Dorsal dissimilation and harmony in Mayan languages

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The notion of surface correspondence was originally formulated as a model of long-distance consonant harmony under the rubric of *Agreement by Correspondence* (ABC; Hansson 2001, Rose and Walker 2004). Later, it was extended to a model of long-distance consonant dissimilation in the *Surface Correspondence Theory of Dissimilation* (SCTD; Bennett 2013). This poster presents an analysis of comparative data from Mayan languages where both harmony and dissimilation arise from the same type of phonological environment in different languages. I argue that the data strongly supports the treatment of harmony and dissimilation within the same theoretical framework.

In ABC and SCTD, surface correspondence serves as the structural basis for long-distance consonant interaction. It is established between two consonants in the output string, provided that the similarity between the consonants is equal or higher than the threshold defined by relevant Corr constraints. Once two consonants are in a surface correspondence relationship, they become subject to other constraints, including, but not only limited to, Ident-CC constraints; what SCTD refers to as CC-Limiter constraints. Under a surface correspondence relationship, harmony happens when the input string is changed in a way that satisfies Corr and Ident-CC constraints. By contrast, dissimilation happens when the input string is changed in a way that avoids the establishment of the surface correspondence relationship. Therefore, ABC and SCTD predict a typology where harmony and dissimilation may arise in the same phonological environment depending on the ranking of relevant constraints (1a and 1b).

(1a) Corr[F], Ident-CC[G], **Ident-IO[F]** >> **Ident-IO[G]** = Harmony in [G]
(1b) Corr[F], Ident-CC[G], **Ident-IO[G]** >> **Ident-IO[F]** = Dissimilation in [F]

The crucial difference between (1a) and (1b) is the ranking of Ident-IO constraints. If a language tolerates the unfaithful IO mapping of the features that are referred to by Ident-CC constraints, harmony may happen (1a). If a language tolerates the unfaithful IO mapping of the features that are referred to by Corr, dissimilation may happen (1b).

In this poster, I present comparative data from Mayan languages where such a typological diversification is actually observed. In some Mayan languages, velar stops diachronically became palatalized when they occurred before a non-round vowel followed by another dorsal consonant (Campbell 1974, 1977). In Mam, velar stops /k, k'/ became palatalized /kʲ, kʲ'/ before /a/ followed by a uvular stop /q, q'/ (3a, 3b) or a velar fricative /x/ (3c) (England 1983, Kaufman and Justeson 2002). Campbell (1947, 1977) speculates that this kind of velar palatalization in Mayan languages is a dissimilation that is motivated to reduce the difficulty of producing similar consonants one after another.

	Proto-Mayan	Mam	Gloss
(3a)	*kaq	kʲaq	red
(3b)	*iʃk'aq	ʃkʲ'aq	nail

(3c) *kaʔnh kʲaʔx sky

In other Mayan languages like San Carlos Alzatate Pokomam,velar stops /k, k'/ harmonize to the following uvular stops in the same type of phonological environment (Campbell 1974, 1977).

	Proto-Mayan	Pokomam	Gloss
(4a)	*kaq	qaq	red
(4b)	*k'aq	q'aq	flea
(4c)	*iʃk'aq	iʃq'aq	nail

Here, it is crucial that both dissimilation and harmony arise from the same type of phonological environment, the co-occurrence of dorsal consonants. I argue that ABC and SCTD clearly capture the systematic difference between Mam and Pokomam. With traditional feature specifications for dorsal consonants (Palatalized velar: {+high, -low, -back}, Velar: {+high, -low, +back}, Uvular: {-high, +low, +back}(c.f. Chomsky and Halle 1968)), I propose two constraint rankings for Mam dissimilation and Pokomam harmony. In both languages, Corr[+back] constraint requires a surface correspondence relationship between a subset of dorsal consonants, velar and uvular, and Ident-CC[high] and Ident-CC[low] constraints require feature agreements between the correspondents. In Mam, Ident-IO[back] constraint is ranked lower than Ident-IO[high] and Ident-IO[low] constraints, and the correspondence is avoided by changing the [back] feature specification or changing velar to palatalized velar (5). By contrast, in Pokomam, Ident-IO[high] and Ident-IO[low] constraints are ranked lower than Ident-IO[back] and the feature agreements are achieved by changing the [high] and [low] feature specifications or changing velar to uvular (6).

(5) Corr[+back], Ident-CC[high], Ident-CC[low], Ident-IO[high], Ident-IO[low]>>IdentIO[back]
(6) Corr[+back], Ident-CC[high], Ident-CC[low], Ident-IO[back]>>IdentIO[high], IdentIO[low]

The mini factorial typology presented here supports the prediction made by ABC and SCTD and the treatment of harmony and dissimilation within the same theoretical framework. However, there still remain some questions about the data. For example, the data presented here are about diachronic changes. ABC and SCTD provide a powerful tool to analyze the difference between the synchronic phonological grammars of Mam and Pokomam. However, in order to understand the nature of the diachronic changes, the question of how the diversification happened needs to be answered.

References

Bennett, W. G. (2013). Dissimilation, consonant harmony, and surface correspondence. Rutgers University dissertation. Campbell, L. (1974). Quichean palatalized velars. IJAL, 40, 132-134. Campbell, L. (1977). Quichean linguistic prehistory. U.C. Press. Chomsky, N., and Halle, M. (1968). The sound pattern of English. Harper & Row. England, N. C. (1983). A grammar of Mam, a Mayan language. U.T. Press. Hansson, G. Ó. (2001). Theoretical and typological issues in consonant harmony. U.C. Berkeley dissertation. Kaufman, T., and Justeson, J. S. (2002). A preliminary Mayan etymological dictionary. FAMSI. Rose, S., and Walker, R. (2004). A typology of consonant agreement as correspondence. Language, 80, 475-531.