Correspondence in Temiar: No Need for Long-Distance Spreading Here

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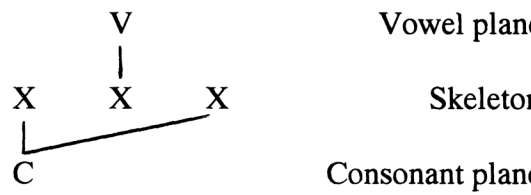
1 Introduction

Current phonological theory claims that in some languages, typically those with nonconcatenative morphology, a configuration such as C_iVC_i, where the two consonants are identical, may result because the familiar autosegmental operation of spreading applies to spread the root of a single underlying consonant to the two C positions. Spreading proceeds unobstructed from the intervening vowel by putting vowels and consonants on different planes, as shown in (1). The corresponding representation is known as V/C planar segregation (McCarthy 1989). V/C planar segregation is necessitated by the assumption that the identity of the two consonants is the result of spreading. Because spreading is always local, nothing may intervene between target and trigger in the representation.

1. V/C planar segregation



The biplanar representation, however, faces two embarrassing problems. First, since by segregation on a different plane the two consonants are made adjacent, this representation predicts other types of assimilations which are found in language after language between adjacent consonants. I have in mind cases such as voicing assimilation (/pad/ → [bad]) or place assimilation (/nap/ → [map]). However, these types of spreading are attested in neither concatenative nor nonconcatenative languages (Clements 1985). Second, two distinct mechanisms are available

by which languages create copies of segments. These are long-distance spreading, and of course, reduplication. In some languages (e.g. Arabic, Temiar), to account for the different patterns of copying, it has even been necessary to assume that both mechanisms are at work. However, cross-linguistic patterns of copying show that both long-distance spreading and reduplication serve to fill empty positions in a prosodic template usually supplied by the morphology. Thus these two operations apply under identical conditions. This similarity between long-distance spreading and reduplication is simply ignored, not explained, by the current theory.

In light of these observations, this paper reexamines long-distance consonantal spreading in Temiar, a language where it appears necessary to assume that both reduplication and long-distance consonantal spreading are necessary. My proposal will be that the operation of long-distance consonantal spreading is unnecessary, because it can be reduced to the same formal mechanism used for reduplication. Eliminating long-distance consonantal spreading obviates the need for the biplanar representation in (1). Formally, there is nothing particular to the 'nonconcatenative' morphology of Temiar which distinguishes it from other 'concatenative' languages (representationally, as in biplanarity, or operationally, as in long-distance spreading). This result also agrees with Archangeli & Pulleyblank (AP), who argue that 'gapped' configurations, such as that of (1) are universally prohibited (AP 1994).

The analysis crucially assumes the framework of Optimality Theory (OT) of Prince & Smolensky (PS) (PS 1993). It also assumes Correspondence Theory of McCarthy & Prince (MP) (MP 1994a,b), a recent development in the OT framework. Correspondence constraints so far have been used successfully to capture the cross-linguistic facts of reduplication. This paper shows that the same notion of correspondence can be extended to root-and-pattern systems. Consonantal copying, previously analyzed as long-distance consonantal spreading, follows from a correspondence constraint holding between the segments of the output and the segments of the morphological base.

2 Theoretical Framework

I begin with a brief and necessarily incomplete characterization of OT. In OT thinking, Universal Grammar (UG) consists of a set of well-formedness conditions or *constraints*. The output of phonology is not constructed by a step-by-step application of rules. Instead, given an input form, the grammar first generates a set of *candidate* outputs. This candidate set, which must be large enough to contain the correct output, is then evaluated by the constraints. The output of the grammar is the candidate that best satisfies the constraints, called the *optimal* candidate. The set of constraints, the function that generates all candidates (GEN) and the evaluation procedure (EVAL) are all assumed to be fixed parts of the architecture of UG.

Grammars of particular languages are constructed by ranking the universal constraint set. Constraints are ranked whenever they are in conflict. Let us assume the mini-grammar of two constraints, A and B. Assume also that an underlying form *ur* gives rise via GEN to two candidate forms, $cand_1$ and $cand_2$. Candidates may not always satisfy all the constraints. One possible state of affairs is shown in tabular form in (2a). Violation of a constraint is marked by "*", and satisfaction by a blank cell. $Cand_1$ violates B but satisfies A, and $cand_2$ violates A but satisfies B. If $cand_1$ is the correct output (the surface form) associated with the input *ur*, then A must be ranked higher than B ("A dominates B" or A >> B). The symbol "!" means that the violation of the constraint is fatal, i.e. the candidate is not the winner, and "☞" indicates the winning candidate.

2. a. A >> B

Candidates	A	B
☞ $cand_1$		*
$cand_2$	* !	

b. B decides

Candidates	A	B
$cand_1$	*	*
☞ $cand_2$	*	

Evaluation of candidates is based on the ranking of the constraints, and proceeds recursively, as follows. In the first step, it compares the candidates' performance at the highest constraint.

If this step fails to decide, it evaluates with respect to the rest of the hierarchy. For example, using the established constraint ranking, (2b) depicts a case where both candidates violate A. In this case, A fails to decide which candidate is the optimal one, and evaluation proceeds to the next lower constraint, B. Here, $cand_2$ is the optimal one, because $cand_1$ violates B but $cand_2$ does not.

Building on MP (MP 1994a,b), I will also assume that Input and Output pairs are related by a *correspondence* relation. There are two basic constraints on the correspondence relation.

3. The Max and Dependence constraints

MAX^{IO}: Every segment of the Input has a correspondent in the Output.

DEP^{IO}: Every segment of the Output has a correspondent in the Input.

MAX^{IO} essentially bans phonological deletion and DEP ^{IO}bans epenthetic segments. A similar pair of constraints governs the Base-Reduplicant relation. The root-and-pattern morphology of Temiar necessitates an extension to correspondence theory. Correspondence constraints can also make reference to the morphological Base. The correspondence relation holds between segments of the Base and segments of the Output[1].

3 Temiar Verbal Morphology

Temiar [tmɛ:r] belongs to the Senoic group of Mon-Khmer languages (Benjamin 1976, Diffloth 1976). The Northern dialect of Temiar, the main subject of Benjamin's study, is spoken by an *Orang Asli* population in the Betis and lower Perolak valleys of the Kelantan region in Malaysia. The morphology of this language is notorious for its complexity, exhibiting about twenty-two patterns of intricate affix and copy combinations. For reasons of space, I will concentrate on four patterns in the verbal active aspectual paradigm, sufficient to illustrate the main point of this paper. A detailed analysis of Temiar verbal morphology is presented in my dissertation (Gafos 1996).