

The Effects of Task on the Representation of Sentences

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Two experiments examine the extent to which the representation of a sentence depends upon the overall nature of a subject's task by probing this representation with single nouns. The probe nouns varied in their semantic and phonological relationship to the initial noun in the sentence. The results of the first experiment indicated that the tasks affected the semantic but not the phonological representation of the sentence. Together with the findings of a second experiment they suggest that when asked to memorize a sentence verbatim a subject retains the meanings of its words separately, whereas when he is asked to provide a continuation to the sentence he combines them into a unified representation.

What factors affect the psychological meaning of an utterance? One crucial factor is likely to be the extent to which the listener seeks to understand what he hears. Recently a number of experiments have examined the effect of different depths of processing on the memorability of sentences (e.g., Mistler-Lachman, 1974; Treisman & Tuxworth, 1974). Although their results are consistent with the views proposed by Craik and Lockhart (1972), that depth determines memorability, they do not provide any understanding of the nature of the representations created by different levels of processing. Other experiments which have sought this understanding by requiring subjects to answer questions about sentences (e.g., Wright, 1969; Garrod & Trabasso, 1973; Anderson, 1974) have allowed the depth of processing to be implicitly determined by the task. The results of these experiments are often taken as evidence that in processing a sentence a person initially represents it verbatim in short-term memory and subsequently in a propositional format in long-term memory.

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This account is unlikely to be correct in general, since in everyday conversation a person begins to grasp the meaning of a sentence as he hears it. Hence a semantic representation of it is likely to be established at the same time as a representation of its sound (i.e., its phonological representation). Furthermore, although the phonological representation of a sentence may be unaffected by the depth of the semantic analysis, its semantic representation must depend critically upon it.

In order to examine the representation of sentences, the present experiments compared the performance of subjects required to recall a sentence (memorization condition) to that of subjects required to invent an appropriate continuation of it (continuation condition). On critical trials subjects were required, before responding according to their task, to decide whether a word presented after a sentence had appeared in it. Such a word will be called a *probe*. It was presumed that these tasks would bias the subjects to different depths of semantic analysis. In order to remember a sentence verbatim a subject need not comprehend it but could simply parse the sentence and retain its wording. In consequence the meanings of its words might be separately represented in memory. By contrast, a subject required to continue the