Can prosody be primed?

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Although prosodic phrasing is assumed to be a distinct, abstract level of linguistic representation (3), there is also work claiming that boundaries are simply temporary junctures where planning occurs (4). In three experiments, we investigate whether prosodic structure can be primed. Early work in production used priming of syntactic structure to argue for an abstract level of syntactic representation (2); by analogy, if prosodic structure can be primed, this would suggest that prosodic structure is also abstractly represented.

In all experiments, participants listened to sentences with and without relative clauses as in examples (a) and (b). The presence and location of intonational boundaries was manipulated such that the recording either included no intonational boundaries, a boundary in a structurally dispreferred location after the first verb, in a preferred location after the subject NP, or in both locations. In Experiment 1, participants repeated the sentences to test whether they might repeat the primed prosodic structure they heard. Experiments 2 and 3 then used a prime-target paradigm to evaluate whether the prosodic structure heard in the prime sentence might influence that of a target sentence. On prime trials, participants either repeated (Experiment 2) or did not repeat (Experiment 3) prime sentences out loud. On target trials, speakers silently read novel sentences and repeated them aloud from memory. Participants’ productions of all sentences were assessed in two ways: one coder rated whether a boundary was discernible in the two critical locations in participants’ responses, and a different coder measured the duration of the words produced before each boundary up to the onset of the first word following the boundary.

In Experiment 1, results from both analyses (n = 24) revealed that speakers were more likely to produce both preferred and dispreferred intonational boundaries at primed locations (all p's < 0.01). Experiment 2 tested whether speakers would repeat novel target sentences with the same prosody as the recorded prime sentences. Both analyses (n=64) revealed a significant interaction between prosody condition and sentence type (prime vs. target) at both boundary locations (p's < 0.05): participants repeated back the prosodic phrasing they heard, but this effect was only significant for the prime (listen-repeat) trials.

Priming of a prosodic representation may be very transient, and thus not robust enough to survive the time delay between hearing the prime and repeating the target. To test this hypothesis, Experiment 3 used a similar prime-target paradigm except that participants did not repeat the prime sentences out loud. Preliminary analyses of target responses (n = 31) revealed a priming effect only for the dispreferred boundary location.

These experiments suggest that it is possible to prime a prosodic representation (especially an infrequent one), but that this effect is not very long-lived. Thus, while prosodic structure is not as readily primeable as syntactic structure, it may nevertheless still be abstractly represented.
Examples
a) The dog that pawed the door needed to be let out. (No boundaries)
The dog that pawed// the door needed to be let out. (Dispreferred boundary)
The dog that pawed the door// needed to be let out. (Preferred boundary)
The dog that pawed// the door// needed to be let out. (Both boundaries)
b) The accountant reviewed the material before the certification exam. (No boundaries)
The accountant reviewed/ the material before the certification exam. (Dispreferred boundary)
The accountant reviewed// the material// before the certification exam. (Preferred boundary)
The accountant reviewed// the material// before the certification exam. (Both boundaries)

References: