

On the weight of phrase-final prosodic words

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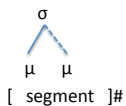


Domain-final phenomena spoken language

- Tyler & Cutler (2008): final lengthening as a universal *phonetic* process; other boundary cues are language specific (syllable complexity, tone)

Domain-final phenomena in signed languages

- Perlmutter 1993: final lengthening as phonological process (final mora insertion)



- Miller 1996, 2004: role of mora in surface rhythmic structure
- Brentari: “The number of subcomponents of movements can influence sentential word order; that is, the greater the number of subcomponents, the more likely that the word will appear sentence-finally” (1998:245)

Possible expressions of prosodic weight

Sequential

- Added movement unit: repetition or hold
- Adding a ‘light’ sign
 - INDEX (IX)
 - PALM-UP
 - PERSON
 - Etc.

Simultaneous

- Adding a hand in one-handed signs (‘weak prop’)
- Adding a simultaneous movement unit (path movement)
- Non-manuals

Observations on final pointing in NGT (TISLR9)

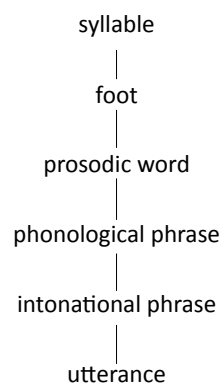
- No pointing following utterance-final polysyllabic (or polymorphemic?) predicate
- Initial evidence that leaving out a final pointing sign can be compensated by enhanced movement of the final sign or added non-manual features (head nod, stronger facial expression)



Final pointing signs in syntax

- Pronoun copy for emphasis/focus (ASL; Padden 1988 et al.)
- Pronoun copy helps identify the subject in the absence of verb agreement (Bos 1993 on NGT)

Assumption: prosodic hierarchy



Miller 1996, 2004

- Analysis of different types of movement in terms of different syllable types, involving one or two moras
- Heavy ($\mu\mu$, $\mu\mu\mu$) vs. light (μ) syllables

4	()	(x)	
3	(x)	(x)	
2	(x)	(x)	(x)
1	(x)	(.)	(x	.)	(x)
	σ' σ		σ σ		σ'
	MUST*P1		COMMUNICATE		MUST

Miller (2004, talk)

Hypotheses on sentence final pointing signs

- Not all sentence-final pointing signs stem from a syntactic operation (pronoun copy) or structure; they may also stem from the prosodic structure
- Larger prosodic domains (e.g. sentences) end in a heavy prosodic word
- In addition to lengthening, adding a pointing sign (or other manual 'light' element) can create a heavy prosodic word

Study 1: sentence-final signs

Is it indeed the case that light elements like PALM-UP and INDEX frequently appear in sentence-final position?

Corpus NGT
www.ru.nl/corpusngtuk

92 signers
 72 hours

September 2010
 12.5 hrs glossed
 2 hrs translated
 3.5 hrs segmented
 by sentence



Sentence-final signs

- September 2010: 5.5 hours of glossed sessions that had also been segmented at sentence level

Sign	Count	%
IX	636	11
IX-1	229	4
IX and PO (L/R)	32	.5
PO	1667	28
other	3303	56
unclear	35	.5
Grand Total	5902	100

Study 2: elicited sentences

- Potentially ending in a pointing sign (from [van Gijn 2004](#))
- 21 sentences; translations of written Dutch
- recorded 4x in two different orders
- three native NGT signers
- instruction after second set: reduce pointing

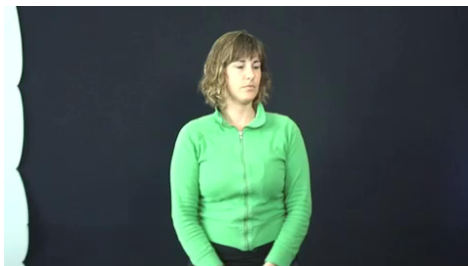
Elicitation sentences

This {X} knows that {Y} is/are {Z}

e.g. The woman knows that her colleague is weird

Final pointing sign

GIRL INDEX PERSON KNOW SWEATER IX **WET IX**



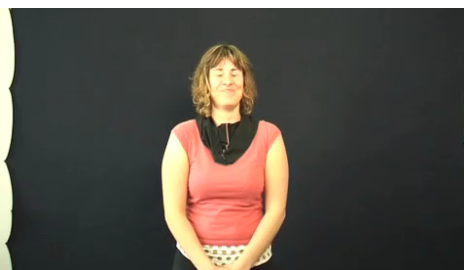
Final hold

GIRL KNOW ORANGE **DIRTY (hold)**
'That girl knows oranges are dirty'



