Prosodic Phrasing and the Syntax of Noun Phrases

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Introduction

- **Clauses** - Good understanding of the syntax of the clause and its prosodic phrasing. Good insights on the constraints mapping syntactic structure into prosodic phrasing (Selkirk, Truckenbrodt).
- **NPs** - Little research on prosodic phrasing of nominal expressions involving Adj/Noun sequences. On-going debate over their underlying syntactic representation.
- **Goal** – To determine the prosodic phrasing of Adj/Noun sequences via direct empirical testing, then use mapping constraints to reconstruct their syntactic representation.

Crosslinguistic distribution of adjectives

- English (Germanic languages):
  a. *A powerful prelate*
  b. *A prelate powerful*
- Italian (Romance languages):
  c. *Un potente prelato* (a powerful prelate)
  d. *Un prelato potente* (a powerful prelate)

Shared syntactic structure; Noun raising in Romance

- Germanic and Romance:
  \[ [\text{DP} \ A \ [ \text{powerful} \ \text{priest}] \]
- Romance only:
  \[ [\text{DP} \ A \ [ \text{priest} \ [ \text{powerful} \ \text{priest}] \]


Debate: NP- or N-raising?

- NP-raising (Laenzlinger 2000)
- N-raising (Bernstein 1991, Cinque 1994)

Both analyses

- Functional layers above NP
  
  \[ \text{NP} \rightarrow \text{F1} \rightarrow \text{F2} \rightarrow \text{PP1} \rightarrow \text{PP2} \]
  
  (prelate)
Both analyses

- **Adj-Noun sequence**

  ![Diagram](Diagram1)

  - FP2
  - F2
  - FP1
  - AP (powerful)
  - NP (prelate)

- **NP-raising (Laenzlinger 2000)**

  ![Diagram](Diagram2)

  - FP2
  - F2
  - FP1
  - AP (powerful)
  - F1
  - NP (prelate)

- **N-raising (Bernstein 1991, Cinque 1994)**

  ![Diagram](Diagram3)

  - FP2
  - F2
  - FP1
  - AP (powerful)
  - N (prelate)

  ![Diagram](Diagram4)

  - NP

- **Prosodic consequences**

  - Proposed structures predict different prosodic phrasing for N/A sequences.
  - We may test the prosodic phrasing of N/A sequences to determine the underlying syntactic structure.
Mapping constraints


\[ \text{Ex: } [ \text{XP } Y ]_{\text{XP}} \]

NP-raising, N-A: separate phrases


\[ \text{Ex: } ( [ \text{XP } Y ]_{\text{XP}} ) \]

Phrasing predicted by NP-raising

- Separate phrases necessary
  a. \((\text{Noun})_p (\text{Adj})_p\)
  b. \((\text{Adj})_p (\text{Noun})_p\)
N-raising: FP2 becomes lexical, hence subject to Wrap

AlignXP: separate phrases

Wrap: single phrase

Phrasing predicted by N-raising

- Single phrase necessary for N-A and possible for A-N.
  a. (Noun Adj)
  b. (Adj Noun) \[ \text{if Wrap} \gg \text{AlignXP} \]
Results

- A-N and N-A both parsed into a single phrase.
  a.  (Adj Noun)
  b.  (Noun Adj)
- Wrap>>AlignXP ranking for Italian.
- Strong independent support for N-raising.

Experimental study

- Reading experiment:
  Materials included A N / N A sequences in two syntactic environments
  (subject/object)
- Experiment designed to test prosodic phrasing in NPs as reflected in final
  lengthening effects:

Final lengthening:

- Lengthening of domain-final syllable/word:
  - regardless of whether stressed or unstressed, the final
    syllable in a prosodic domain will often be lengthened
    (e.g., Cruttenden 1997)
  - Italian (Neppor & Vogel 1986): the domain of Final
    Lengthening is the prosodic phrase that relates to full
    words at the end of p-phrases
- Lengthening of stressed syllable in phrase-final word:
  - "Final Lengthening (FL) is a phonological rule that
    lengthens the vowel bearing main stress in a q-final
    phonological word." (Ohishi 1993)

Separate phrases (NP-raising):

- Predicted phrasing:
  powerful prelate
A>N: (potente) (prelato) (...)
N>A: (prelato) (potente) (...)

