When Target Positions and Licensors Converge

A key issue in the study of vowel harmony is the role of positional privilege. Vowels in prominent positions (e.g. initial, stressed) are frequently granted a special status in their function as triggers or targets. A recent proposal posits positional faithfulness as the source of privilege in prominent locations. This approach has been applied to cases where prosodically-strong positions display a unique triggering role (Beckman 1997, 1998). In these instances the feature specification in the prominent position is consistently preserved. I focus here on the complementary set of cases where the target vowel resides in a prosodically-strong site, that is, where a prominent position exhibits alternations via attraction of features from weak positions. Positional faithfulness is not capable of explaining these phenomena, because it makes the contrary prediction that strong positions will resist change.

I argue that targeting of strong positions comes about through the activity of positional licensing constraints for features (building on Zoll 1997a,b, Piggott 2000). Such constraints express positional markedness requirements by calling for the affiliation of features with prosodically-strong sites. I propose that all feature specifications are subject to licensing; however, these constraints are violable, and their conflict and interplay with other phonological requirements can produce different outcomes.

Two interesting effects seen in vowel height harmonies are analyzed here: (i) emergent licensing of only unmarked feature specifications (Veneto), and (ii) licensing of marked specifications (Esimbi).

Metaphony involves a strong position (stressed) taking on a featural property of a weak position (unstressed affix), a distribution diagnostic of positional markedness. I propose that metaphony is driven by licensing constraints, such as that in (2) (adapted from Zoll 1997b).

(2) LIC(high, $\mathfrak{s}$): “[high] is licensed by stressed syllables”

Let h be a specification of the feature [high], $\mathfrak{s}$ be a mora belonging to strong position $\mathfrak{s}$, and $s\mathfrak{h}$ mean that $s$ dominates h. For an output $O$, if $h \in O$ and $s \in O$, then $=(h)(\exists s)[s\mathfrak{h}]$.

It is widely accepted that [+high] is less marked than [-high]. The metaphony patterns indicate that [+high] is subject to licensing, i.e. licensing is not limited only to marked specifications. Since licensing preferentially targets marked structures in many languages (Zoll 1997a,b), I assume the fixed hierarchy: LIC(-high) >> LIC(+high), i.e. licensing of less marked features implies a licensing requirement for more marked ones. In the metaphony pattern, a competing higher-ranked constraint neutralizes the force of LIC(-high, $\mathfrak{s}$), leaving only the activity of LIC(+high, $\mathfrak{s}$) to emerge.

Assimilation to marked features is blocked in metaphony. Following Baković (2000), the restriction of assimilation to unmarked specifications is obtained via local conjunction of markedness and faith. The relevant constraint is *[-high] & IDENT-IO(high): “An output segment must not be [-high] if its input correspondent is not [-high]”. A mark is incurred if both *[-high] and IDENT-IO(high) are violated in a single segment (the smallest evaluable domain). The intuition is that it is worse to acquire a marked specification in the output than to have that property by virtue of faithfulness to an input.

The ranking is summarized in (3). Since licensing for [+high] can produce alternations in stressed syllables, LIC(+high) must outrank IDENT-IO(high), as in (3a) (consonants are omitted). The conjoined constraint blocks assimilation to [-high]; hence it must supercede LIC(-high), as seen in (3b).

(3) a. $/e \cdot i/$ | *[-hi] & IDENT-IO(ghi) | LIC(-high, $\mathfrak{s}$) | LIC(+high, $\mathfrak{s}$) | IDENT-IO(high)

| $\mathfrak{e}\mathfrak{\epsilon}$ | i | i | |- | *
| e | i | | |- | *

b. $/i \cdot e/$ | *[-hi] & IDENT-IO(ghi) | LIC(-high, $\mathfrak{s}$) | LIC(+high, $\mathfrak{s}$) | IDENT-IO(high)

| $\mathfrak{e}\mathfrak{\epsilon}$ | i | e | |- | *
| e | i | | |- | *
| e | e | | |- | *
The leftward direction of spreading is captured by a constraint that aligns the right edge of a domain for [high] to a faithful position—a member of the “basic-alignment” constraint family discussed by Cole & Kisseberth (1994). This constraint is need to rule out outcomes such as /i • e/ -> *[i • i]. I posit that [ɛ, a, ɔ] are excluded as targets because raising would entail changing their [-ATR] specification to [+ATR]. I attribute this outcome to IDENT-IO(ATR) >> LIC(+high, ə).

