UM infixation and paradigmatic gaps in Thao

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The morpheme *UM* (usually marking actor voice [AV]) in the Austronesian language family has been widely discussed in previous literature (Prince & Smolensky 1993/2004, Orgun & Sprouse 1999, Klein 2005). *UM* most often appears as an infix; however, with respect to stems that contain labial consonants, this infix patterns differently. In this paper, I investigate the behavior of *UM* in Thao, an Austronesian language spoken in central Taiwan, and the appearance of gaps related to this morpheme.

Five realizations of *UM* in Thao are documented by Blust (2003): infix *-um-* in stems beginning with two consonants ([t-um-qir] *'protest'*), infix *-m-* in stems with a single consonant ([t-m-iuð] *'to comb'*), prefix *m-* in /ð, r, l/ initial stems ([m-riqas] *'see'*) and vowel initial stems ([m-uʃa] *'go'*), coalescence in /p/ initial stems (/UM, pataʃ/→[mataʃ] *'write'*), and no realization of the morphological category in /ʔb, ʔd, f, m/ initial stems (/UM, fariw/→ **gap** *'buy'*). I argue that several phonological processes are involved in determining the different realizations of this morpheme, including the preference for words containing a single foot and the requirements of sonority sequencing in syllable onsets. As for the cases in which the morphological category formed with affixing *UM* is simply not realized, I argue that this is a paradigmatic gap caused by a phonological restriction, the avoidance of two adjacent labials on the consonantal tier.

The appearance of gaps in Thao seems to be more complicated if the following facts are considered. The appearance of gaps triggered by the OCP effect only targets *UM* concatenation; other morphemes with labials do not trigger gaps. Also, only stem-initial consonants trigger gaps in Thao while other labials in a stem do not.

The first fact is that the appearance of gaps is morpheme specific. If we compare *UM* with the prefix *ma-*, which marks stative actor voice, when both *UM* and *ma-* concatenate to the same root, a gap occurs with the former but not with the latter (see (1)). It is clear that a markedness constraint (here, OCP-L) should apply equally to any marked structures. However, the marked structure created by *ma-* is accepted, but the one created by *UM* is left unformed. In comparing the two marked structures, we see no difference aside from the order of the two labials. The realization of *ma-* on a given stem seems to be of high priority than realization of *UM*. I adopt Rice's (2005) MAX{CAT} constraints, which require the realization of certain morphological categories, set within an Optimal Paradigms approach to deal with this problem. Within a paradigm, if both markedness constraints and faithfulness constraints rank higher than constraints that require the expression of a certain morphological category, then the grammar chooses a gap over realizing the morphological category. In Thao, the requirement of realizing *ma-* (MAX{STATIVE-AV}) ranks higher than markedness constraints and faithfulness constraints while the requirement of realizing *UM* (MAX{DYNAMIC-AV}) ranks lower than both (see (2)).

The other fact is that the OCP effect is restricted to stem-initial consonants. I propose, following Beckman (1997), that this restriction is due to the special status of the stem/root-initial consonants: stem/root-initial positions are stronger positions. Adopting Walker's (Walker 2000) segmental correspondence (as opposed to feature spreading) and Taylor's (2008) further extension of this approach, I suggest that there is a correspondence between a segment in a strong position, here the initial consonant, and an adjacent sound bearing the same feature. I use a positional correspondence constraint Corr-$\sigma_1 \leftrightarrow$C (see (3)) to establish the correspondence between the stem-initial segment and its adjacent segments. This specific Corr-$\sigma_1 \leftrightarrow$C constraint and OCP-L rank higher than the general Corr-C$\leftrightarrow$C (see (4)); thus, only stem-initial segments and the labial in *UM* are subject to OCP-L.

This paper investigates the different behaviors of *UM* in Thao, especially the appearance of gaps. To account for the specificity of the appearance of gaps, different MAX{CAT} constraints are proposed, MAX{STATIVE-AV} and MAX{DYNAMIC-AV}; the MAX{CAT} constraints flank a markedness constraint (OCP-L). This ranking of MAX{CAT} constraints with markedness/faithfulness constraints adds another

typological prediction to Rice's proposal. For initial/non-initial asymmetry, a positional correspondence constraint is suggested to ensure the stem-initial segment is in correspondence with its adjacent segment.

(1) *Ma-*/-*UM*- asymmetry

Root	*ma-*		*UM*	
$^{?}$braq	**m**a-$^{?}$**b**raq	*'having a hole'*	**gap**	(*$^{?}$b-um-raq/*$^{?}$b-m-raq)
fariw	**m**a-**f**ariw	*'buy'*	**gap**	(*f-um-ariw/*f-m-ariw)

(2) *Ma-* and *UM* affixation

fariw *'buy'* /<*UM*>, fariw / /*ma*, fariw /	MAX{STATIVE-AV}	OCP-L	MAX{DYNAMIC-AV}
a. f-um-ariw ma-fariw		**!**	
b. f-um-airw	*!	*	
☞ c. ma-fariw		*	*
d.	*!		*

MAX{STATIVE-AV}   'Realize the expression of the stative actor voice morpheme *ma-*.'
MAX{DYNAMIC-AV}   'Realize the expression of the dynamic actor voice morpheme *UM*'

(3) Corr-$\sigma_1 \leftrightarrow$C (cf. Rose & Walker 2004)

Let S be an output string of segments and let C_i, C_j be segments that share a specified set of features F. If C_i, $C_j \in$ S, and C_i is in stem-initial position, then C_i is in a relation with C_j; that is, C_i and C_j are correspondents of one another.

(4) Corr-C$\leftrightarrow$C (cf. Rose & Walker 2004)

Let S be an output string of segments and let C_i, C_j be segments that share a specified set of features F. If C_i, $C_j \in$ S, then C_i is in a relation with C_j; that is, C_i and C_j are correspondents of one another.

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