Contrastive utterances make alternatives salient: Evidence from cross-modal priming

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Some pitch accents or intonation contours render utterances contrastive, i.e. they convey contrastive or corrective information (e.g., 'The DOCTOR gave him a PLACEBO'). Such contrastive utterances not only assert the predication (i.e., the doctor gave him a placebo) but also presuppose contextual alternatives to the accented items, such as someone *else* giving him *medicine* (e.g., Rooth, 1992; Steedman, 2000; Braun, 2006). In this work we tested the hypothesis that listeners indeed generate salient alternative concepts upon hearing sentences with contrastive accents.

Previous eye tracking research has shown that listeners exploit intonational information, such as accentuation or pitch accent type, to identify upcoming referents. For instance, upon hearing an accented referent, listeners have a bias towards a referent that has not been mentioned yet (e.g., Dahan, Tanenhaus & Chambers, 2002; Weber, Braun & Crocker, 2006; Ito & Speer, in press). Further, a contrastive pitch accent (such as L+H*) creates a stronger bias towards contrastive referents than a non-contrastive pitch accent, such as H* (Watson, Tanenhaus & Gunlogson, in press). These data suggest that accentuation in general – and contrastive pitch accents in particular – are interpreted as referring to the contrasting entities that have been provided by the context.

Contrastive utterances, however, can also be produced without a preceding context and – as indicated above – potentially generate extremely salient contrastive alternatives. In this study we used cross-modal associative priming (Swinney, Onifer, Prather, & Hirschkowitz, 1979) to investigate whether contrastive utterances *out of context* automatically generate such alternatives (e.g., placebo–medicine). This method allows us to test whether the recognition of salient alternatives is facilitated by the presentation of a contrastive utterance compared to a non-contrastive one.

Participants performed lexical decisions on visual targets (e.g., medicine), which were immediately preceded by spoken primes that were either contrastively related (e.g., placebo) or unrelated (e.g., explanation) to the visual targets. Critically, the spoken primes appeared at the end of sentences produced with either a contrastive intonation or a non-contrastive one. The contrastive intonation (see example 1) consisted of a double peak pattern with a contrastive accent on the first noun (usually the subject or the head of a prepositional phrase) and on the last word (usually an object or the head of a prepositional phrase). The non-contrastive intonation (see example 2) consisted of a slightly falling hat pattern with a pitch rise on the first word and a pitch fall onto the last word. The accents were always located on the same words in the two conditions but the identity of the second accent (as well as the transition between the accents) differed.

(1) Double peak (contrastive intonation): De **HUIS**arts gaaf hem een pla**CE**bo
('The DOCTOR gave him a PLACEBO')

(2) Hat pattern (non-contrastive intonation): De **HUIS**arts gaaf hem een pla**CE**bo
('The DOCTOR gave him a PLACEBO')

As predicted, responses after contrastively related primes were faster when sentences had a double peak pattern than when sentences had a hat pattern. Therefore the intonation contour of a sentence modulates how it is interpreted. More specifically, sentences with a contrastive intonation make conceptual alternatives very salient – even in the absence of linguistic context.

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