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# Can accentual phrase boundaries remove temporary lexical ambiguity in French?

Mariapaola D'Imperio\*, Amandine Michelas\* and Joël Pynte\*\*

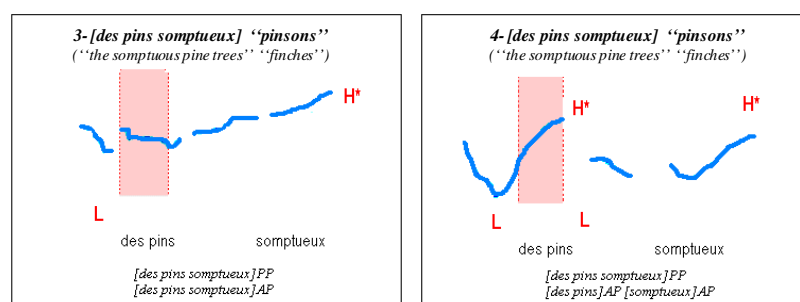
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In French, the initial phoneme sequence of noun phrases such as *cerf volant* /sɛʁvɔlɑ̃/ “kite” and *cerf vorace* /sɛʁvɔʁas/ “voracious deer” is temporarily ambiguous between *cerveau* /sɛʁvɔ/ “brain” and *cerf* /sɛʁv/ “deer”. It has recently been proposed that the prosodic organization of speech into constituents smaller than the utterance and larger than the morphological word, such as the prosodic word and the phonological phrase, might be crucial for lexical access strategies in French (Christophe *et al.* 2004). Specifically, Christophe and colleagues found that a phonological phrase (PP) boundary (as in [*le cerf*]<sub>PP</sub> [*volait*]<sub>PP</sub> “the deer was flying”) can remove temporary ambiguity in otherwise ambiguous word sequences, while this ambiguity would remain within the PP, even across prosodic word (PW) boundaries.

Note that Christophe *et al.* base their predictions on the syntax-based approach of classic Prosodic Phonology (Selkirk, 1984; Nespor & Vogel, 1986), while according to the autosegmental-metrical theory of intonation (Pierrehumbert, 1980; Ladd, 1996) there exists an Accentual Phrase (AP), which is the domain of primary stress “*accent primaire*” (Jun and Fougeron 2000, 2002) and which is hierarchically higher than the prosodic word. Specifically, this unit is characterized by an obligatory final rise (LH\*), an optional initial rise (LHi). AP and PP boundaries do not need to overlap (as in Fig. 1, right panel) since AP boundaries strictly depend on the number of final rises (LH\*) actually produced by the speaker.

Tonal cues and other phonetic/phonological properties of the auditory stimuli do appear to have an impact on lexical access in French (cf. Spinelli *et al.*, 2007), though this is still an understudied area. We specifically predicted that: 1. the target sequence would yield ambiguity only within (see Fig. 1, left) and not across (see Fig. 1, right) an AP domain; 2. lexical access of the target word (e. g., *pins*) would be faster if immediately adjacent to an AP boundary.



**Fig. 1** Pitch curves of the NP *pins somptueux* “sumptuous pine trees” excised from two versions of the utterance *Je crois que Marie t’a parlé des pins somptueux de cette forêt* “I think that Mary told you about the sumptuous pine trees of this forest” (potential competitors: *pins* /pE@/ “pine trees” vs. *pinsons* /pE@so@/ “finches”).

24 pairs of sentences were presented to 40 French listeners in two cross modal word-monitoring tasks. While Experiment I was simply meant to replicate the findings of Christophe *et al.*’s temporary ambiguity and PP boundary effect, in Experiment II we manipulated the presence or absence of an AP boundary, within a PP.

Different from Christophe *et al.*’s study, when looking at absolute reaction time data from target word onset, neither local ambiguity nor the presence of a prosodic boundary significantly affected the results in both experiments. However, given the target acoustic duration differences,

subjects responses were relatively faster in the boundary conditions, irrelevant of ambiguity, since a conspicuous number of responses was obtained before or right at target word offset. This is in line with Christophe *et al's* main findings suggesting that prosodic structure might influence lexical activation online. Crucially, AP boundaries appear to behave similarly to PP boundaries in speeding up lexical activation, independent of the presence of a syntactic constituent boundary. This suggested that acoustic and tonal cues to prosody need to be controlled separately from syntactic structure to assess the role of phrasing in lexical access strategies and support the hypothesis of an active fine phonetic detail in candidate activation mediated by rich lexical representations.

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