A Concatenative Account of Japanese Subtractive Accent

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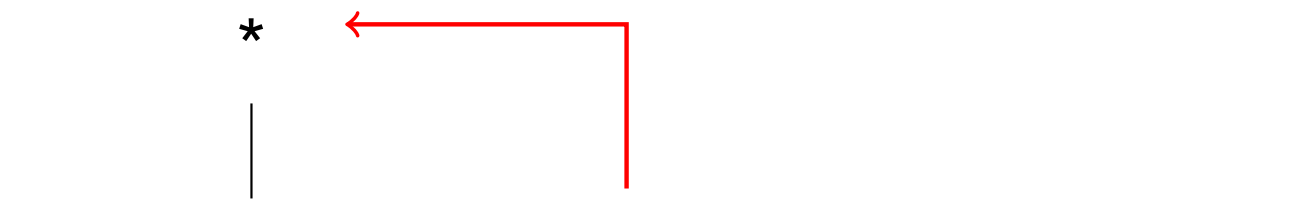
Japanese Pitch Accent (abstract)

Unaccented	**Accented on σ_1**	**Accented on σ_2**
	*	*
	|	|
ha shi ni	ha shi ni	ha shi ni
‘edge	‘chopsticks’	‘bridge’

Japanese Accent Subtraction (abstract)



‘logic’ ‘like’ ‘logical’

Recent Approaches to Accent Subtraction

- Inkelas (1998): Subtraction ≈ Cophonologies
- Trommer (2015): Subtraction ≈ Circumfixation + Contiguity
- Rolle (2018): Subtraction ≈ Deep Thought (Adams 1979)
- Kushnir (2018): Subtraction ≈ Negative activation + cycles

Goal of this Talk

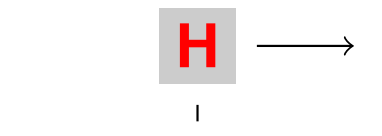
Develop a **concatenative** analysis

of Japanese accent **subtraction**

as affixation of a floating **H** tone

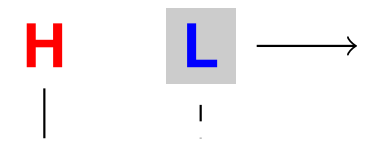
Tonal Substance of Japanese Pitch Accent

Unaccented



‘edge

Accented on σ_1



‘chopsticks’

Accented on σ_2

‘bridge’

Japanese Pitch Accent – Empirical Generalizations

- Every **word** has exactly 1 High tone
- Every **accented word** has exactly 1 High-Low sequence
  (underlying High is followed by Low / default H is not)

(abstracting away from phrase-initial Low tones
and word-/phrase-final spreading/interpolation)

Challenge for a Concatenative Analysis

Distinguish the behavior of different affixes

without different (co-)phonologies

Accentual Types of Japanese Affixes

	Unaccented	**Accented**	**Preaccenting**	**Subtractive**
Recessive	-ga (Nominative)	-tara (Conditional)	-si (‘Mr.’)	—
Dominant	—	-ppoi (‘-ish’)	-ke (‘familiy of’)	-teki (‘-like’)

Theoretical Assumptions

Theoretical Assumptions

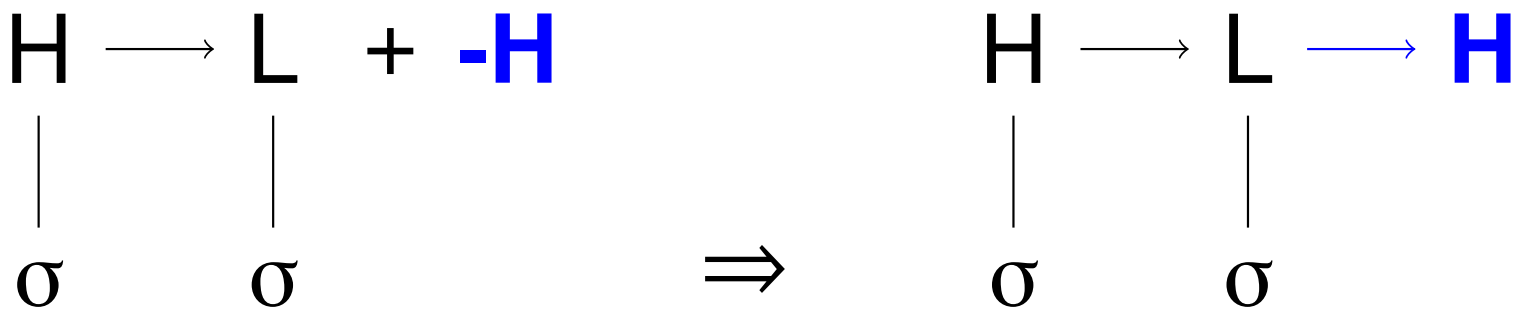
- **Autosegmental Colored Containment Theory** (Trommer 2011): Phonology 'sees' morphemic differences, but not identity
- **The Concatenativist Hypothesis:** Exponence = Concatenation+Phonological Alternations
- **Two-dimensional Concatenation** (new proposal worked out here)

Two-dimensional Concatenation

Concatenation of floating affixes may apply

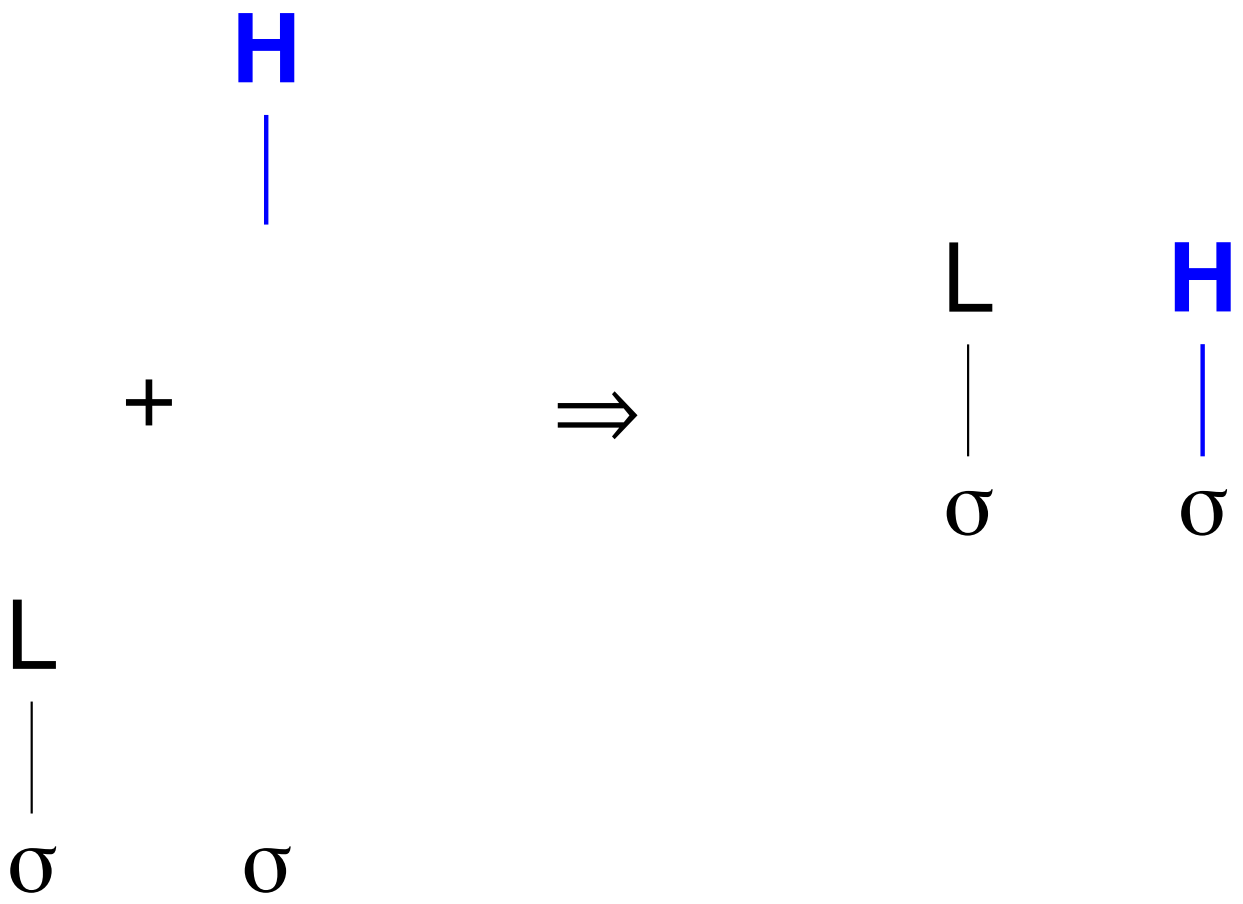
- **horizontally:** prefixed or suffixed to a pivot on the relevant tier (Zimmermann 2014, Zimmermann and Trommer 2014)
- **vertically:** autosegmentally associated upwards or downwards to a pivot on an adjacent tier (new proposal)

Horizontal Affixation



(where "→" denotes linear precedence, Raimy 2000,Trommer 2011)

Vertical Affixation



Data

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Root + Recessive Accented Suffix (Kawahara 2015:468)

ne		ne-**ta**ra	‘if sleep’
mage		mage-**ta**ra	‘if bent’
	+ -**ta**ra		
tabe		**ta**be-tara	‘if eat’
na**ga**re		na**ga**re-tara	‘if flow’

(-tara conditional)

Root + Dominant Accented Suffix (Kawahara 2015:468)

abura		abura-**ppo**i	‘if oily’
kaze		kaze-**ppo**i	‘sniffly’
	+ -**ppo**i		
kiza		kiza-**ppo**i	‘snobbish’
ne**tu**		netu-**ppo**i	‘feverish’

(-ppoi ‘-ish’)

Root + Recessive Preaccenting Suffix (Kawahara 2015:468)

ono		ono-si	‘Mr. Ono’
josida		josida-si	‘Mr. Yoshida’
	+ -si		
ura		ura-si	‘Mr. Ura’
nisimura		nisimura-si	‘Mr. Nishimura’

(-si ‘Mr.’)

Root + Dominant Preaccenting Suffix (Kawahara 2015:469)

ono		ono-ke	‘Mr. Ono’
josida		josida-ke	‘Mr. Yoshida’
	+ -ke		
ura		ura-ke	‘Mr. Ura’
nisimura		nisimura-ke	‘Mr. Nishimura’

(-ke ‘family of’)

Root + Subtractive Suffix (Kawahara 2015:470)

ronri		ronri-teki	‘logical’
a**na**ta		anata-teki	‘in your opinion’
	+ -teki		
b**u**ngaku		bungaku-teki	‘literature-like’
ri**ki**gaku		rikigaku-teki	‘in terms of dynamics’

(-teki ‘like’)

Analysis

Basic Ideas: Dominance

The strength to overwrite derives from

standard qualitative differences

in underlying phonological representations

- **Floating H** vs.**preassociated H**
  ⇒ subtraction/ overwriting by H

- Underlying **L** vs. underlying **H**
  ⇒ Dominant accented and preaccented affixes

Basic Ideas: Preaccenting vs. Overwriting

- Preaccenting = **Horizontal** Affixation
- Overwriting = **Vertical** Association

Markedness Constraints

1H	Assign $*$ to every PWord dominating phonetically more than one H-tone or less than one H-tone
H⇔L	Assign $*$ to every phonetic H-tone not immediately followed by a phonetic L-tone and to every phonetic H-tone not immediately preceded by a phonetic H-tone
⚓-F	Assign $*$ to every phonetic H-L sequence whose H is not associated by a colored association line

