Memory & Cognition
1977, Vol. 5 (5), 513-522

Recognition failure of words with a single meaning

ENDEL TULVING and OLGA C. WATKINS
University of Toronto, Toronto, Canada M5S 1A1

Recognition failure of recallable words was demonstrated with single-meaning target words after a 7-day retention interval. When overall levels of recognition were equated, the magnitude of the effect was the same as that observed with high-frequency words of multiple meanings in other experiments. It was concluded that, contrary to suggestions of Reder, Anderson, and Bjork (1974), encoding specificity is not limited to words that have several semantic senses. The experiment also provided evidence contrary to the hypothesis that recall of unrecognized items comes about because of additional learning opportunities afforded by the recognition test.

Under certain conditions people cannot recognize previously studied words that they can recall. These conditions are defined by the features of what is called the recognition-failure paradigm, as follows: (1) Subjects study pairs of words (A-B), (2) their recognition memory for B members of pairs is tested, with extralist words as lures, and (3) recall of B members of pairs is tested with A members as retrieval cues. The phenomenon of recognition failure represents, at the empirical level, a particularly clear demonstration of context effects in episodic memory and, at the theoretical level, a special case of encoding specificity (Tulving & Thomson, 1973).

This article describes the results of an experiment that are relevant to the issue of the generality of the phenomenon of recognition failure of recallable words (or recognition failure). Existing evidence shows that whenever the standard paradigm has been used, recognition failure has been observed (Tulving & Wiseman, 1975; Wiseman & Tulving, 1976). Some investigators (e.g., Postman, 1975; Reder, Anderson, & Bjork, 1974; Salzberg, 1976) have suggested limits to the generality of encoding specificity based on the observation that sometimes recognition is higher than recall in the standard paradigm. Wiseman and Tulving (1976) have argued, however, that the comparison of overall recognition and recall rates is not quite appropriate, since recognition failure can, and usually does, occur in experiments in which recognition exceeds recall. The data reported by Postman (1975) and Salzberg (1976) do in fact show recognition failure, and the data collected by Reder et al. (1974), when reanalyzed by Tulving and Wiseman (1975), were also found to reveal recognition failure. Moreover, the relation between the magnitude of recognition failure and overall recognition in all these experiments, as well as a number of others (e.g., Tulving, 1974; Tulving & Thomson, 1973; Watkins & Tulving, 1975; Wiseman & Tulving, 1975) has been found to be highly systematic and largely invariant with characteristics of materials and procedural details used.

The primary question to which the experiment reported in the present article was directed was this: Does recognition failure occur with words that have only a single meaning? The motivation for posing this question was provided by an explanation of encoding specificity suggested by Reder et al. (1974). These authors assumed that studying a list word involves associating information about the word's occurrence in the list to its representation in (permanent) memory. This occurrence information must be accessible for recall or recognition to be successful at the time of the test. Most words, particularly high-frequency words, have several meanings or semantic senses, and hence several representations in semantic memory, only one or some of which may be encoded at the time of the study, that is, tagged with appropriate occurrence information. Reder et al. proposed that the senses tagged at study and the senses consulted for occurrence information at the time of test are determined, among other things, by the context in which study and test occur. Recognition failure of a recallable word occurs if, because of different contexts, untagged senses of the target word are (implicitly) retrieved in the recognition test, and tagged senses in the cued recall test.

Although Reder et al. did not report any data on the extent to which recallable words in their experiment were not recognized, their results did show that for the high-frequency target words recall was higher than recognition, while for low-frequency target words this relation between recall and recognition was reversed. They concluded that "low-frequency words did not support the Encoding Specificity Principle" (Reder et al., 1974, p. 648).

This research has been supported by the National Research Council of Canada, Grant A8632. Requests for reprints should be sent to E. Tulving, Department of Psychology, University of Toronto, Toronto, Canada M5S 1A1. Olga C. Watkins is now at Princeton University. We are grateful to Michael Watkins for help with the construction of experimental materials.