Repetition

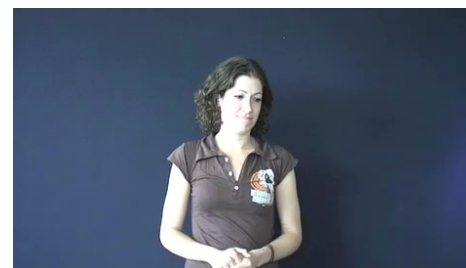
GIRL PERSON KNOWS SWEATER **WET (rep.)**



Adding multiple light elements

BOY LOOK KNOW IX MAN IX SHY **PERSON IX**

'This boy knows the man is shy'



Do non-manual signals contribute to prosodic weight (and how)?

- PALM-UP as pointers to the non-manual information (e.g. Questions, Modal meanings) in phrase final position
- Evidence from current study: adding or enhancing non-manual signals is one of the compensation strategies in the absence of sentence final weight

PALM-UP + nonmanual as a heavy prosodic unit

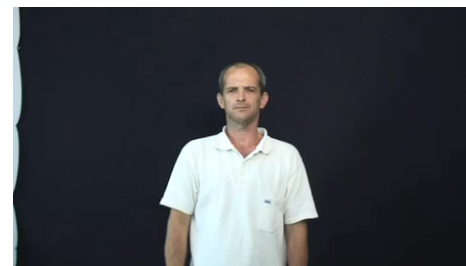
Non-manual weight: 'minimal pair'

IX JUDGE PERSON IX KNOW BOY IX **INNOCENT IX**

JUDGE PERSON KNOW BOY **INNOCENT**

head shake

'The judge knows that the boy is innocent'



Possible expressions of prosodic weight Findings on NGT

Sequential

- Adding a movement unit: repetition or hold yes
- Adding a 'light' sign
 - INDEX yes
 - PALM-UP yes
 - PERSON yes
 - etc. combinations; gestures

Simultaneous

- Adding a hand in one-handed signs ('weak prop') no
- Adding a simultaneous movement unit yes
- Non-manuals yes

What is the nature of these sentence-final phenomena?

- Spoken language final lengthening: a *phonetic* process
- NGT: multiple phenomena that cannot be analysed as phonetic variation → they can only be unified by a (more abstract) *phonological* representation of some kind

Proposal: they are surface forms that express a final mora (cf. Perlmutter 1993)

Representation of INDEX

- 'Projects' a single μ
- Lexically: only an (open) end slot for setting
- Path movement not lexical
- The phonetic path movement is an epiphenomenon of the transition from the end setting of the preceding sign

Phonological specification

Hand configuration	index finger	
Orientation	tip	
Location	\emptyset x	→ only an end setting slot that is filled in post-lexically by the morphology

To what is the mora added?

- It may be added to a plain sequence of syllables, the last one taking on the μ if possible (cf. Perlmutter's 1993 representation)
- More likely that it comes with a larger prosodic domain of some kind (PP/IP/U)

Conclusions: pointing signs

- Indexical signs can appear (in a final position) without a syntactic motivation
- The alternative appearances of 'prosodically heavy' make it unlikely that they are correlates of a specific syntactic operation
- This leaves open that some final pointing signs are indeed syntactically-semantically motivated, but the prediction is that these form a separate bimoraic syllable (i.e., have a path movement), and are not cliticised to a preceding sign

Conclusions: final position

- Final lengthening appears to be different in spoken languages (phonetic) and signed languages (phonological), cf. [Perlmutter 1993](#)
- Final positions are prosodically heavy; phrase final Prosodic Words are minimally bimoraic $[..... [\mu\mu]_{PwD}]_{PP/IP}$
- Various features can contribute to weight of the final Pwd
 - lengthening (phonetic duration)
 - adding a simultaneous movement specification
 - repetition (increased number of repetitions)
 - an indexical sign (or other 'light' element)
 - intense non-manuals
- Sequential weight is represented in terms of an extra mora (μ)
- Nonmanual and manual features are evaluated in the same terms at the lowest prosodic level (μ)

TISLR 2013

- Determine the nature of the final prosodic unit that encapsulates the final mora
- The next step: analyse the rest of rhythmic structure in terms of morae as well (cf. [Miller, Perlmutter](#))



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