Constraints on Faith and Association

MAX τ_1	Assign $*$ to every morphological tone τ that is initial in a PWord but not phonetically realized
$\tau \rightarrow \mu$	Assign $*$ to every tone which is not associated morphologically or phonologically to a mora
FTH L	Assign $*$ to every morphological Low tone which is phonetically unrealized, deassociated or shifted (cover constraint)

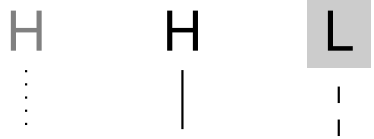
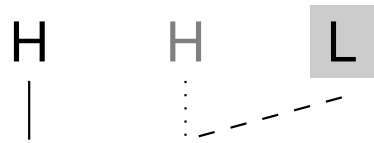
Unaccented Word (here: Root + Suffix)

Input: = a.				1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a.	ka	ta	**ga**	*!					
		H	L						
		⋮	⋮		*!				**
b.	ka	ta	**ga**						
		H							
		⋮				*			*
☞ c.	ka	ta	**ga**						

Unaccented Root + Recessive Accented Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. jon **da** **ra** (H)			*!			
b. jon **da** **ra** (H H L)		*!			*	***
☞ c. jon **da** **ra** (H L)						*

Accented Root + Recessive Accented Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. jon **da** **ra** 	*!		*!*			
b. jon **da** **ra** 			*!			*
c. jon **da** **ra** 					*!	**
☞ d. jon **da** **ra** 						**

Accented Root + Dominant Accented Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. H H L | | | ki za **ppo** **i**	*!		*!			
b. H L H L | ⋮ ⋮ ⋮ ki za **ppo** **i**				*!		***
☞ c. H H L ⋮ | | ki za **ppo** **i**					*	*

Accented Root + Subtractive Suffix

Input: = a.	1H	⚓-F	τ → μ	H⇔L	MAX τ_1	FAITH
a. koo be **kko**			*!	*		
b. koo be **kko**	*!			*		*
c. koo be **kko**		*!				**
☞ d. koo be **kko**				*	*	**

Unaccented Root + Recessive Preaccenting Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. o **H** no **si**			*!			
☞ b. o **H** no **L** **si**						*

Accented Root + Recessive Preaccenting Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. H H / u ra **si**	*!		*!*			
b. H H L / u ra **si**	*!		*!			*
c. H H L / u ra **si**					*!	**
☞ d. H H L / u ra **si**						**

Unaccented Root + Dominant Preaccenting Suffix

Input: = a.				1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
		H	**L**						
		|	|						
☞ a.	o	no	**ke**						

Accented Root + Dominant Preaccenting Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	MAX τ_1	FAITH
a. H **H** **L** / u ra **ke**	*!		*!			
b. H L H L / u ra **ke**				*!		***
☞ c. H **H** **L** / u ra **ke**					*	*

Root + Attractive Suffix (Kawahara 2015:469)

ni		ni-mono	‘cooked food’
nori		nori-mono	‘thing to ride’
	+ -mono		
ta**be**		ta**be**-mono	‘thing to read’
kaki		ka**ki**-mono	‘thing to write’
jomi		jo**mi**-mono	‘thing to read’

(-mono ‘thing’)

Accented Root + Attractive Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	*→	MAX τ_1	FAITH
a. H ka ki **L** **mo** **no**			*!*				
b. H ka H ki **L** **mo** **no**			*!				**
c. H ka L ki L **mo** **no**				*!			**
☞ d. H ka ki **L** **mo** **no**					*		**

Unaccented Root + Attractive Suffix

Input: = a.	1H	⚓-F	H⇔L	FTH L	*→	MAX τ_1	FAITH
a. no ri **L** | **mo** **no**	*!		*				
b. no H ri **L** | **mo** **no**			*!				*
☞ c. no H ri L **mo** **no**					*		**

Summary

Subtractive Accent and Dominance without . . .

- Gradient representations (Kushnir 2018)
- Virtual output-output correspondence (Rolle 2018)
- Cophonologies or indexed constraints

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Overview

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