

Is Harmonic Serialism ‘Serial’ Enough?

The Case of Rotuman Phase

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Outline

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- 7 The Stratal Analysis

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- Single Constraint Ranking (as in Classical OT)
- Serialism: pass each winning candidate back through GEN and CON until winning candidate matches latest input (at which point, convergence is achieved)

HS vs. ‘Stratal’ theories

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- HS: Candidates iteratively subjected to the *same* constraint ranking, with 'harmonic improvement' on all but the final pass.
- Stratal: Candidates subjected to (potentially) distinct constraint rankings at each stratum.
- HS: All material of relevance to the derivation of the final output form is present from the beginning.
- Stratal: Computation first limited to stem level material, then to word-level material, and finally to phrasal material. Earlier strata don't know about (and cannot reference the phonological properties of) material not yet affixed.



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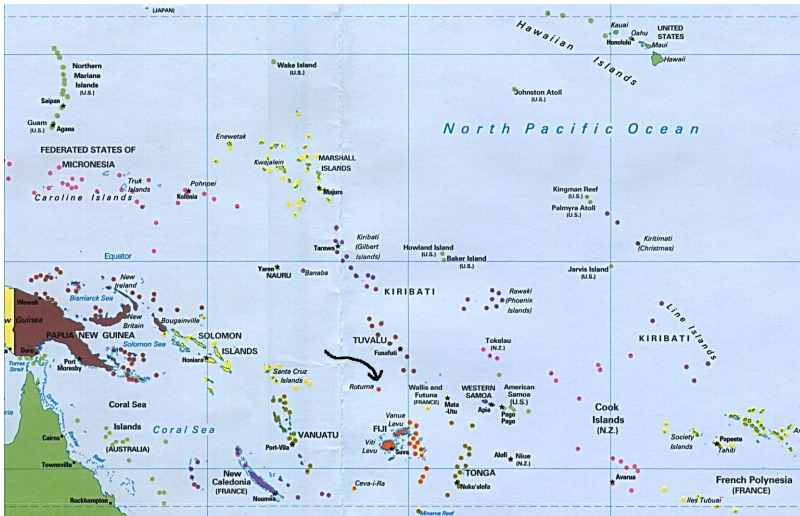
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- Member of the Central Pacific branch of the Oceanic language family
- Approximately 12,000 speakers
- Famous (in phonology circles) for its complete vs. incomplete ‘phase’ distinction



What is Rotuman?

Where is Rotuma?





The Phases, First Pass

- There is a realization (in 'the incomplete phase') of underlying forms with light CV final syllables as outputs with final heavy syllables, the heavy syllables arising via a variety of processes. Since we are not presenting a general theory of phase formation today, we only need concern ourselves with two of these:



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 - The heavy syllable variants all occur in the same contexts, even though they arise via different phonological 'processes'.



A note on hoas

There is considerable variation in the transcription and interpretation of the complex nuclei which result from metathesis. McCarthy (2000) writes this form **hóas**, Churchward (1940) says the stress is 'evenly distributed' across the two vowels. On the other hand, Schmidt (2000), Besnier (1987) and others write the forms **hwás**. The general analysis is that they are stressed rising diphthongs. We will not worry further about their precise nature today.



What is the 'Phase Distinction' in Rotuman?

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 - e. Phonological conditioning (Hale & Kisseck 1998, McCarthy 2000)



Our Assumption

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- Today, we will limit our discussion to a narrowly defined set of phonological phenomena, mostly only epiphenomenally related to the 'phase' distinctions themselves.

A Problem in McCarthy 2000

- We won't worry here about all the details of McCarthy's (2000) analysis, which would take hours to present coherently. We note merely that he has appropriate constraints to derive heavy-final syllables (in practice usually $-(C_1)VC_2$, with a moraic coda C_2) in so-called 'incomplete phase' forms.

