

# 'Minimal' template satisfaction

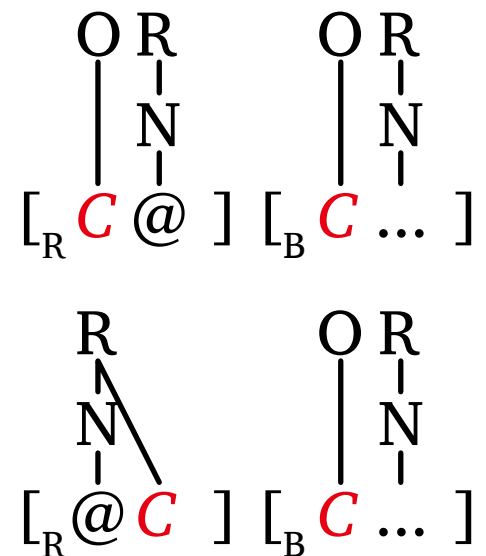
a prosodic analysis of 'initial gemination'

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- This paper proposes that ‘initial gemination’ (e.g. /-//w 'angry') involves a syllable-size reduplicant that is satisfied MINIMALLY in such a way that the process copies barely enough melodies of the base in order to establish the structural identity of the reduplicant.
- The minimality in template satisfaction essentially results from \*STRUC(R) (i.e. structure is constructed minimally in reduplicants) crucially dominating MAX-BR (i.e. every element in a base must appear in its reduplicant).
- The structural identity of a reduplicant, whether it is defined as a light syllable ( $\sigma_\mu$ ) or a heavy syllable ( $\sigma_{\mu\mu}$ ), is established by copying the initial consonant of its base, provided that a syllable may contain an empty nucleus (@).



# Prosodic units as reduplicants

[3]

- Prosodic Morphology hypothesis (McCarthy & Prince 1990)
  - Templates are defined in terms of the authentic units of prosody: mora ( $\mu$ ), syllable ( $\sigma$ ), foot (Ft), prosodic word (PrWd), and so on.
- Maximal **B(ase)**-**R(eduplicant)** correspondence
  - Warlpiri (Nash 1980; Marantz 1982)

/kurdu/	<b>kurdu</b> -kurdu	'children'
/kamina/	<b>kamina</b> -kamina	'girls, maidens'
/mardukuja/	<b>mardukuja</b> -mardukuja	'women, females'
- Partial **B-R** correspondence:  $R = \sigma_{\mu} / \sigma_{\mu\mu}$ 
  - Ilokano (Bernabe et al. 1971; Hayes & Abad 1989)

(Adjective)	(Plural)	(Comparative)	
/dak.kel/	<b>da</b> - <b>da</b> k.kél	<b>dák</b> - <b>da</b> k.kél	'big'
/a.si.deg/	<b>a</b> - <b>a</b> .si.dég	<b>ás</b> - <b>a</b> .si.dég	'near'
/na-la.iŋ/	na- <b>la</b> - <b>la</b> .íŋ	na- <b>lóa</b> - <b>la</b> .íŋ	'intelligent'

# /C/ as a prosodic template?

[4]

- 'Initial gemination' exists 'to some extent in all nuclear Micronesian languages'. (Harrison 1973)

## – Marshallese

qiñey	'to extinguish (vt.)'	q-qiñ	'to extinguish (vi.)'
kiney	'to invent (vt.)'	k-kεn	'to invent (vi.)'
liw	'to scold'	l-liw	'angry'

## – Trukese

fini	'to select (vt.)'	f-fin	'to select (vi.)'
posuu	'to stab (vt.)'	p-pos	'to stab (vi.)'
turufi	'to seize (vt.)'	t-tur	'to seize (vi.)'

## – Woleaian

mata	'eye'	m-mata	to wake up'
b <sup>w</sup> uuaa	'to boil it (vt.)'	b-b <sup>w</sup> uua	'to boil (vi.)'

- **Q:** How can a single consonant be prosodically defined as a reduplicant?

