

Inhibition of Verbal Memory Retrieval as a Consequence of Prior Retrieval

Stephen Dopkins and Catherine Trinh Ngo

The George Washington University

On each trial of the experimental procedure for this study, the words from a sentence were presented, one at a time, in scrambled order. After this, a recognition probe was presented. In the crucial condition, a noun occurred once early in the scrambled sentence and again as the last word in the sentence. The test word was another noun from the sentence. The test noun was recognized less well in this condition than when (1) the scrambled sentence was truncated before the repeated noun so that the test noun was presented immediately before the point at which the repeated noun would have occurred, (2) the repeated noun was replaced with an adverb, and (3) the repeated noun was replaced with a noun that had not occurred previously in the scrambled sentence. These results suggest that the test noun was inhibited in memory following the processing of repeated noun. The inhibition evidently occurred as a consequence of the retrieval of the earlier occurrence of the repeated noun. The same sort of inhibition may occur for nonantecedents following the processing of a repeated-noun anaphor. © 2001 Elsevier Science (USA)

Key Words: anaphor; antecedent; comprehension; inhibition; memory; retrieval.

A wide array of processes are brought to bear in the comprehension of a discourse. Whereas some of these processes are presumably quite specialized and dedicated exclusively to the activity of comprehension, others may have more general application in the cognitive domain.

Memory processes are of particular interest in this regard. Memory is central to cognitive life, and it goes without saying that memory processes play a crucial role in comprehension. Accordingly, recent theoretical accounts of comprehension have tended to incorporate ideas from the study of memory (Graesser, Singer, & Trabasso, 1994; Just & Carpenter, 1992; McKoon & Ratcliff, 1998; O'Brien & Myers, 1999). It is not yet clear, however, exactly what role memory plays in comprehension.

One reason for the uncertainty is that memory phenomena are difficult to study in the context of comprehension. To do this, a memory task is typically administered within the framework of a comprehension task. For example, in the probe-recognition procedure, participants make

recognition judgments with respect to probe words that are presented either while they are reading or after they have finished reading samples of discourse. When testing memory in the context of comprehension, the researcher must always be alert to the possibility that the participants are treating what is supposed to be a comprehension/memory task simply as a memory task. For example, participants in a probe-recognition experiment may not be processing the discourse samples as true instances of discourse but merely as sets of words upon which a memory test is to be administered (Gordon, Hendrick, & Foster, 2000). If this is what is happening, the researcher may be studying memory phenomena with no relevance to the actual process of comprehension.

Assuming that a memory phenomenon has been identified with relevance to comprehension, a further uncertainty concerns the degree of specialization in the underlying process. Does the phenomenon reflect a memory process that is specifically dedicated to the end of comprehension or does it reflect a more general memory process that is more provisionally harnessed toward that end? We need to answer this question to understand the role that the process plays in comprehension.

The present study explored one particular memory phenomenon with these issues in mind.

The authors thank Michael Anderson and two anonymous reviewers for many helpful suggestions concerning this project and, in particular, for suggesting Experiment 5.

Address correspondence and reprint requests to Stephen Dopkins, Psychology Department, George Washington University, 2125 G Street, NW, Washington, DC 20052. Fax: (202) 994-1602. E-mail: dopkins@gwu.edu.

The phenomenon in question is associated with anaphor comprehension. Over the course of a discourse, an entity may be mentioned many times. Repeated reference to the entity is established by means of anaphoric expressions. When one of these expressions is encountered, an antecedent must be located in the preceding discourse. At this point, the anaphor is said to be resolved (Garnham, 1985, 1987).

The role of memory in anaphor comprehension is indicated by accessibility shifts in the memory representation of the discourse. There is considerable evidence that an anaphor's antecedent becomes more accessible when the anaphor is resolved. It is often held that this accessibility increase reflects retrieval of the antecedent from memory (Cloitre & Bever, 1989; Corbett & Chang, 1983; Dell, McKoon, & Ratcliff, 1983; Gernsbacher, 1989; O'Brien, 1987; O'Brien, Duffy, & Myers, 1986; O'Brien, Plewes, & Albrecht, 1990). There is some evidence that other words of a discourse become less accessible when an anaphor is resolved (Corbett & Chang, 1983; Gernsbacher, 1989; MacDonald & MacWhinney, 1990; Nordlie, Dopkins, & Johnson, 2001).

A representative study of accessibility shifts in anaphor comprehension will be crucial for the present project. Gernsbacher (1989) conducted a series of experiments using the probe-recognition methodology with short, two-clause, sentences as stimulus material. In the first clause of each stimulus sentence, two characters were introduced, identified with proper nouns. At the beginning of the second clause, one of the characters was mentioned anaphorically. The anaphor consisted either of the proper noun that had originally been used to identify the character or a pronoun (e.g., Ann predicted that Pam would lose the track race, but Pam/she came in first very easily). The participant read the passage, word by word, and made a recognition judgment with respect to a test word that was presented at various points before and after the anaphor. The test word was one of the two proper nouns that had been used to identify the characters (e.g., Ann and Pam).

The point of the experiments was to track the accessibility of the character nouns. When the

anaphor was a repeated noun, strikingly different patterns of results were observed for the two nouns. The anaphor's antecedent was more accessible after than before the processing of the anaphor (the antecedent effect). In contrast, the other noun—the nonantecedent—was more accessible before than after the processing of the anaphor (the nonantecedent effect). When the anaphor was a pronoun, similar patterns were observed but in this case the differences were substantially smaller. Thus, processing of the anaphor caused different results depending on the type of anaphor and the type of test word: when probed following the anaphor, the antecedent was more accessible if the anaphor was a noun than if it was a pronoun and the nonantecedent was more accessible if the anaphor was a pronoun than if it was a noun (the anaphor-type effect).

For the present project, the most important aspect of Gernsbacher's results is the nonantecedent effect, the finding that a nonantecedent becomes less accessible as a consequence of the processing of a repeated-noun anaphor. Other studies have provided converging evidence of the reliability of this effect (Nordlie et al., 2001). Gernsbacher (1989, 1990) has interpreted the effect as evidence of a process that reduces the accessibility of nonantecedents when a repeated-noun anaphor is resolved. This process works in tandem with a process that increases the accessibility of the antecedent. The purpose of both processes is to increase the relative availability of information about the anaphor's referent so that the anaphor may be more effectively resolved (Gernsbacher, 1990).

This interpretation may need to be qualified, however, in light of results that Gordon et al. (2000) have recently reported. Gordon et al. were primarily interested in Gernsbacher's anaphor-type effect. They presented participants sentences of the same sort as Gernsbacher except that the order of the words other than the proper nouns and the anaphors was scrambled. They probed at the ends of the scrambled sentences for what had, prior to the scrambling, been the antecedents and the nonantecedents. They observed results that paralleled Gernsbacher's anaphor type effect; the *antecedent* was

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات