

Token Identity Vs. Type Identity

Michaël Gagnon
Concordia University

Raimy (2000) *The Phonology and Morphology of Reduplication*

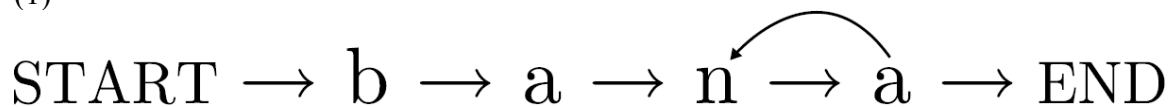
Linear Representations: The linearity of the phonological underlying representations has been implicitly assumed in the field so far, being expressed only through our left-to-right writing convention. Raimy notes that "there are non-trivial and non-derivable ordering relationships between segments in phonology."

Explicit Representations: Raimy's proposal includes explicit representations of the precedence relationships between the segments and the possibility that some underlying strings and intermediate forms be non-linear. That is, one segment may precede more than one other segment in an underlying form.

What's with the bananas?

Idsardi and Raimy 2000 (I&R) propose that the representations posited by a learner are constrained by economy considerations. If a child hears a string like the Temiar continuative [sglɔg], two possibilities are available while building the underlying representation of the string. Either the two segments [g] perceived in the string correspond to different tokens of the same type, or they correspond to the same token in the input representation. The analysis of Temiar proposed by I&R leads to the conclusion that repetition of the same token could be the answer in this case, assuming that the child receives no contradictory input---there would be just one underlying /g/ in this form. They further propose that if this type of hypothesis is available, then it must be possible for the learner to represent words with a common sub-sequence as instances of reduplication, even in a language that does not make use of reduplication for morphological purposes. The English word *banana* is given as an example.

(1)



Here the link from the last instance of <a> corresponds to a loop of the type used for reduplication. I&R suggest that other considerations such as metrical information (stress assignment in the given example) would influence the learner in his learning strategy.

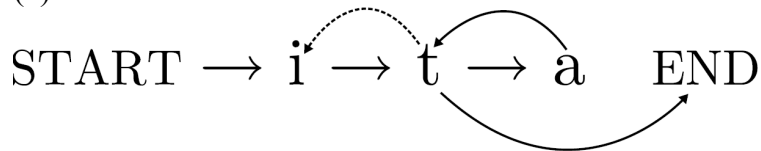
The Predictions

Such a proposal makes predictions about languages that show overapplication and underapplication of phonological processes in reduplicated forms. Take for instance the following hypothetical surface forms: [imat], [itat]. The representation of the first poses no problem to the learner in regards to the identity of the segments. In the case of the second, the form [itat] could contain two instantiations of the same token or two different tokens of the same type [t]. If a form like this undergoes full reduplication, then the output either instantiates four tokens of a single underlying /t/, or else two pairs of tokens, each of two different underlying /t/s. This distinction will be relevant in cases of overapplication, since full economy of representation predicts that all four surface [t]s could be affected by the same rule, even if only one of them appears in the correct environment.

Suppose a language L has total reduplication as well as an overapplying rule that assibilates $t > \text{t}^s$ before i ; then the reduplicated form /itatitat/ would be predicted to surface in L as [itat^sitat^s], if the two root /t/s are different, but as [it^sat^sit^sat^s] if the four surface [t]s are underlyingly the same segment (token identical).

Furthermore, notice that the form [it^sat^sit^sat^s] derived from an underlying representation that contains a single token of /t/ would not actually surface as such according to the *completeness* principle (Fitzpatrick 2006b), but as [it^sit^sat^s].