# Mokilese historical 'initial gemination' (1) [5]

- Ponapeic languages including Mokilese no longer retain words with initial geminates in the lexicon. It is instructive to observe how initial geminates have been resolved into canonical strings.
  - A prosthetic vowel (/u/ before a rounded sound; /i/ elsewhere) appears in the initial position.

immas	'ripe'	(earlier *m-mas)
um <sup>w</sup> m <sup>w</sup> uc	'to vomit'	(earlier *m <sup>w</sup> -m <sup>w</sup> uc)
  - Nasal dissimilation occurs in non-nasal geminates.

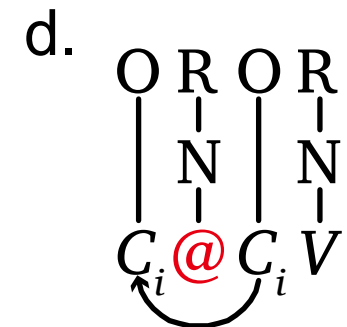
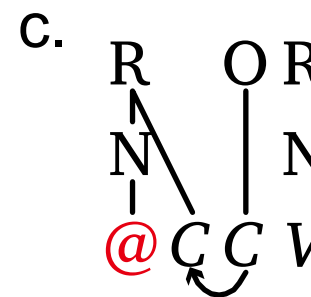
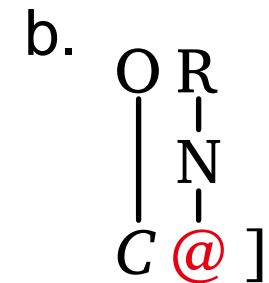
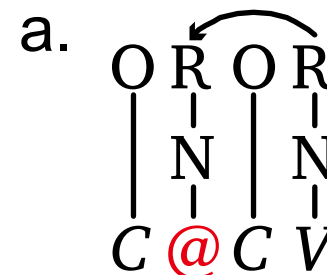
impal	'coconut cloth'	(earlier *p-pal)
insa	'blood'	(earlier *s-sa)
- Why has a prosthetic vowel, not an epenthetic vowel (e.g. \*/mi.mas/), been chosen to ease the marked initial geminates?
  - Assume that there WAS an empty nucleus (i.e. an acoustically uninterpreted vowel) before the initial geminates in the first place.

# Empty Category Principle

[6]

- A licensed empty position (@) receives no phonetic interpretation (Kaye 1990, 1992a, 1995; Harris 1994).

- An empty position is licensed if
  - a. it is properly governed,
  - b. it is domain final in languages that license domain-final empty nuclei,
  - c. it is followed by a 'coda'-licensed rhymal dependent, or
  - d. it is within an inter-onset licensing domain.



This is the Mokilese case.

- Proper government:  $\alpha$  properly governs  $\beta$  iff
  - a.  $\alpha$  is adjacent to  $\beta$  on the relevant projection,
  - b.  $\alpha$  is not itself licensed, and
  - c. no governing domain separates  $\alpha$  from  $\beta$ .

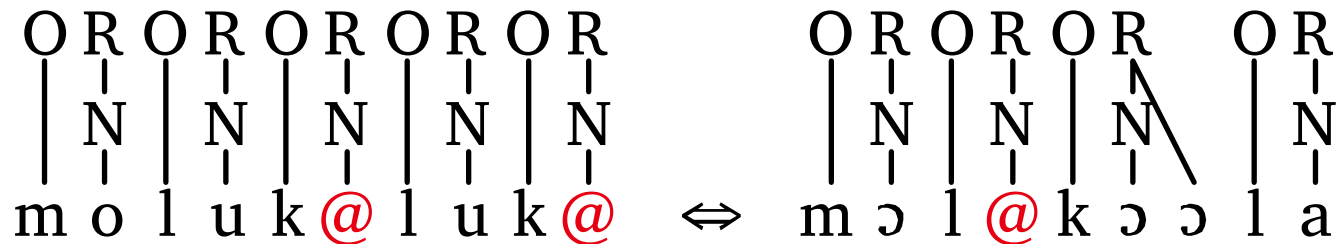
# Mokilese historical 'initial gemination' (2)

[7]

