

Discourse markers activate their, *like*, cohort competitors

Hans Rutger Bosker (*Max Planck Institute for Psycholinguistics*) and **Esperanza Ramos Badaya** (*University of Edinburgh*) and **Martin Corley** (*University of Edinburgh*).
HansRutger.Bosker@mpi.nl

Speech in everyday conversations is riddled with discourse markers (DMs), such as ‘well’, ‘you know’, and ‘like’. However, in many lab-based studies of speech comprehension, such DMs are typically absent from the carefully articulated and highly controlled speech stimuli. As such, little is known how these DMs influence online word recognition. The present study specifically investigated the online processing of DM ‘like’ and how it influences the activation of words in the mental lexicon.

We specifically targeted the *cohort competitor effect* in the Visual World Paradigm. When viewing a scene with a beaker, a beetle, a speaker, and a carriage, and receiving spoken instructions to “pick up the beaker”, listeners demonstrate fixations to the cohort competitor (CC) ‘beetle’ before disambiguating information about the target comes in (i.e., the /k/ in ‘beaker’ [1]). Ever since this seminal work, several studies have argued that CC effects are constrained by syntactic, semantic, pragmatic, and discourse constraints. For instance, CC effects between ‘rug’ and ‘run’ are modulated by syntactic constraints in sentences like ‘They began to...’ [2], [3]. In fact, CC effects come and go in unscripted conversation between naïve participants as the referential context dynamically emerges and changes [4].

Therefore, the present study investigated whether DM ‘like’ influences online word recognition by activating its cohort competitors. DM ‘like’ has a more elaborate phonological form than other DMs, such as ‘uh’ [5], and thus has CCs, such as ‘lightbulb’ and ‘lime’. In our eye-tracking experiment using the Visual World Paradigm, participants (N=40) saw four objects (Fig. 1), including one CC (e.g., ‘lightbulb’), one frequency and AoA-matched unrelated referent (e.g., ‘unicycle’), and two distractors. They received 64 trials with spoken instructions to click on a target which could either be the CC or the unrelated item. In the +like condition (25% of trials), the target referent was preceded by DM ‘like’, but in the –like condition it was not. We predicted that, upon hearing ‘like’, participants would show anticipatory looks to the CC well before hearing the target referent. This would provide evidence for activation of CCs induced by encountering DM ‘like’, in line with Allopenna et al. [1]. Alternatively, cohort competition could also be modulated by the word class of ‘like’ (i.e., being a DM; not a noun), hence reducing or even preempting activation of CCs of ‘like’, in line with [2], [3].

Analysis of anticipatory eye fixations before target onset by means of linear mixed models showed that participants preferentially fixated the CC (‘lightbulb’) upon hearing DM ‘like’ (blue over red line in right panel; Fig. 2). This CC effect was sustained for a relatively long period of time (until about 500 ms after target onset), even despite hearing disambiguating information (i.e., the /k/ in ‘like’). Moreover, no reduction of the CC effect was observed over the course of the experiment (no interaction with trial number). Analysis of the reaction times (RTs) also showed participants were significantly faster to select the cohort competitor (‘lightbulb’) when preceded by DM ‘like’. However, hearing DM ‘like’ did not delay RTs for unrelated targets (‘unicycle’) with a CC present in the visual display.

These findings suggest that DMs (such as ‘like’) activate their cohort competitors (such as ‘lightbulb’). The observed CC effect was sustained for a relatively long period of time and was relatively stable, because no modulation was observed after 64 trials with a ‘like’ incidence of 25%. This suggests that DMs can activate particular lexical forms based on their own phonology, speeding recognition of CCs, but not delaying recognition of non-CCs. Future work may investigate whether this finding generalizes to other DMs and other languages than English, where ‘lexical’ filled pauses are more common (e.g., the Japanese filled pause *eto*, which is a demonstrative ‘this’).

–like: “Now press the button for the lightbulb”
 +like: “Now press the button for the, *like*, lightbulb”



Fig. 1. Example display. Visual displays always included a cohort competitor (lightbulb), a frequency and AoA-matched unrelated referent (unicycle), and two distractors (seahorse, pliers). In the +like condition, the target referent was preceded by ‘like’, but in the –like condition it was not.

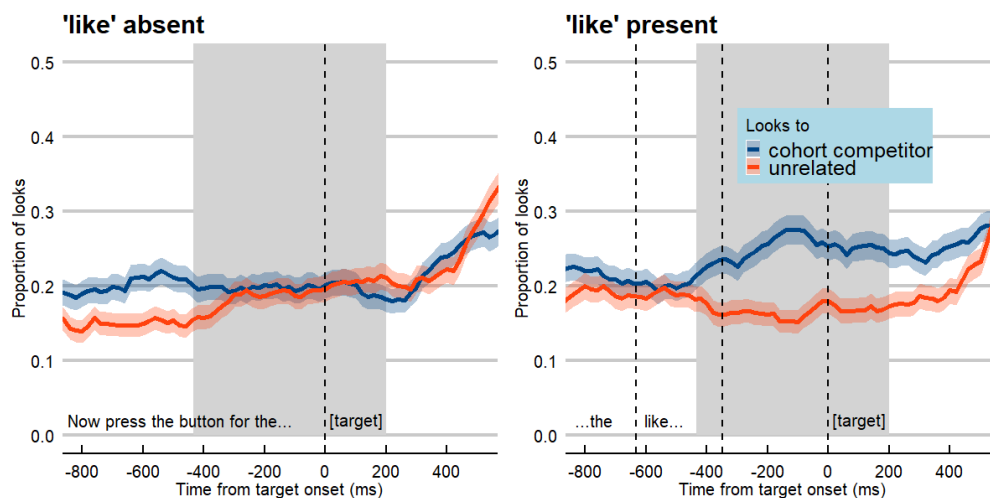


Fig. 2. Eye fixations. The proportion of looks to cohort competitor pictures (e.g., ‘lightbulb’; in blue) and unrelated pictures (e.g., ‘unicycle’; in red), separately for trials with DM ‘like’ absent (–like; left panel) and trials with DM ‘like’ present (+like; right panel). Note that different lexical content was heard in the –like and +like conditions. The dashed vertical lines indicate average ‘like’ onset (at -633 ms; in right panel only), average onset of ‘like’s word-final /k/ (at -347 ms; in right panel only), and target onset (at 0 ms). The gray rectangle indicates the time window of interest as identified for the statistical analyses. Ribbons around the lines indicate standard errors on either side.

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