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- As for getting to this heavy syllable domain end from the most common $-V_1CV_2$ ending of lexical items, McCarthy notes (2000: 173)
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 - The deletion pattern ($-V_1C$) is least preferred. (*haŋa* → *haŋ* 'feed')



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 - h_oas (< /hosa/) preserves the final /a/ by violating LINEARITY (the constraint against metathesis).
 - Deletion is preferred only when metathesis gives rise to an illicit vowel sequence (e.g., h_aaŋ, ra_ok).

Trouble in Paradise

As McCarthy (2000:182) notes, there is a problem candidate:

- **raok** (< /rako/) gets a heavy final syllable, does not incur the gratuitous MAX violation that the winner **rak** does, and has a perfectly licit vowel sequence (**rao** ‘reddish on account of being ripe or nearly so’)

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- Note that given the Rotuman stress rules, this problematic candidate would be stressed **raók**.
- McCarthy (2000:182): “Most serious of all [problematic cases] is (39d) [ra.ók–mh/mk]—it has metathesis and a hiatal sequence, both of which the language tolerates freely, and it spares all other complications.”

HEAD-MATCH

To solve this problem, McCarthy invokes an Output-Output Correspondence Constraint, HEAD-MATCH:

If α is in $H'(\text{PrWd})$ and $\alpha \mathcal{R} \beta$, then β is in $H'(\text{PrWd})$.

That is, “two forms will satisfy HEAD-MATCH if their main-stressed vowels are in correspondence.”

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- “The idea is that HEAD-MATCH selects (*rák*) over **ra*.(*ók*) by comparing them to the complete-phase form (*rá₂ko₄*).
- The alleged complete phase form (*rá₂ko₄*) is not a word, unfortunately, though it is the *rako*-portion of a potential word like *rákot* ‘a school’ (with the so-called ‘stress-neutral’ indefinite article *-t*).



The *rákot* Problem

First, note that we are reshaping an unsuffixed ‘basic’ form of /rako/ on the basis of OOC with a suffixed form, in violation of the limitations on the use of OOC envisioned in almost all work which attempt to restrict the power of that mechanism, including quite explicitly work by McCarthy.

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We expect, given the stress rules of Rotuman, ***rakót**. How do we get the stress assignment in **rákot**?

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- The only other type of word-form that exists is the incomplete phase, which is of course, as we have seen, **rák**. This has the stress in the right position.
- But how did **rák** beat ***raók**? By OOO to **rákot**! Oops.



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- The Deletion cases, recall, require constraints on possible V_1V_2 sequences to outrank MAX-V (such that deletion of a final vowel is even better than preservation via metathesis), but ***raók** does not contain one of those illicit sequences.


Pass 1

raók not in candidate set; more than one step away from /rako/:

	rako	HEAVYFINAL	STRESSPENULT- μ	MAX-V	LINEARITY
	rako	*	*		
	ráko	*			
☞	raok		*		*
	rak		*	*	


Pass 2

ráko no longer in candidate set; more than one step away from raok:

raok	HEAVYFINAL	STRESSPENULT- μ	MAX-V	LINEARITY
ráko	*			*
raok		*		*
rak		*	*	
 raók				

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raok	HEAVYFINAL	STRESSPENULT- μ	MAX-V	LINEARITY
ráko	*			*
raok		*		*
rak		*	*	
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Note: raók will win forever, since it violates none of the relevant constraints.



A Slightly More Complex Example

Examination of a somewhat more elaborate example reveals, in our view, just how much more straightforward a more stratal approach is to the phenomena in question.

