conferences) which were all above .990. In addition, five other pairs of counts could be compared. One member of each pair was taken from the Chase and Lerman transcript and the other was taken from either the New York *Times* or the *Public Papers of the President*. These ten correlations across sources were all above .960, an indication not only of the reliability of the line count but also of the reliability of transcripts across sources.

There have been findings of differential speech-duration tendencies across personality types (*5*). However, the Matarazzo effect seems to be one of conditioning in each situation, rather than one of a constant tendency to answer long questions with long answers and short questions with short answers. Therefore, we first examined the conferences to determine if those in which the average length of questions was longest would also have the longest average length of answers. The product-moment correlation between the mean lengths of answers and questions across conferences is .600 ($p < .01$). Thus the Matarazzo effect appeared in a situation where it was not expected—the news conferences of an articulate and well-prepared President.

For further evidence of the effect, each of the 61 news conferences was divided into three parts by sequential ordering of question-answer pairs. (If a conference happened to have a number of pairs not evenly divisible by three, the segment assigned an "odd" number of pairs was selected by random procedures.) The three segments in each conference were ranked on the basis of mean length of questions and answers, and the degree of correlation for the question-answer rankings was determined. Two examples of this sequential ordering and ranking of question-answer pairs from the Kennedy conferences of 1 February 1961 and 24 April 1963 are shown in Fig. 1. As in these examples, the correlation of rankings for mean lengths of questions and answers was +1.00 in 20 of the 61 conferences. This is about twice the number of perfect correlations expected by chance.

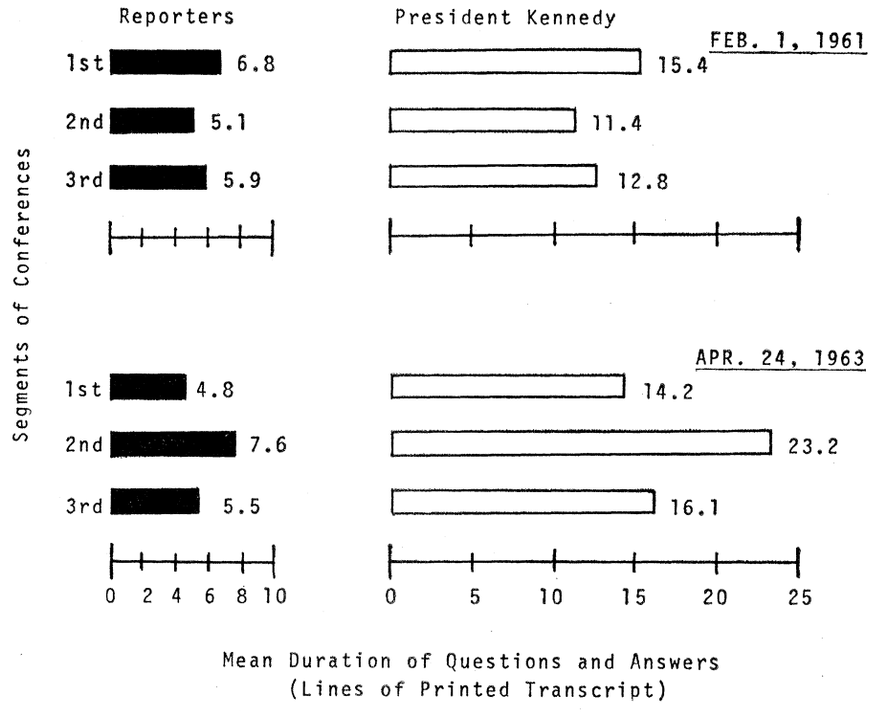

Fig. 1. Two examples of the relation between question and answer lengths found in 20 of the regular Kennedy news conferences.

Question and answer lengths were also tabulated across all 61 conferences for the first, second, and third conference segments. Although the variation in lengths was not significant across these segments, the regular relation between question and answer length was again evidenced. Mean lengths of questions were 5.51 lines for the first segment of the conferences (541 questions), 5.45 lines for the second segment (544 questions), and 5.42 for the third segment (543 questions). Mean lengths of answers also decreased as the conferences progressed: 16.38 for the first segment, 14.35 for the second, and 13.62 for the third.

The relation between the length of the question and the length of the answer was also found in the direct correlation of these lengths within individual conferences. In 16 conferences this question-answer correlation was significant at the .05 level or beyond (only three expected by chance), and the correlation was positive in 56 conferences.

The direct correlation computed from the 1628 question-answer pairs of the 61 conferences was +.286 ($p < .01$). While significantly different from zero, this correlation indicates that only a little over 8 percent of the variation in answer length is accounted for by question length. This provides further indication that the Matarazzo effect is a verbal conditioning phenomenon within an interview, rather than a tendency which manifests itself on each question-answer pair. Thus, while individuals interviewed do not give long answers just because questions are long, their answers should increase in length if the interviewer's comments are always long.

