Word recognition and set for association

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Abstract

Words were presented at brief exposures for perceptual recognition in the context of other words to which they were frequent associates. In half the cases, a row of 5 x's was substituted for the word to-be-recognized. Latency of recognition responses for most of these cases was not different from the latency obtained for words actually presented.

Problem

Rouse & Verinis (1962) studied perceptual recognition times for words presented tachistoscopically following the context provided by the super-threshold exposure of other words. They found that if between a pair of items there was a pre-existing associative relation (e. g., Table-Chair) the recognition time for the second word was reduced. Rouse and Verinis attributed their finding to a combination of two factors. One was a set to give associations, i. e., after the subject learned, from several pairs, that the items to be recognized were associates of the first word, he tended to bias his responses during recognition trials toward associates of the context word. The other factor proposed was a partial perception of the to-be-recognized word (e. g., ch in chair). The present note reports an experiment in which, under similar circumstances, no second word was actually presented. The results indicate that a substantial amount of "recognition" of the second word as an associate of the context word occurs under these conditions—results comparable to those found by Goldiamond & Hawkins (1958) under different conditions.

Method

Twelve pairs of words were chosen such that one word was the Kent-Rosanoff primary (most frequent) response of the other one (Russell & Jenkins, 1954). These words were presented to 20 college students (7 female) in individual sessions by means of a Scientific Proto-type three-channel tachistoscope. These 12 pairs were the "test list," and 4 practice pairs preceded them and 2 post-test pairs followed them. The practice pairs were used to induce a set that the pair members were associatively related; when the second member of each of these pairs was recognized, it was always a common associate of the first word. The post-test pairs were composed of non-associated words. They were used to determine if the association set established during practice and test list would impair the recognition of the second words.

For half the subjects, the test pairs were split into two groups. In one group, the second word was replaced by a row of 5 x's; the real second word, however, was presented in the second group of 6 pairs. For the other half of the subjects, these relations were reversed, so

that real words replaced the x's in group one and x's the real words of group two.

The subjects were instructed to look at the word exposed in the tachistoscope and were told that it would be replaced by another word presented at sub-threshold exposure intervals until it was recognized. The experiment was presented as one on subliminal perception. If the subject "recognized" the associate, he was told he was correct (whether the word was presented or not). In some instances, the subject did not "recognize" the associate when the row of x's was presented. In such instances, the exposure interval was lengthened (as it was following failure to recognize real words) but not to the point at which the x's could actually be seen. Further exposures were made at below threshold levels, but if the subject had not responded correctly in 15 exposures, he was told what the word he was trying to recognize was. This deception was necessary to maintain the set for associative guessing.

Results and Discussion

Failures to give the associate which the x's replaced occurred for one to four of the six instances in 15 subjects, totalling 31 such cases in the total of 120. The mean "recognition" time for the 89 remaining presentations of x's was .042 sec. For 89 presentations of real words the mean recognition time was .047 sec. A t-test for the difference in correlated items (Edwards, 1959) was not significant ($t = 1.36$). The 31 real words eliminated for this comparison were those which matched the words replaced by x's closely in terms of position in the test list, association strength and Thorndike-Lorge (1944) frequency. This suggests that the set to give associates operated to produce "recognition" times for the 89 instances of x's which were as short as the times for recognition of real words. Subjects had difficulty in recognizing the second word of the two post-test pairs, and their pre-recognition responses consisted of associates to the first word, rather than words related to the real second words of these pairs.

Partial-perceptions of words were given in some instances when the x's were presented. For example, after giving chair as the response to the x's (in the context of Table) or white as the response to the x's (in the context of Black), some subjects, in response to questions as to what they had actually seen, reported seeing the ch or wh of these words.

Some failures to guess the designated associate in the case of x's were attributable to the subject's tendency to guess other associates than the one designated. For example, in the context of Eagle, 4 subjects did not give the expected "bird" but instead gave items such as hawk, crow, or sparrow. Other failures arose from the fact

that 5 x's were always presented, though in some cases the expected response contained either 4 or 6 letters (21 of the 31 failures). In some of these instances, the subject indicated that he had been looking for the designated word but had rejected it as the number of letters was wrong.

A factor in these results is the subject's reaction to his failure to see the correct word (in the case of x's); he was always told the correct word, though he had failed to give it during the presentation of the x's. The experimenter reported that half (11) the subjects failed to give the expected response the first time the x's were shown. When they were told what the word was, the experimenter observed that they became embarrassed at their failure, several saying that they were looking for that word but had not seen it. Thereafter, these subjects probably were more willing to guess on all presentations.

Under the conditions of this experiment, then, which were designed to foster the guessing of associates, subjects will guess the associate to another word even

though the associate is not presented. These findings are indicative of the strong role that associative guessing may have in perceptual word recognition experiments and are consistent with other findings reported in the literature.

References

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