Metaphony in Veneto presents a case where height licensing requirements interact with conflicting demands in the system to produce a harmony that is limited to the unmarked specification. In contrast, Esimbi presents a pattern where marked height features migrate to a prosodically-strong position—the word-initial syllable. Examples of the resulting variations in the height of the infinitive prefix are seen in (4). Stallcup (1980a,b) and Hyman (1988) have demonstrated that a three way height constraint originates in the root. The marked nonhigh height features transfer to the initial syllable in the output, and vowels in noninitial syllables are neutralized to the unmarked specification [+high]. The infinitive prefix is thus fixed as [Round] and [+back], but gains its height specification via feature transfer.


As expected, a given root will produce the same height across all attaching prefixes. For example, the class 7/8 number prefixes are realized as high with the noun meaning ‘bone’: [ki-ku] (sg.), [bi-ku] (pl.), but they are mid with the noun meaning ‘bundle’: [ke-hi] (sg.), [be-hi] (pl.). Data of this kind provide compelling evidence for a structure in which the marked height features are affiliated with the root underlyingly but are shifted to the word-initial syllable (usually a prefix) in the output.

Like the metaphony case, Esimbi height transfer displays the hallmarks of a phenomenon driven by positional markedness constraints: features are guided to a prominent position in the word. Because the prominent position displays alternations, positional faithfulness is not indicated, in other words, this is another instance depicted by Positional Markedness >> Positional Faithfulness.

For the Esimbi analysis I again call on [high] licensing constraints. The licensing position here is the word-initial syllable: LIC(-high, w[σ]) >> LIC(+high, w[σ]). In order for licensing to produce an alternation, LIC(-high, w[σ]) must outrank IDENT-IO(high) (compare first two candidates in (5)). The licensing of marked root height features by transfer to the prefix rather than deletion signals the activity of MAX_Rt(high) in Esimbi. In particular, MAX_Rt(high) and LIC(-high) together dominate MAX_Af(high) (see (5)). The separation of root and affix faith has considerable foundation (e.g. McCarthy & Prince 1994, Urbanczyk 1996), and the extension of correspondence to features is supported by a growing body of work (e.g. Orgun 1995, Lombardi 1995, Causley 1996, Zoll 1997a; note also McCarthy & Prince 1995, 1999). Esimbi presents a case where preservation of individual features, regulated by MAX-(F), is prioritized over featural identity in their sponsoring segments.

(5) | /u - se/ | MAX_Rt(high) | LIC(-high, w[σ]) | MAX_Af(high) | IDENT-IO(high) |
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In contrast to Veneto, Esimbi disallows features from simultaneous linkage to weak and strong positions (/u-se/ -> *[ose]). I attribute the avoidance of these structures to CRISP(σ, [high]), which bans [high] from linking across a syllable boundary (Noske 1997, Itô & Mester 1999, Walker 1999). The neutralization of noninitial vowels to [+high] then follows from LIC(-high) >> LIC(+high). If [high] in a noninitial syllable in the output cannot be licensed via association to the initial syllable, then it will change to the least marked specification in order to best satisfy the licensing hierarchy.

In sum, this account finds that positional privilege for targets in vowel harmony is diagnostic of a licensing imperative. It also finds that apparent markedness reversals in licensing follow straightforwardly from optimality-theoretic constraint interaction, without denying universal markedness hierarchies. This study adds to the growing delineation of prominence-based phenomena that necessitate a positional markedness approach (e.g. Zoll 1997a,b, Féry 1998, Piggott 2000, note also Kager 1999), and it must provoke further investigation into the extent to which patterns previously analyzed as positional faithfulness can (or cannot) be subsumed under positional markedness instead.