Question: Is there tonal evidence for groupings of prosodic units bigger than a single Full Intonational Phrase?

Goals
- explore tonal relationships that extend across ip and IP boundaries, testing the limits of stricter versions of the Prosodic Hierarchy and expanding the intonational relationships that the grammar must account for.
- develop methodology to elicit prosodically complex structures.
- avoiding pitfalls of read speech (speakers can read without attending to meaning).
- retaining some advantages of read speech (speakers produce controlled text).

Background
- Prosodic hierarchies. 
  - Phonological Utterances (U) are parsed into Full Intonational phrases (IPs).
  - which in turn are parsed into one or more intermediate phrases (or equivalent).
- Strict Layer Hypothesis: no recursion.
- Theory-based annotation systems, such as ToBI.
  - Define tonal and timing-related properties of intermediate phrases and full IPs.
- Intonational characteristics above the single IP have been little described.

What determines whether 2 or more IPs form part of the same utterance?
- Many researchers have observed that the sense of juncture between IPs is more complicated than mere proximity.
- 10 relationships (e.g., downstep, tone scaling, repeated patterns) appear to extend beyond the boundaries of a local prosodic domain.

Pilot study

Hypothesis: reset patterns w/ non-local pitch relationships will persist.
- with additional syntactic and prosodic complexity.
- in different speech styles (read vs. elicited).

Method: subjects produced multi-clause utterances with structure modeled after previous studies.
- 3 conjointed clauses of parallel syntactic structure.
- with and, but, and and only.
- Varying levels of complexity (branching subject, branching object).
- Read and picture-elicited (examples in Figures 2 & 3).
- 5 subjects, 374 tokens.

Pilot results

Comparison of accent-related f0 max of the subject phrase in the first clause (A) and the subject phrase of the last clause (C) shows:
- Average between peak pitch is smaller for and/or but order than for but and.
- In all length conditions (Table 1).
- In both read and picture-elicited speech (Table 2).
- With varying degrees of prosodic complexity within clauses (e.g., additional IPs/UPS, using ToBI criteria).
- Frequently with pauses & disfluencies (Figures 4 & 5).

2 differences between orders of and & but are more pronounced:
- In elicited speech.
- With more length/complexity over simpler/shorter ones; e.g., btw, branched subj/obj (diff = 3.02) and simple subj/obj (diff = 1.43)

Discussion

- Results are compatible with those of previous work.
- However, not all tokens clearly followed predicted pitch reset pattern.
- Length of sentences may tax processing, especially in a long experimental session.
- Even in short sentences, other patterns were seen.
- Due to speaker error? Default “reading” prosody?
- Alternative patterns that also reflect structure?
- Prosodic distinction between structures may be optional; lexical items may carry burden when no ambiguity.

Summary

- Differences in results by length and elicitation method are suggestive.
- Role of planning?
- Importance of attending to meaning, and not just reading aloud.

Results show evidence that speakers can produce utterances with long-range f0 relationships, even across full IP boundaries, supporting proposals for recursion in prosodic structure.

Patterns are more pronounced in sentences of increased length and complexity and in picture-elicited over read speech.

References


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