

Structural ambiguity in language comprehension and production

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Ambiguity has often been argued to play a role in language change, but the psycholinguistic mechanisms and cognitive constraints that might facilitate ambiguity-related change are as yet poorly understood. Here I will discuss structural ambiguity from the perspectives of real-time sentence comprehension and production.

During sentence comprehension, local syntactic ambiguities as in the garden-path sentence *The log floated down the river sank* can give rise to processing difficulty. The initial omission of disambiguating sentence material (*The log that was floated...*) may lead comprehenders to misanalyse the first part of the sentence. Coming across the disambiguating word or phrase (here, the verb *sank*) later on will disrupt comprehension and trigger computationally costly structural and semantic revision processes. Garden-path effects reflect comprehenders' tendency to parse locally ambiguous strings of words as if they were unambiguous. This allows for processing to be fast and incremental but carries the risk of computing erroneous analyses. Erroneous local parsing decisions may be licensed by the grammar (as in the case of garden-path sentences) or not. In the latter case, maintaining rather than correcting an unlicensed analysis may sometimes be the more resource-friendly option, especially if the analysis is structurally economical and does not result in misinterpretation. Note that parsing errors can also occur if the input is unambiguous, and that misanalyses that find their way into the grammar may result in more rather than less ambiguity (compare De Smet, 2009).

While ambiguity can create problems for language comprehension, it should not normally be a problem for speakers or writers as the message to be conveyed is perfectly clear to them. Avoiding to produce structural ambiguities may be motivated by audience design considerations, however. A speaker/writer seeking to avoid ambiguity would have to (i) be aware of which syntactic encoding variant of the message to be conveyed is ambiguous and likely to cause comprehension difficulties, and (ii) decide in favour of an unambiguous structural variant even if this variant is not the easiest one to produce. As real-time language production is incremental with limited planning scope, and subject to cognitive and memory-related constraints (MacDonald, 2013), this kind of audience design is more likely to be applied during writing than during speaking. Evidence for speakers' choosing to avoid syntactic ambiguity is indeed relatively scarce (Ferreira, 2008; Wasow, 2015).

In summary, while ambiguities tend to be resolved unconsciously during comprehension, avoiding structural ambiguity in language production would seem to require potentially costly, and possibly conscious, planning. Psycholinguistic models that propose a tight link between real-time production and comprehension (Gambi & Pickering, 2017) might offer amore integrative perspective on ambiguity avoidance, however.

References

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