Can Accentual Phrase boundaries remove temporary lexical ambiguity in French?

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INTRODUCTION

It has recently been proposed that the prosodic organisation of speech into prosodic constituents might be crucial for lexical access strategies in French (Cristophe et al., 2004). Specifically, it is hypothesized that:

1. In the first of the two sentences below will there be a temporary lexical ambiguity between chat “cat”/AP and chalet “cottage”/PW? since chat and chaletare within the same Phonological Phrase, PP.
2. No temporary ambiguity across a Phonological Phrase, but only across Prosodic Word (PW) boundaries.

   “She asks information about this legendary cat”
   Ambiguity between chat “cat” and chalet “cottage”

   “She asks information about this fabulous cat”
   No ambiguity between chat “cat” and chalet “cottage”

c. Paul m’a dit que [son CHAT] PP [le chat] AP [tous ses invités “his cat” all his guests] AP [chat] AP [licked]
   “Paul told me that his cat licked all his guests”
   Ambiguity between chat “cat” and chalet “cottage”

But in the Cristophe et al.’s study:
- Target position within the sentence is not balanced across prosodic conditions (i.e., target words were mainly initial in the PW condition)
- Target duration is not properly factored out of the reaction time data
- Prosodic units are only defined according to syntactic algorithms (Nespor and Vogel, 1986)

THEORETICAL FRAMEWORK

Two complementary approaches to prosodic constituency:

1. The syntax-based approach of Prosodic Phonology
   (Selkirk, 1984; Fawcett, 1996)

   [le chat grincheux] PP [chalet “cottage”] PP
   “The fussy cat drank”
   Prosodic units: PP and PW
   Defined by: syntactic algorithms

   AP an PP boundaries do not need to overlap since AP boundaries strictly depend on the number of final rises (LH*) produced by the speaker

2. The tonal approach
   (Fawcett, 1996; Ladd, 1996)

   [le chat grincheux] AP [chalet “cottage”]
   “The fussy cat”
   Prosodic unit: Acentual Phrase (AP)
   Defined by: LH* + vowel’s lengthening

AP and PP boundaries do not need to overlap since AP boundaries strictly depend on the number of final rises (LH*) produced by the speaker

RESULTS I

No significant effect of temporary lexical ambiguity nor of prosodic boundary type
But: target word duration could explain the pattern of results

RESULTS II

Strong preboundary lengthening for the target word before both PP and AP boundaries

RESULTS III

Since target word duration is different depending on prosodic condition, need to evaluate pattern of responses relative to target word offset

METHOD

Stimuli

For each experiment, 24 pairs of experimental sentences (only one member showed a local lexical ambiguity). In addition, ambiguity was crossed with a different prosodic condition in each experiment:

1. How does target duration interact with reaction time measures?
2. Do PP and AP boundaries show the same effect in removing temporary lexical ambiguity?

Participants and Procedure

- 40 native speakers of French took part in both experiments
- Cross-modal word-monitoring task
- Reaction times measured from target word onset

RESULTS

There was a significant effect of PP and AP boundaries on response pattern

Participants responded relatively earlier (at or before word offset) for both PP and AP boundary conditions than for PW condition

CONCLUSION

- As in Cristophe et al.’s study, prosodic phrases influence lexical access on-line: PP boundaries speed up lexical decision task if target duration is taken into account.
- However, no local ambiguity affects within prosodic conditions.
- AP boundaries induce the same effect as PP boundaries. Hence, tonal and acoustic cues are relatively independent of syntax in signalling phrasing.