# Tests of the generality of
# the principle of encoding specificity

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Two empirical tests of the principle of encoding specificity are reported. In Experiment I, the normative strength of the cues presented on the input and on the recall trial was varied factorially. To lessen the emphasis on strictly associative learning, only half the items were cued in each phase of the study-recall cycle. Recall was higher when the cues remained the same than when they changed. However, regardless of the condition of input cuing, strong output cues were substantially more effective than weak ones. In Experiment II, the to-be-remembered words were shown in the presence of weak cues on the input trial. Recognition in the context of strong extralist cues was compared with recall to the original input cues. On the test of cued recognition, the target words were either generated by the subjects as free associates or presented to them as items on a test constructed by the experimenter. Contrary to previous findings, recall was not found to be superior to recognition. The phenomena of cue-dependent forgetting that have been interpreted as evidence for the principle of encoding specificity appear to have limited generality.

This study is concerned with the empirical validity of the principle of encoding specificity. The principle asserts that a retrieval cue, and in particular an extralist cue, can be effective only if the to-be-remembered (TBR) item has been specifically encoded with respect to that cue during input (Thomson & Tulving, 1970; Tulving & Thomson, 1973). That is, the stored information must include the relation between the TBR word and the extralist cue if the latter is to provide access to the former. The existence of the requisite relation in semantic memory does not ensure that such will be the case, since the TBR item has to be retrieved from the episodic store (Tulving, 1972); which semantic relations are represented in the episodic trace depends on the conditions of encoding. This position is to be contrasted with generation-recognition models (Anderson & Bower, 1972; Bahrick, 1970; Kintsch, 1970) which assume that (a) preexisting semantic relations determine the probability with which a particular target item is generated in the presence of a cue, and (b) decisions about the correctness of generated items are made on the basis of occurrence information associated with the representations of the targets. If it is further assumed that each word has a unique representation in memory, the effectiveness of an extralist cue should be determined primarily by the strength of its preexisting relation to the target and should be largely independent of the semantic context at the time of input.

The basic issue between these two positions hinges on the conditions believed to determine the

recognition of generated targets. It is known that the power of extralist cues to elicit potential responses is not influenced by the prior presentation of the TBR words in different contexts (Tulving & Thomson, 1973). If an extralist cue does not produce the expected enhancement of recall, the locus of the failure must, therefore, be in the recognition phase. It has been suggested that such an outcome can be accommodated by a generation-recognition model on the assumption that recognition is based on the senses, rather than the orthographic and phonemic properties, of words. That is, word senses rather than words are generated and have to be recognized before a target word is recalled (Reder, Anderson, & Bjork, 1974; for a related argument, see Nelson, Wheeler, Borden, & Brooks, 1974).

The proposed modified version of the generation-recognition model and the principle of encoding specificity share the supposition that changes in context are likely to produce drastic variations in the encoded representations of nominally identical verbal units. Granted that context influences encoding, the question arises of how probable it is that successive encodings of the same word will be sufficiently different to preclude recognition of generated targets. If we conceive of words as aggregates of features, it is reasonable to expect a substantial amount of overlap among the features that are perceived and stored during successive exposures to the same word. What is likely to change from one occasion to the next is the selective emphasis given to specific features and the pattern of associative pathways linking the target to other words. The vast majority of words are not homographs with alternative and unrelated meanings. A priori, it would appear more plausible to apply to