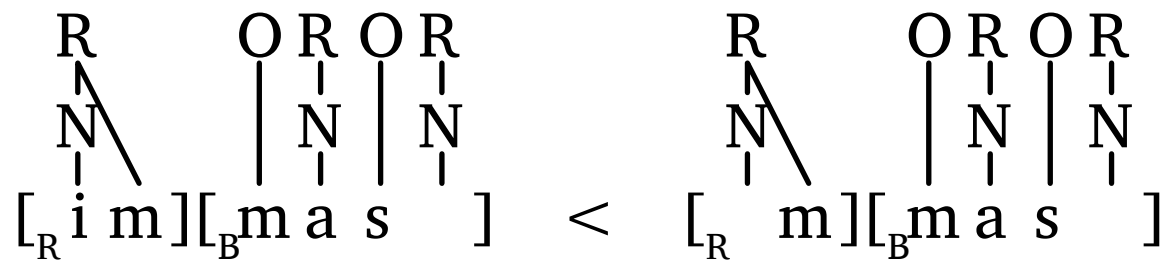
- Mokilese allows empty nuclei in representation.

– Syncope in Mokilese

kanaa 'his food'      kan@ra 'their (two) food'  
 molukluk 'forgetful'      mol@koola 'to forget'



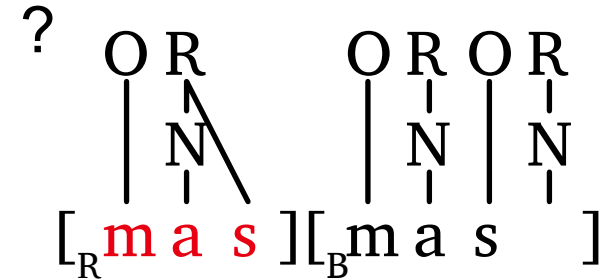
- The appearance of prosthetic vowels should be understood as the acoustic manifestation of empty nuclei, as shown below.



# Variation in template satisfaction (1)

[8]

- **Q:** If the reduplicant in the historical ‘initial gemination’ is defined as a heavy syllable ( $\sigma_{\mu\mu}$ ), then what prevents the reduplicant from copying more sounds from the base (like Ilokano adjectives)?



- The difference in the extent of template satisfaction essentially stems from the dominance relation between the following two constraints:
  - MAX-BR (McCarthy & Prince 1995)  
Every elements of a base has a correspondent in its reduplicant.
  - \*STRUC(R) (Prince & Smolensky 1993)  
Structure of a reduplicant is constructed minimally.
    - The constraint \*STRUC is assumed to be dominated by M-PARSE, which 'requires the structural realization of morphological properties'.

# Variation in template satisfaction (2)

[9]

- Reduplicative templates are FULLY satisfied by copying as many sounds from the base as possible.
  - This is the case when MAX-BR dominates \*STRUC(R).

Ilokano adjective /R-dakkel/	MAX-BR	*STRUC(R)
<p>[<sub>R</sub> d a k ][<sub>B</sub> d a k ... ]</p>	***	dak
<p>[<sub>R</sub> d ][<sub>B</sub> d a k ... ]</p>	****!* (with the last asterisk in red)	d

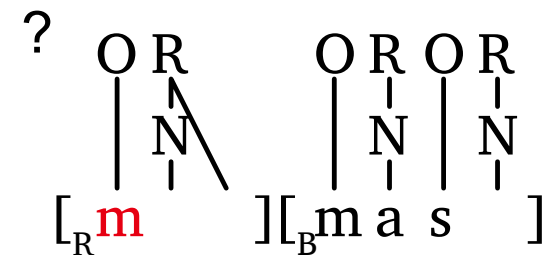
# Variation in template satisfaction (3)

[10]

- Reduplicative templates are BARELY satisfied by copying a single sound from the base.
  - This is the case when \*STRUC(R) dominates MAX-BR.

Mokilese /R-mas/	*STRUC(R)	MAX-BR
	**!*	
	*	as

- **Q:** If a single consonant is the target in the above kind of reduplication, why is the consonant syllabified as the rhymal dependent, not as the onset, of the initial syllable?





