

**Effects of Context on the Processing
of Lexical Ambiguities**

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Abstract

The issue of how lexical ambiguities are processed is considered. It is argued that if context or dominance is strong, only a single meaning of an ambiguity is accessed; but that otherwise multiple meanings may be accessed. It is also argued that even with strong context multiple meanings may still be accessed, if the normal act of disambiguation is disrupted by a distraction such as a simultaneously presented lexical decision task.

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The results of Onifer and Swinney (1981) suggest that when memory accesses a lexical ambiguity, it initially accesses both of its meanings, and then quickly discards that meaning which is contextually implausible. Their experiment involved a cross-modal lexical priming task. Subjects listened to a sentence in which there occurred an ambiguity. When the subject performed a visually presented lexical decision task simultaneously with the occurrence of the ambiguity (i.e. just after the offset of the ambiguity), facilitative effects showed from both the contextually relevant and contextually irrelevant meanings. In contrast, when the lexical decision task was moved to 1.5 seconds after the ambiguity, facilitative effects showed from only the contextually relevant meaning. As Onifer and Swinney point out, these data imply that, even given the presence of biasing context, memory initially accesses both meanings of an ambiguity, and then very quickly discards all but the contextually relevant meaning.

Their conclusion was further supported by the work of Simpson (1981), who in a similar experiment found no facilitative effects emanating from contextually irrelevant meanings when the lexical decision task was placed just 120-milliseconds after the ambiguity.

The purpose here is to offer an alternative to the above explanation, one which is in closer accord with what is known about facilitative effects in general.

The explanation may be summarized as follows:

1. If context or dominance is fairly strong, then only a single meaning of a lexical ambiguity is accessed.
2. If neither of the above is present, then multiple meanings may be accessed.
3. Even with strong context or dominance, multiple meanings may still be accessed, if the normal act of disambiguation is disrupted by a distraction such as a simultaneously presented lexical decision task.

In support of the first point there are the data of Simpson (1981), which indicate that either moderately strong context or dominance can cause only one meaning to show facilitative effects. The data of Onifer and Swinney (1981) also support this point.

In support of the second point there are the data of Holley-Wilcox and Blank (1980), who in a nonsentential lexical decision experiment found that in the absence of biasing context, lexical ambiguities with equiprobable meanings facilitated lexical decisions as effectively as words having only a single meaning. As Holley-Wilcox and Blank point out, this clearly suggests that on each trial both meanings of an ambiguity are accessed, since if they were not, the unambiguous words would have shown greater facilitative effects than the ambiguous words.

In support of the third point there are the data of Onifer and Swinney, which indicate that if a lexical decision task is presented simultaneously with a lexical ambiguity, both meanings show facilitative effects.

The above explanation differs from that of Onifer and Swinney in that here it is assumed that in a strong context multiple meanings are not accessed, unless normal disambiguation is interfered with by the presence of some distraction. This "interference" explanation of the above data carries with it an important advantage in that it conforms well with what is known about facilitation in general.

The usual way to account for facilitative effects is by a spreading activation of some kind, where the spreading activations that occur are presumed to persist for several seconds after the word or concept responsible for them has passed from memory. The facilitation experiments of Brown and Block (1980), Loftus (1973), and Loftus and Loftus (1974) support this view (see Collins & Loftus, 1975 for discussion).

The above explanation is quite compatible with the idea that such activations persist for several seconds.

In contrast, if one assumes that all meanings of an ambiguity are accessed, at least momentarily, with a spreading activation and consequent facilitative effect emanating from each meaning, then one must also assume that those activations emanating from contextually irrelevant meanings decay to insignificance (or are deactivated) within 120-milliseconds after disambiguation (this would be necessary to account for Simpson's (1981) finding that contextually irrelevant meanings show no facilitative effects just 120-milliseconds after the offset of the ambiguity). Such an assumption, however, would not be in accordance with what the above mentioned spreading activation experiments appear to say about the rate of decay.

It follows that the explanation of lexical ambiguities offered here is valuable in that it accounts for the presence or absence of facilitative effects in a variety of lexical priming experiments, while at the same time retaining the assumption, well supported by experiment, that secondary activations, once established, tend to persist for several seconds.

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