Experimental evidence for stress and accent assignment at morphological constituent boundaries in Hungarian

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Outline of the talk

I. Problems of prosodic constituency
• Prosodic phrases: cues to prosodic structure
• Mismatches between syntactic and prosodic structure
• Structural hierarchy vs. linearity of elements

II. Prosodic boundaries within phonological phrases:
• the role of duration (temporal variation)
• the role of F0 (tonal variation):
  embedding, insertion, NP-formation
• the role of intensity

III. Stress: its experimental manifestation
• primary stress
• secondary stress/accent

IV. Conclusions
• The primary function of prosody: to divide the stream of speech into chunks/phrases
• means of division (boundary markers):
  clear pause accompanied by a local F0 fall or rise
  subtle local slowing or pitch change
• NB! Although IP boundaries must be audible, they are often hard to identify and hard to locate unambiguously (false positives, false negatives)

• In addition to boundary markers, IPs are frequently assumed to have an internal prosodic structure—a intonational tune, a DTE (Designated Terminal Element), etc.

• These physical elements refer in a way to abstract objects (as sounds refer to phonemes) but lack the feature system of the latter

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1.2 Mismatches between syntactic and prosodic structure

• Chomsky and Halle (1968):

[(This is [the dog] [that chased [the cat] [that killed [the rat] [that ate [the malt] [that lay in [the house that Jack built]])]])]

(assumption: this is the result of attempting

1.3 Structural hierarchy vs. linearity of elements

(cf. an overview in Truckenbrodt 1999, 2007)

• Selkirk (1984): SLH (Strict Layer Hypothesis)

In a prosodic tree, any domain at a given level of hierarchy consists exclusively of domains at the next lower level of the hierarchy.

II. Prosodic boundaries within phonological phrases

• the role of duration (temporal variation)

2.1 The role of duration (temporal variation) in abstract grouping

2.1.1 The grouping of abstract visual elements

![Distribution of overall means (12)-(16)](image)
2.1.2 The grouping of abstract prosodic elements

Distribution of overall means (19), (20)

Grouping is inherent

2.1.3. Embedding
(a) A macska, amit a kutya, ami megveszett, megharapott, elszaladt.
(b) A macska, amit a kutya [........] megharapott, elszaladt.
(c) A macska [........] elszaladt.

2.1.4 Insertion and tonal continuity
(a) Meg tudnád mondani, hogy - az én órám megállt - hány óra van?
Could you tell me – my watch has stopped – what time it is?
(b) Meg tudnád mondani, hogy [........] hány óra van?

The phonetic property of stress: PET

PET = Pitch and Energy over Time
a waveform with a sequence of points:

Pitch \text{norm}_t - \text{Energy norm}_t - \text{Pitch norm}_{t+1} - \text{Energy norm}_{t+1}, \ldots
Pitch \text{norm}_t - \text{Energy norm}_t
The phonetic property of stress: PET

 валаменьен елъётк.
'All of them came.'

 валаменьен 'елъётк.
'Some of them came.'

 акарш валаами?
'Do you want something?'

 акарш 'валаами?
'You do want something!'

Stress at morphological boundaries

 а каром
'.my arm'
Akarom?  'Do I want it?'

'halálian'  'enormously' ('deadly')

Amit mondottál, teljesen igaz.  'What you said is fully true.'

A mondott tál felborult.  'The said bowl has fallen over.'

Száguldhatok nélkül.  'I can rush without you.'

Száguldhat ok nélkül.  'He can rush without reason.'

Secondary stress
Érzékelhető ez a hatás.
‘This effect is noticeable.’

Kertészből hat ás.
‘For gardeners, six are digging.’

Ez a háza szép.
‘This house of his is beautiful.’

Ez a ház a szép.
‘This house is the beautiful one.’

Jönnek arabok.
‘Arabs are coming’

Jól egyél!
‘Eat well!’

Jó legyél!
‘Be good!’
IV. Conclusions

- stress and duration to match morphological and prosodic structure
- mismatches between morphological and prosodic structure: limitations due to main stress assignment
- performance: desegmentation of phonological words can disambiguate

References