Separate phrases (NP-raising):

- Final syllable in prosodic phrase (A):
  A>N: (potente) (prelato) (...)
  N>A: (prelato) (potente) (...)
  \(\rightarrow\) PREDICTION: no difference in length

Separate phrases (NP-raising):

- Final syllable in prosodic phrase (N):
  A>N: (potente) (prelato) (...)
  N>A: (prelato) (potente) (...)
  \(\rightarrow\) PREDICTION: no difference in length
Separate phrases (NP-raising):
- Lengthening of vowel bearing main stress (head of p-phrase):
  - A>N: (potente) (prelato) (...)
  - N>A: (prelato) (potente) (...)
  → PREDICTION: no difference in length

Separate phrases (NP-raising):
- Lengthening of vowel bearing main stress (head of p-phrase):
  - A>N: (potente) (prelato) (...)
  - N>A: (prelato) (potente) (...)
  → PREDICTION: no difference in length

Single phrase (N-raising):
- Final syllable/word in prosodic phrase (A):
  - A>N: (potente prelato) (...)
  - N>A: (prelato potente) (...)
  → PREDICTION: phrase-final syllable/word longer than phrase-internal one

Single phrase (N-raising):
- Final syllable/word in prosodic phrase (N):
  - A>N: (potente prelato) (...)
  - N>A: (prelato potente) (...)
  → PREDICTION: phrase-final syllable/word longer than phrase-internal one

Single phrase (N-raising):
- Lengthening of syllable bearing main stress (head of p-phrase) (A):
  - A>N: (potente prelato) (...)
  - N>A: (prelato potente) (...)
  → PREDICTION: phrase-final stressed syllable longer than phrase-internal syllable
Single phrase (N-raising):

- Lengthening of syllable bearing main stress (head of p-phrase) (N):
  - A>N: (potente prelato) (...)
  - N>A: (prelato potente) (...)

  → PREDICTION: phrase-final stressed syllable longer than phrase-internal syllable

(A N / N A) Materials:

1. A N, Subj: [un potente prelato]'hp può imporre il suo punto di vista anche al papa.
   (A powerful prelate can impose his point of view even on the pope)
2. N A, Subj: [un prelato potente]'hp può imporre il suo punto di vista anche al papa.
3. A N, Obj: abbiamo contattato (un potente prelato)'hp con il permesso del papa.
   (We have contacted a powerful prelate with the permission of the pope.)
4. N A, Obj: abbiamo contattato (un prelato potente)'hp con il permesso del papa.

Materials and method:

- Overall:
  - 11 sets of target items (4 NP, 7 VP), 5 items each (= 55)
  - 46 filler sentences
  - (+ 5 practice items)
- Pseudo-randomised list (usual restrictions)
- Power Point
- Carried out in Berlin with 12 native speakers of Italian
  - (4 male, 8 female)
- Participants were asked to produce sentences in as natural a way as possible at a normal speech rate
- Example:

Data treatment & analysis:

- 240 sentences (4 sets x 5 sentences x 12 speakers), 60 sentences in each set (15 errors)
- length of all target syllables (4 per item) and words measured, mean values calculated
- mean durations in msec entered the analysis
- analyses of variance (scores pooled over speakers and items):
  - Position (N A vs. A N)
  - Constituent (Subj vs. Obj)

Results (Adj):

- stressed, prefinal syllable longer in N>A

  pre-final, stressed syllable of A

Results (Noun):

- stressed, prefinal syllable longer in A>N
Results (Adj):
final syllable longer in N>A

- prelato potentia / potente prelato
  - Noun  Adj  /  Adj  Noun

Results (Noun):
final syllable longer in A>N

- potente prelato / prelato potente
  - Adj  Noun  /  Noun  Adj

Summary & Conclusion: Prosody

- Evidence for prosodic phrasing from lengthening effects:
  - Adj Noun:
    - *(Adj) (Noun)_p
    - *(potentia) (prelato)_p
  - Noun Adj:
    - *(Noun) (Adj)_p
    - *(prelato) (potentia)_p

Summary & Conclusion: Syntax

- NP-raising (Laenzlinger 2000):
  - separate phrases necessary
    - a. (Noun)_p (Adj)_p
    - b. (Adj)_p (Noun)_p
    - single phrase necessary for N-A, possible for A-N
    - c. (Noun Adj)_p
    - d. (Adj Noun)_p if Wrap>>AlignXP

  → this analysis strongly supported

Selected references


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