

# Linearization/construction of morphosyntactic structure and linear information

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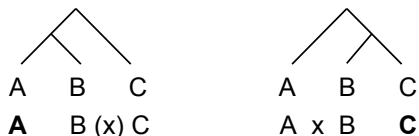
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## Proposal

Left/right-branching structure are linearized with prominence and disjuncture, which give hearers cues for building hierarchical structure (§1). The constituent boundary in left-branching structure is not represented phonetically because of the difficulty in pronouncing separated elements in the post-prominence position (§2). The asymmetry of junctural strength between left-branching and right-branching structure gives the correlations between phonology and syntax such as phonological prominence and complement-head orders (§3).

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## 1. Linearization/construction of left/right-branching structure



Hierarchical structure is linearized into sequence of elements with prominence (X) and disjuncture (x).

- Left-branching structure may well be linearized without disjuncture between its constituents (§2).

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## 1.1 Structure and prominence

Assign stress to the most deeply embedded element (Cinque 1993)

- [[waste disposal] plan]
- [John [loves Mary]]

The element with primary prominence is to be merged with the adjacent element at the first Merge.

- [waste disposal]
- [John [loves

- The element with secondary prominence is to be merged with the adjacent element at the second/last Merge.

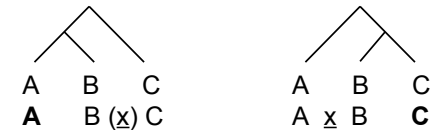
- [[waste disposal] plan]
- [John [loves Mary]]

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## 2. Asymmetry in juncture between left- and right-branching structure

The juncture is stronger in left-branching than in right-branching structure.

The boundary in left-branching structure is not represented phonetically because of the difficulty in pronouncing separated elements in the post-prominence position.



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## 1.2 Structure and juncture

Spell Out a syntactic constituent boundary as a prosodic boundary. (Tokizaki 1999, 2008a)

- [[waste disposal] plan]  
xx waste disposal (x) plan x
- [John [loves Mary]]  
x John x loves Mary xx

The adjacent elements not separated by prosodic boundaries are to be merged at the first Merge. (cf. Phillips 1996, Tokizaki 2009, Shiobara 2010)

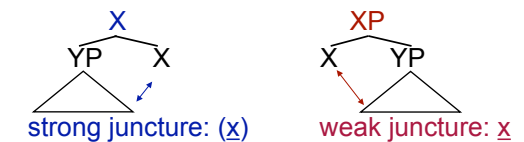
- xx waste disposal  
[waste disposal]
- x John x loves  
[John [loves

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## 2.1 Strong juncture in left-branching structure

Juncture between elements in left-branching structure is stronger than that in right-branching structure (Tokizaki 2008b).

Head Complement: [<sub>XP</sub> X YP] phrase  
Complement-Head: [<sub>X</sub> YP-X] (compound) word



- Juncture: the degrees of connectedness between segments of phonological representation

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## 1.3 Structure, prominence and juncture

Spell Out the most deeply embedded element with prominence and a syntactic constituent boundary as a prosodic boundary.

- [[waste disposal] plan]  
xx waste disposal (x) plan x
- [John [loves Mary]]  
x John x loves Mary xx

The adjacent elements that have prominence and are not separated by prosodic boundaries are to be merged at the first Merge.

- xx waste disposal  
[waste disposal]
- x John x loves  
[John [loves

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## 2.2 Evidence for junctural asymmetry 1

Sequential Voicing in Japanese is blocked only in right-branching structure (Otsu 1980):

[nise [tanuki jiru]] vs. [[nise danuki] jiru] (<shiru)  
mock badger-soup      mock-badger soup

Similar blocking in Korean *n*-Insertion (Han 1994)  
Interfixation in Dutch three-word compounds occurs more often at the constituent boundary in right-branching structure than left-branching structure (Krott et al. 2004):

[A intf [B C]] >> [A [B intf C]]  
[[A B] intf C] > [[A intf B] C]  
unmarked                      marked

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### 3.3 Word stress and compound stress

