

Linearizing Structure with Silence
 The Left-Right Asymmetry in Syntax-Phonology Interface

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Goals

1. To show the theory of syntax-phonology mapping developed in [the thesis](#).
2. To explore how the mapping theory explains the left-right asymmetry in syntax-phonology interface. *New!*

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Main Proposal of the Thesis 1
 Syntactic hierarchical structure is linearized with various lengths of silence between linguistic sounds.

Alice loves hamsters
 [Alice [loves hamsters]]
 Alice loves hamsters ||

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Main Proposal of the Thesis 2
 Hearers build hierarchical structure from PF including silence.

Alice loves hamsters
 [Alice [loves hamsters]]
 Alice loves hamsters

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Outline of the Thesis

This talk Introduction

- 2 Prosodic phrasing in the minimalism
- 3 An alternative to the end-based theory
- 4 Optional phrasing and speech rates
- 5 Mapping and the length of constituents
- 6 Prosody in discourse
- 7 Topic/focus and phrasing
- 8 Semantics and phrasing
- 9 Derivation and parsing

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End-Based Mapping (Selkirk 1986)

VP *the right edge of XP*

V NP NP

a. pa(:)nzize cho:mbo mwa:mba
 'he ran the vessel on to the rock'

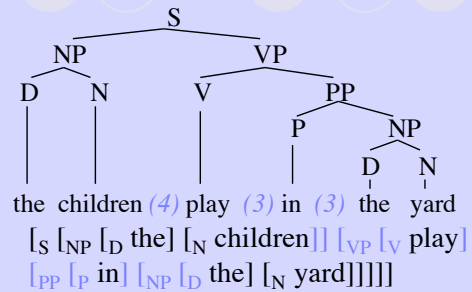
b.]X_{max}]X_{max}

c. ()_{PPh} ()_{PPh}

PPh: Phonological Phrase

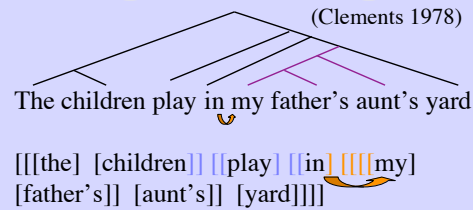
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Branching Depth (Clements 1978)



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A Problem of Branching Depth: Left-Branching Structure



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1. Bare Syntax-Phonology Mapping

Interpret boundaries of syntactic constituents [...] as prosodic boundaries / ... /.

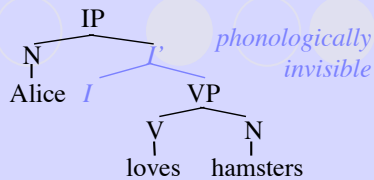
Linearization

[[Alice] [[loves] [hamsters]]]

// Alice /// loves // hamsters ///

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a.



b. [IP [N Alice] [I I] [VP [V loves] [N hamsters]]]

Phonologically null elements and the constituents made by merging them with other syntactic objects are *invisible to phonological rules*.

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2. Boundary Deletion

Delete n boundaries between words.

(n : a natural number) *Zoom-Out*

[[Alice] [[loves] [hamsters]]]

// Alice /// loves // hamsters ///

a. / Alice // loves / hamsters // ($n=1$)

b. Alice / loves hamsters / ($n=2$)

c. Alice loves hamsters ($n=3$)

a'. (Alice) (loves) (hamsters) prosodic word

b'. (Alice) (loves hamsters) phonological P

c'. (Alice loves hamsters) intonational P

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3. Consequences

Bare phrase structure

Deriving the edge parameter from the head parameter

Deconstructing prosodic hierarchy

Deriving the effects of the strict layer hypothesis

Speed of utterance

Length/heaviness of constituents

Prosodically motivated movement (Heavy NP Shift)

Given/new information

Topic/focus

Discourse structure

Derivation and parsing

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4. Branching Structure Blocking Phonological Change

In Kinyambo, a High tone (´) in one word deletes the High tone in the word to its left.

- a. [_S [_{NP} abakózi] [_{VP} bákajúna]] <- abakózi
workers they-helped
'The workers helped'

- b. [_S [_{NP} [_N abakozi] [_A bakúru]] [_{VP} bákajúna]]
workers mature they-helped
'The mature workers helped.' Bickmore (1990)

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Branching Structure Blocking Phonological Change

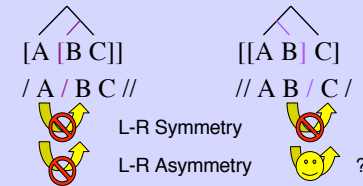
In Kinyambo, a High tone (´) in one word deletes the High tone in the word to its left.

- a. [_S [_{NP} abakozi] [_{VP} bákajúna]] <- abakózi
// abakózi // bákajúna //
abakozi bákajúna (n=2)
- b. [_S [_{NP} [_N abakozi] [_A bakúru]] [_{VP} bákajúna]]
/// abakózi // bakúru /// bákajúna //
/ abakozi bakúru / bákajuna (n=2)

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5. Left-Right Symmetry and Asymmetry

The mapping theory predicts symmetry in syntax-phonology interface.



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Symmetry 1: Low Deletion in Japanese

A word-final High pitch deletes the word-initial Low pitch (´) in the word to its right.

- [Mòmo-to nìra-o] yòme-ni ageta. <- nìra
peach-and leek-Acc daughter-to gave
'I gave peaches and leeks to my daughter in law.'

