Conceptual ambiguity facilitates non-linear phrase planning

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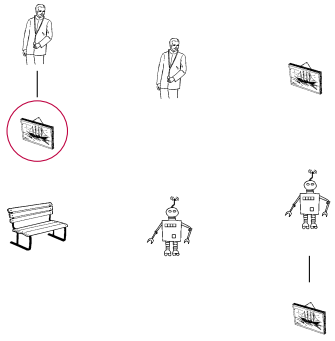
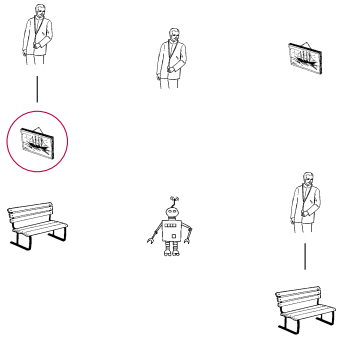
The scope of sentence planning prior to speech onset embraces, at minimum, the first determiner-noun pair (Griffin, 2001). In conditions that are as yet unclear the production system exceeds this incremental scope (see Konopka and Brown-Schmidt, 2014). Evidence for such a non-linear planning strategy comes from studies that found longer onset latencies for syntactically more complex noun phrases compared with hierarchically simple phrases. This suggests that linear planning allows delay of some processing until after production onset (Allum and Wheeldon, 2007; Lee et al., 2013). However, whether or not syntax is permitted to unfold through incremental processing must necessarily be determined at a pre-syntactic planning stage. We examined whether a conceptual plan determines whether or not sentence planning proceeds incrementally, independently of syntactic structure.

In three image description experiments (Ns=32, 64, 64) subjects were required to name one image in an array (e.g., the painting in Fig. 1), using a modifier (the doctor) for disambiguation in one of two contexts: The head noun referent appeared in the presence of an identical comparator with a different modifier (Fig. 1a) or a different comparator with an identical modifier (Fig. 1b). If non-linear planning was introduced during the conceptualisation process, we would predict more advanced planning for the modifier of ambiguous head referents (the doctor in Fig. 1a) as participants had to uniquely identify the target referent. These contexts were tested for both modifier-head (e.g., *the doctor's painting*) and head-modifier structures (e.g., *the painting with the doctor*). For context 1a we found consistently more eye movements to the modifier referent before production onset. Shorter onset latencies for contexts such as Fig. 1a were observed for modifier-head (Exp. 1) and head-modifier structures (Exp. 3). This suggests that ambiguous head nouns required planning of the modifier referent. We conclude that the conceptual plan influences the linearly of the planning process even when the syntactic structure is held constant.



(a) Head contrast: not the robot's painting



(b) Modifier contrast: not the man's bench

Fig. 1: *the man's painting* / *the painting with the man* (Exp. 3)

References

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