- **Q:** Is there any evidence for the distinction between the two types of ‘initial geminates’ ( $R = \sigma_{\mu}$  vs  $R = \sigma_{\mu\mu}$ ) that are apparently identical?
- ‘Phonetically, the ... geminate clusters are “softened” by a prosthetic vowel in the Ralik dialect [of Marshallese] and by an epenthetic vowel in the Ratak dialect. For example; *bbaq* “swollen” — Ralik [ɛbbɔk], Ratak [bʌbɔk].’ (Harrison 1973: 444)
- With respect to the ‘initial gemination’, the two dialects only differ in their reduplicative templates.
  - Ralik:  $R = \sigma_{\mu}$
  - Ratak:  $R = \sigma_{\mu\mu}$
- The ‘prosthetic/epenthetic vowels are the acoustic manifestation of empty nuclei.

# Analysis of Ratak/Ratic contrast

[13]

INPUT: R-*baq*

Ratak

Ralik

	R= $\sigma_\mu$	*STRUC(R)	MAX-BR	R= $\sigma_{\mu\mu}$	*STRUC(R)	MAX-BR
		**!	*	*!	**!	*
		*	☞ **	*!	*	**
	*!	**!*			**!*	
	*!	*	**		*	☞ **

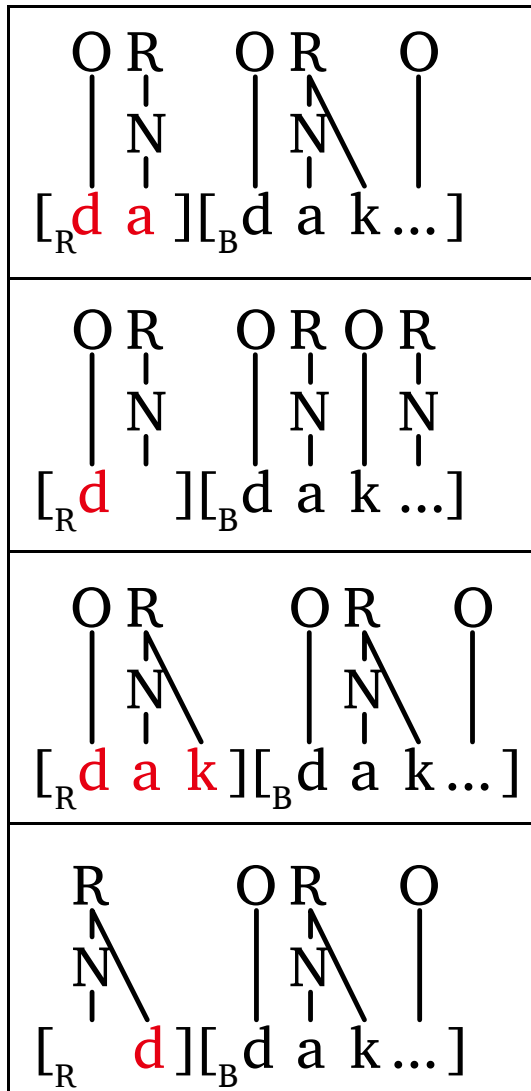
# Ilokano adjective/plural contrast

[14]

INPUT: R-*dakkel*

Plural

Adjective



R= $\sigma_\mu$	MAX-BR	*STRUC(R)
	****!	☞ **
	****!*	*
*!	***	***
*!	*****	*

R= $\sigma_{\mu\mu}$	MAX-BR	*STRUC(R)
*!	****	**
*!	*****	*
	***	☞ ***
	****!*	*

- The Prosodic Morphology hypothesis holds with respect to ‘Initial gemination’; it is a case of syllable-size reduplication in which templates are minimally satisfied by only copying the initial consonant of the base.
- The minimality of template satisfaction results from the dominance relation  $*STRUC(R) \gg MAX-BR$ , on the one hand, and from the (parametric) sanction to the appearance of empty nuclei, on the other.
- The analysis draws a typology of syllable-size reduplication below.

	$R=\sigma_{\mu}$	$R=\sigma_{\mu\mu}$
MAX-BR $\gg$ *STRUC(R) (MAX template satisfaction)	Ilokano plural	Ilokano comparative
*STRUC(R) $\gg$ MAX-BR (MIN template satisfaction)	Ralik	Ratak

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