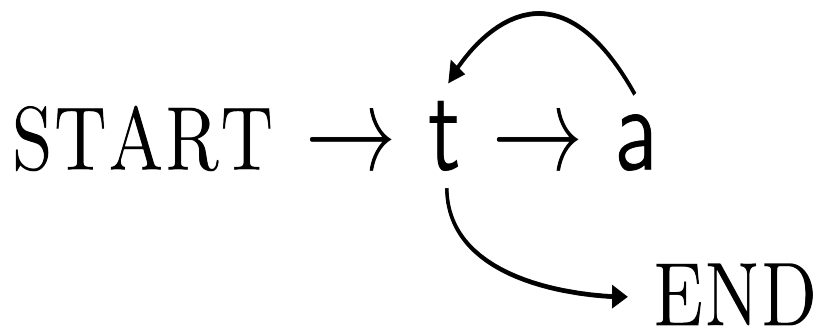
(2)



Overapplication and Underapplication in Cases of Allophony

A model which allow for economy of representation by the presence of non-linear strings in the lexicon makes further predictions. It predicts overapplication and underapplication of allophony rules in non-reduplicated forms. For instance, suppose a language L_1 which has a rule that aspirates voiceless stops in the onset of stressed syllables. Suppose further that L_1 has an underlying string /tat/, where both instantiations of /t/ are indeed token identical.

(3)



The model predicts that both instantiations of [t] in the surface form will be aspirated; [t^hat^h], or that neither will be; [tat] Also, the following distributions are expected.

(4) Overapplication

t ^h at ^h	p ^h at	k ^h at
t ^h ap	p ^h ap ^h	k ^h ap
t ^h ak	p ^h ak	k ^h ak ^h

(5) Underapplication

tat	p ^h at	k ^h at
t ^h ap	pap	k ^h ap
t ^h ak	p ^h ak	kak

Potential Evidence

In Manam (Austronesian) a pattern of rightward bimoraic reduplication can be found. It is proposed to create « the adjectival forms, agentives, and 'continuative, progressive, persistent' aspects of verbs. » (Fitzpatrick, idem)¹

(6)

salaga 'be long'	salaga-laga 'long (sg.)'
malipi 'work'	malipi-lipi 'work (cont.)'
mo.ita 'knife'	moita-ita 'cone shell (knife-like)'
dara 'blood'	dara-dara 'red (blood-like)'
ʔarai 'ko ginger'	ʔarai-rai 'green (the color of ʔarai leaves)'
zama 'tomorrow'	zama-zama 'pertaining to tomorrow'
pile 'speaker'	pile-pile 'speaker'
malaboŋ 'flying fox (generic)'	malabom-boŋ 'ko flying fox'
ʔulan 'desire (vb.)'	ʔulan-laŋ 'desirable'

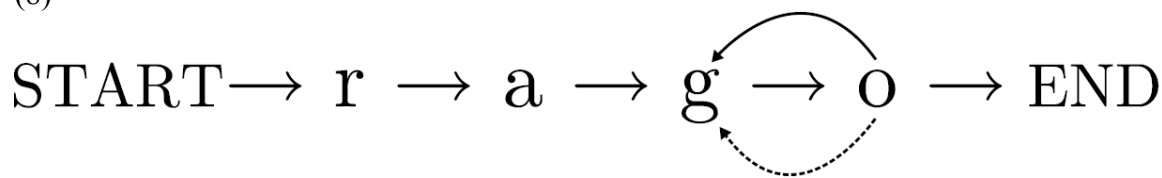
¹ The data is taken from Fitzpatrick (*to appear*)

But the process applies differently to a certain type of stems.

(7)

ragogo ‘be warm’	ragogo-go ‘warm’	*ragogo-gogo
ʔoʔo ‘be plentiful’	ʔoʔo -ʔo ‘many, much’	*ʔoʔo-ʔoʔo
rere ‘like’	rere-re ‘like <i>contin.</i> ’	*rere-rere
lele ‘look for’	lele-le ‘look for <i>contin.</i> ’	*lele-lele
wawa ‘discolored skin’	wawa-wa ‘white’	*wawa-wawa

(8)



Productive Morphology or Lexical forms?

One quick look at this set of data can raise some questions pertaining to the status of these forms. One such question highly relevant to the present issue would be whether the present patterns of reduplication are of a productive nature. Alternatively these forms could be lexicalised.