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Rotuman has a process whereby *stressed* **a** is realized as **æ** before a following **e**, as can be seen when the word /pare/ surfaces before the clitic directional /=**me**/:

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- /pare-me/ → [pærem] ‘to defend in this direction, hither’

No such fronting is found when an unstressed /a/ precedes an /e/:

- /tapene/ → [tapén] ‘what sort of’
- /halea/ → [haléa] ‘to turn over on one’s back so as to lie face upwards’



æ-formation and opacity, case 1

Opaquely, when unsuffixed, /pare/ surfaces without the e-trigger, but æ-formation takes place nevertheless:

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Opaquely, when unsuffixed, /pare/ surfaces without the e-trigger, but æ-formation takes place nevertheless:

- /pare/ → [pár] ‘defend’

æ-formation and opacity, case 2

Also opaquely, when the stem /pare/ is suffixed by the ‘gerundial’ suffix /-ŋa/, we find a stress-shift, such that the relevant /a/ is no longer stressed, but æ-formation takes place nevertheless:



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- /pare-ŋa/ → [pæɾɛ́aŋ] ‘defending’

Suffixation and Stress-Shift

Note the different effects on word stress seen from combination with the nominalizing suffix /-ŋa/ (traditionally referred to as a ‘stress-shifting’ suffix, since the stress is shifted from its assumed to be original penultimate position in the stem **páre**) and the directional enclitic /-me/ ‘hither’ (traditionally referred to as a ‘stress-neutral’ suffix, because no such shift is seen):

- /pare-ŋa/ → [pæreáŋ]
- /pare-me/ → [párem]

Cliticood Tests: -me ‘hither’

It is non-stress shifting (Contrast **suruáŋ** ‘entrance’):

- (1) *iris súru-m*
 they enter=HITHER
 ‘they came in’

And it is a phrasal clitic (Churchward 1940: §III.31.1a):

- (2) *iris sur miji-m*
 they enter quickly=HITHER
 ‘they came in quickly’

indefinite article -t

It is non-stress shifting:

- (3) *héni-t*
woman=INDEF.ART
'a woman'

And it is a phrasal clitic:

- (4) *hæn fisi-t*
woman white=INDEF.ART
'a white woman'

‘transitive’ marker /-a/

It is non-stress shifting (contrast **futián** ‘pulling’):

- (5) *fā ta fūti-a lū ta*
 man the pulled=TR rope the
 ‘the man pulled the rope’

And it is a phrasal clitic (Churchward 1940: §III.31.1d):

- (6) *fā ta fūt lelēi-a lū ta*
 man the pulled well=TR rope the
 ‘the man pulled the rope well’

Suffixhood: -‘aki ‘causative’

It is stress shifting (contrast **súru-m** above):

- (7) *iris sur‘aki e*
 they enter-CAUS there
 ‘they caused (him) to enter there’

It is *not* a phrasal clitic (Churchward 1940 §III.31.2):

- (8) **iris sur a‘lelei-‘aki e*
 they enter well=CAUSE there
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- The non-stress-shifting ‘suffixes’ are, in fact, clitics.

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 - clitic-bearing pærem (which has misplaced stress, and whose æ is only not opaque because of this misplaced stress)
- Note that no generable form of /pare/ has both properly placed stress and non-opaque æ.

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 - páre → pær (no cliticization)
 - pæréŋa → pæreáŋ (no cliticization)
 - páre-me → párem

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 - the requirement that all relevant material be present and play a role in phonological computation throughout the derivation (which makes it difficult to meaningfully contrast stress-shifting suffixes from non-stress-shifting clitics, since both trigger phonological effects on the element to which they attach, but not the same effects)

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 - the requirement that the constraint set be the same for each layer of phonological concatenation (which makes it difficult to be faithful to ‘earlier’ stress at the postlexical level, but unfaithful to it at the word level)

- 1 A serial derivation, as noted in Hale & Kissock (1998), is required for an insightful account of Rotuman phase effects.
- 2 The limited serialism of HS seems to us to fail because of:
 - the requirement that all relevant material be present and play a role in phonological computation throughout the derivation (which makes it difficult to meaningfully contrast stress-shifting suffixes from non-stress-shifting clitics, since both trigger phonological effects on the element to which they attach, but not the same effects)
 - the requirement that the constraint set be the same for each layer of phonological concatenation (which makes it difficult to be faithful to ‘earlier’ stress at the postlexical level, but unfaithful to it at the word level)
- 3 A serial theory which does not have these 2 problems is to be preferred.

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