It was initially hypothesized that as a President becomes more experienced in handling himself at press conferences, he will become less affected by the length of questions, and the reporters, in turn, will be less affected by the length of his answers. But several analyses indicated that, if there was any trend at all, the correlation between question and answer length in the conferences increased rather than decreased over a period of time. For instance, when the mean lengths of

questions and answers for conferences were correlated across the conferences held in 1961, the correlation was .465. The analogous correlation was .610 for 1962 and .783 for 1963. Similarly, the correlation of mean lengths increased from .500 across the first 20 conferences to .562 across the second 20, and to .764 across the last 21. The correlation of the original (not averaged) question and answer lengths also increased over the years (.280 for 1961, .284 for 1962, and .296 for 1963).

Analysis by Fisher's z (*6*) indicates that the differences between correlations over a period of time were not significant, but the fact remains that this increasing correlation occurs at a better-than-chance frequency. Explanation at this point is difficult, but it is possible that this increasing correlation was due to increasing rapport between the President and the reporters. This could have led to the President being more sensitive to the length of the reporters' questions and to the reporters being more sensitive to the length of the President's answers.

Matarazzo (*1*) found that the correlation between question length and answer length for astronaut and ground communicators (across ground stations) tended to decrease over the three orbits in both space flights. Analysis within the individual Kennedy conferences gives some support to this finding. While the differences were slight, the most frequent pattern (in 15 of 61 conferences, only 10 expected by chance) was for the correlation of question-answer length to decrease over the first, second, and third segments of the conferences. With regard to the Kennedy conferences, and the two space flight interviews as well, explanation is difficult. This is because the bulk of the data seems to indicate that the tendency to answer a long question with a long answer and a short question with a short answer is a conditioning phenomenon which would lead to increasing rather than decreasing correlations within the conferences.

It is of some interest that, in terms of the ratio of answer length to question length, the Kennedy news conferences rank somewhere between the Matarazzo civil service interviews and the space-flight conversations. Matarazzo had so regularly obtained a 5 to 1 ratio that he labeled it the "verbal interaction constant" (*2*). On the other hand, the ratios on the space flights ranged between 1.2 to 1 and 2.4 to 1. In the Kennedy conferences, the mean length of answers was 14.78 lines and the mean length of questions was 5.46 lines—a ratio of 2.7 to 1.

Although there are some rival explanations [for example the effect of question topic studied by Matarazzo *et al.* (*7*)], the press conference data is one more piece of evidence demonstrating the pervasiveness of the speech-duration phenomenon.

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3 May 1965

Acute Phase Protein in Serum of Women Using Hormonal Contraceptives

Abstract. *Acute phase protein precipitating somatic C-polysaccharide of pneumococci appears in serum of women under treatment with hormonal contraceptives in a significantly higher number of cases when compared with control groups. The summarized results of three preliminary studies show that in 80 control serums there were four positive specimens (5 percent) and in 80 serums from women using hormonal contraceptives there were 58 positive specimens (72.5 percent).*

C-reactive protein is an acute-phase protein in serum which precipitates somatic C-polysaccharide of pneumococci. This protein is not detectable in normal individuals. It has been the common concept for more than two decades that the presence of C-reactive protein in the serum is an indication of inflammation (bacterial or aseptic), rheumatoid disease, tissue injury, and tissue decay (*1*). C-reactive protein appearance can also be stimulated by intravenous injections of bacterial endotoxins. There are several reports that this protein appears during normal pregnancy in a certain percentage of cases. The frequency of its appearance (positive tests) seems to increase during the second and third trimester (*2*). The liver appears to be the site of its synthesis (*3*).

Table 1. Results of C-reactive protein tests, first study (*4, 11*).

Cycle	Total	Positive	Negative
Control group 1			
Day 12–14	20	0	20
Control group 2			
Day 24–26	20	0	20
Women on Enovid			
Day 15–25	20	11	9
Control group 3, normal pregnancy			
Week 35–40	20	12	8
Hypertensive disorders in pregnancy			
3rd tri.	25	13	12

During the course of studies on serum proteins in pregnancy (*4*), differences between two control groups of apparently healthy women in the reproductive age were recognized. In a group of 20 women under cyclic treatment with Enovid (*5*) (5 mg norethinodrel, 0.1 mg mestranol) for a period of 2 to 24 months, 11 serum specimens had C-reactive protein. In a group of women with normal menstrual cycles no positive test was observed in 20 specimens drawn between the 12th and 14th day of the cycle or in 20 specimens taken between the 24th and 26th day of the cycle (see Table 1). It may be interesting to compare these values with those obtained in pregnancy in this study. The results are similar in normal pregnancy and in hypertensive disorders in pregnancy (Table 1).

Corresponding results were obtained during a short study (*6*) of a group of 34 apparently healthy women under cyclic administration of Anovlar (*7*)

Table 2. Results of C-reactive protein tests, second and third studies (*6, 12, 13*).

Cycle	Total	Positive	Negative
Control group 4			
Day 12–14	20	1	19
Control group 5			
Day 24–26	20	3	17
Women on Anovlar			
Day 15–25	16	9	7
Women on Aconcen			
Day 15–25	12	10	2
Women on other hormone preparations			
Day 15–25	6	6	0
Women on Ovulen			
Day 20–28	26	23	3