Word stress = compound stress

- R-oriented R-oriented (English)  
Compound/phrasal stress is assigned on the most deeply embedded element (Cinque 1993)  
Words to compounds in English (R-oriented)  
[<sub>Wd</sub> σ σ σ σ] = [<sub>Cmp</sub> [<sub>C</sub> σ σ σ σ] [<sub>H</sub> σ]]
- R-oriented R-oriented (English)  
Compound/phrasal stress is assigned on the most deeply embedded element (Cinque 1993)  
Words to compounds in English (R-oriented)  
[<sub>Wd</sub> σ σ σ σ] = [<sub>Cmp</sub> [<sub>C</sub> σ σ σ σ] [<sub>H</sub> σ]]

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### 3.4 Prominence in pitch accent languages

Japanese and Korean have no stress.  
Japanese has pitch accent on (ante)penult syllable in accented words. (Kubozono 2006, R-oriented)  
Japanese has prominence on the initial syllable/mora in unaccented words/compounds.  
Initial lowering is kept on the initial word in compounds:  
a. raten            america  
b. raten america

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### 3.7 Shanghai: small domain

In a prosodic word in Shanghai, all the tones following the first pair of tones are deleted, and the second tone is associated with the second syllable.  
If Shanghai had the same tonal domain as other dialects, the complement noun (phrase) in PPs and VPs would lose its citation tone:

- Surface \* [L            H]    Tone Split  
Citation [LH]            [LH]

[<sub>PP</sub> [<sub>P</sub> 'zaw] [<sub>N</sub> 'mo]]    toward horse  
Shanghai Chinese needs to divide phrases into small prosodic units in order to keep the tone of the lexical items with important information.

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Word stress = compound stress

- R-oriented R-oriented (English)  
Prepositional/verb phrases to sentences  
[<sub>Wd</sub> σ σ σ σ] = \* [<sub>Cmp</sub> [<sub>Cmp</sub> [<sub>C</sub> σ σ σ σ] [<sub>H</sub> σ]] [<sub>H</sub> σ]]
- \* [<sub>Cmp</sub> [<sub>Cmp</sub> [<sub>H</sub> σ] [<sub>C</sub> σ σ σ σ]] [<sub>H</sub> σ]]  
\*that            towel    with/buy
- Final-Over-Final Constraint (Biberauer et al. 2008)  
Stress Constraint  
Postpositional/verb phrases in Left/no stress  
[<sub>Wd</sub> σ σ σ σ] = [<sub>Cmp</sub> [<sub>Cmp</sub> [<sub>C</sub> σ σ σ σ] [<sub>H</sub> σ]] [<sub>H</sub> σ]]

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### 3.5 Prominence in tone languages

Most tone languages have no stress.  
Tone languages have prominence: metrical head, intensity, duration, stress (Yip 1980, Duanmu 1995)  
Tone sandhi and tone spreading in a prosodic domain  
Head-complement languages are expected to have prominence on the right: African and Chinese languages  
Chinese dialects: head-complement orders  
Taiwanese, Mandarin, ...: right prominence  
Shanghai: left prominence, but ..

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### 3.8 Other Chinese dialects: wide domain

Other dialects of Chinese have tone sandhi, which changes tones preceding the final tone in a tonal domain.

Standard Chinese changes a sequence of third tones (L) preceding the final third tone in a tonal domain (Yip 2002):

- Surface [ MH L ]  
Citation [ L L ]  
*mai ma*    buy horse

The complement of verb keeps its citation tone.  
Both Standard Chinese and Shanghai Chinese keep the tone of the object of verb or preposition.

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- *m-wia*    \**wia-m* 'debt-or' penult (Swa)
- *-da entrar*    *entraq-da* 'entrance' R-edge (Spa)
- ... *stolens fötter* 'feet of chair' R-oriented (Swe)
- *sinema herc<sup>h</sup>au* 'watch cinema' L-edge (Nepali)
- *anata-ga-iku-mani* 'before you go' No stress (Jap)  
you-Nom go before

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### 3.6 Tonal domain in Chinese dialects

Why does Shanghai have smaller tonal domain than other Chinese dialects? (Chen 2000)

Shanghai            [V] [NP], [P] [NP]

Xiamen/Taiwanese [V NP], [P NP]

The Edge Parameter for prosodic phrasing (Selkirk and Shen 1990)

Shanghai            Left of XP (phrase)  
[V] [NP], [P] [NP]

Other dialects        Right of XP (phrase)  
[V NP], [P NP]

**Q: Why are the parameter values different?**  
**A: The syllable structures are different.**

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### Conclusion

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