Take for instance the forms [malipi] “work” and [ʔulan] “desire (vb.)” which are both verbs in their non-reduplicated forms. If it turns out that no other glosses than those provided exist for their reduplicated forms, it would imply that the same process applied to both these verbal forms yield in one case a “continuative”, [malipi-lipi] “work (cont.)”, and in the other case an adjectival form, [ʔulan-laŋ] “desirable”. Also taking the forms [wawa] “discolored skin” in (7) and [malaboŋ] “flying fox (generic)” from (8) we would have to assume that the same pattern of reduplication applied to nominal forms sometimes yield an adjectival form, [wawa-wa] “white”, and sometimes yield another nominal form, [malabom-boŋ] “k.o. flying fox”. Even though homophony in morphemes is possible, and thus could account for the discrepancy relative to these forms; a closer look at the data provided in Lichtenberk (1983) raises our suspicion. Other forms which undergo trimoraic reduplication are to be found in the same distribution. Furthermore, Lichtenberk never refers to the possible productivity of one pattern. Thus, even though the forms proposed by Fitzpatrick (*to appear*) are possible, their productive status is yet to be proven. Hence, it becomes clear that Manam does not provide us with a knock-out argument in favour of economy of representation.

Potential Problems in Linearization

If we allow for the presence of non-linear strings in the lexicon the impact on the linearization procedure is non-negligible. As we've argued elsewhere, the recency principle must be part of the linearization algorithm in order to account for subtractive morphology. This principle would also ensure the proper linearization of forms that became non-linear after morphological transformations. Yet, it would not account for the proper linearization of lexical non-linear strings. In such cases, a principle like "completeness" would be required. However, this principle would be justified solely by such forms and would ultimately involve multiple linearizations and the evaluation of the competing strings. This sort of complexification of the theory would, in our opinion, require further theoretical or empirical support, and until it is convincingly argued for, we suggest that, following Occam's razor, the non-linear lexical form hypothesis, that is “economy of representation”, should be rejected.

REFERENCES

- Chomsky, Noam and Morris Halle 1968. The Sound Pattern of English. New York:Harper&Row.
- Fitzpatrick, Justin and Andrew Nevins 2006a. Phonological Occurences: Relations and Copying. To appear.
- Fitzpatrick, Justin. A Concatenative Theory of Possible Affix Types. To appear in A. Salanova (ed.), *Papers from EVELIN I*, MIT Working Papers in Linguistics.
- Fitzpatrick, Justin 2006b. Sources of Multiple Reduplication in Salish and Beyond. In Shannon T. Bischoff , Lynnika Butler, Peter Norquest, and Daniel Siddiqi (eds.), *Studies in Salishan*, MIT Working Papers on Endangered and Less-familiar Languages 7, 211-240.
- Gillon, Brendan 2006. Sets, Orders and Lattices, to appear.
- Hale, Mark and Charles Reiss 2000a. Phonology as Cognition. In *Phonological Knowledge: Conceptual and Empirical Foundations*, N. Burton-Roberts, P. Carr & G. Docherty (eds.) Oxford University Press. 161-184.
- Hale, Mark and Charles Reiss 1998. Formal and Empirical Arguments Concerning Phonological Acquisition. *Linguistics Inquiry*, Volume 29, Number 4: 656-683.
- Idsardi, William and Eric Raimy 2000. Reduplicative Economy. Ms. University of Delaware.
- Lichtenberk, Frantisek 1983. A Grammar of Manam. University of Hawaii Press.
- McCawley, James D. 1979. On the Role of Notation in Generative Phonology. in *Adverbs, Vowels, and Other Objects of Wonder*. University of Chicago Press.
- Raimy, Eric 2000a. The Phonology and Morphology of Reduplication. Berlin: Mouton de Gruyter.
- Raimy, Eric 2000b. Remarks on Backcopying. *Linguistics Inquiry* 31: 541-552