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Symmetry 1: Low Deletion in Japanese

- a. [Nira-to Ìamai momo-o] yòme-ni ageta.
leek-and sweet peach-Acc daughter-to gave
'I gave leeks and sweet peaches to my daughter-in-law.'
- b. [[Ìamai momo-to] nìra-o] yòme-ni ageta.
sweet peach-and leek-Acc daughter-to gave
'I gave sweet peaches and leeks to my daughter-in-law.'

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Symmetry 2: Consonant Assimilation in Korean

*r in the word-initial position: r -> n or Ø
n-r -> r-r (l-l) at a morpheme boundary

ron_ri hag -> nol-li-hak 'logic'
argument reason study

*si-lol-li-hak
sin_ron_ri hag -> sin=nol-li-hak 'new logic'
new argument reason study (cf. Umeda 1989)

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Symmetry 2: Consonant Assimilation in Korean

*r in the word-initial position: r -> n or Ø
 n-r -> r-r (l-l) at a morpheme boundary

* ku-il-lan
 ku in ran -> ku-in=nan 'want ad column'
 want person column (Yutani 2005)

* sil-lol-li-hak
 sin ron ri hag -> sin=ul-li-hak 'new logic'
 new argument reason study (cf. Umeda 1989)

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Asymmetry 1: Voicing in Japanese 'Rendaku'

nise tanuki -> nise danuki 'mock badger'
 tanuki shiru -> tanuki jiru 'badger soup'

a. [nise [tanuki shiru]] -> [nise [tanuki jiru]]
 mock badger-soup

b. [[nise tanuki] shiru] -> [[nise danuki] jiru]
 mock-badger soup

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Asymmetry 2: n-Insertion in Korean

n is inserted before a stem beginning in i or y when it is preceded by another stem or prefix which ends in a consonant.

a. [kyəŋ [yaŋ sik]] -> [kyəŋ [yaŋ sik]]
 light Western food *nyəŋ (ok in Kyungsan)

b. [[on cʰən] yək] -> [[on cʰən] nyək]
 hot spring bathe

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Markedness of Right-Branching Structure

Right-branching structure is universally marked. (Kubozono 1993)

a. [nise [tanuki shiru]] -> [nise [tanuki jiru]]
 mock badger-soup

b. [[nise tanuki] shiru] -> [[nise danuki] jiru]
 mock-badger soup

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Markedness of right-branching structure

Right-branching structure is universally marked for compounds (HT) (Kubozono 1993)

a. [nise [tanuki shiru]] -> [nise [tanuki jiru]]
 mock badger-soup

b. John sings in the park
 Unmarked phrase structure in head-initial languages

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The Left-Right Asymmetry in Juncture

- Right-branching structure is phrase-like; its internal juncture is long: [] -> /
- Left-branching structure is word-like; its internal juncture is short: () -> /

Phrase Compound Word

[A [B C]] / A / B C //
 nise tanuki jiru *sil-lol-li-hak

[[A B] C] // A B / C /
 nise danuki jiru *ku-il-lan

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Left-Right branching and Japanese Voicing

Right-branching compound is phrase-like;
Left-branching structure is word-like.

- a.
 [nise [tanuki shiru]] -> [nise [tanuki jiru]]
 mock badger-soup
- b.
 [[nise tanuki shiru] -> [(nise danuki) jiru]
 mock-badger soup
- [(on c^hən) nyok]

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Left-branching structure with short juncture

[9] (cf. Clements 1978)

The children play in my father's aunt's yard

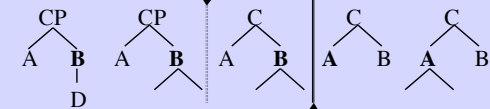
- a. [[[The] [children]] [[play] [[in] [[[my] [father's]] [aunt's]] [yard]]]]
- b. [[([The] [children]) [[play] [[in] [[([my] [father's]) [aunt's]) [yard]]]]]]
 /// The // children /// play /// in ///// my // father's /// aunt's yard

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Generalizing Stress Rules

In a configuration [C A B C]:

- NSR: If C is a phrasal category, B is strong.
- CSR: if C is a lexical category, B is strong iff it branches. (Lieberman and Prince 1977)



Generalized Stress Rule: In [A B], B is strong iff it dominates (a) non-terminal node(s).
 (cf. Cinque 1993, Kayne 1994, Szendrői 2001, Reinhart 2006)

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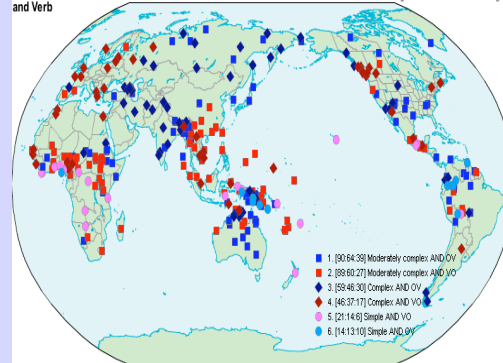
Branching Direction and Typology

- | | | |
|---------------|----------------|----------------|
| | | |
| Branching: | left | right |
| Word order: | OV | VO |
| Stress: | phrase-initial | phrase-final |
| Syllable str: | simple | complex |
| Rhythm: | mora-count | syllable-count |
| Morphology: | agglutinative | inflectional |

(Lehmann 1973, Plank 1998, Tokizaki and Kuwana 2007)

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Syllable Structure AND Order of Object and Verb



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Conclusion

- Linearization:
Speakers map hierarchical syntactic structure onto PF with brackets and silence.
- Left-right branching asymmetry:
Left-branching structure has shorter juncture than right-branching structure.

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