The Transparency of Contrastive Segments in Sibe: Evidence for Relativized Locality
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The advent of the theory of Strict Locality has brought into focus the question of whether phonological operations are concrete—in this case, able to spread through intervening segments (1a)—or abstract (1b). Strict Locality does allow seemingly non-local interactions in cases where intervening segments are not contrastive for the spreading feature (cf. McCarthy 2002:24 on Finnish harmony), but it specifically predicts the non-existence of processes that spread a feature through a segment that is contrastive for that feature. Relativized Locality (1b), on the other hand, predicts such processes to be possible under tightly constrained conditions, specifically with rules sensitive only to marked feature specifications.

The Tungusic language Sibe supports the latter prediction in a striking way: velar segments become uvular as a consequence of [-high] spreading from anywhere in the word, but this spreading affects no other intervening segments, not even vowels that are contrastive for [high]. When spreading is analyzed in terms of a structural description and structural change that can be parametrically visible to only marked features (Calabrese 1995), Sibe uvularization receives a satisfactory analysis, one with independent support from formally identical processes including Russian voicing assimilation and Tigrinya rounding harmony. Under the rubric of Strict Locality, in contrast, Sibe uvularization cannot be modeled, even with the addition of extra levels of representation (pace Walker 1999, Ní Chiosáin and Padgett 2001), because there is no formal means available by which to avoid neutralization of the intervening segments.

Sibe has a two-height vocalic inventory (2). Li 1996 shows that the [+high] dorsal segments /k/ and /x/ become [-high] uvulars [q] and [χ] when preceded anywhere in the word by a [-high] vowel (3). In (3b), the suffixal dorsal consonant in the word for ‘long’ becomes uvular by virtue of being preceded by the [-high] vowel ö; contrast this with (3d), where the same suffix surfaces with a k, because it is not preceded by a [-high] vowel. This type of uvularization can be analyzed as spreading of [-high] (4b). Given the vowel system in (2), though, we might expect that spreading [-high] from, for example, ö to the suffixal consonant, should cause the intervening i to become its [-high] counterpart e. However, vowels between a [-high] vowel and a uvular do not become [-high], as (3b-c) show.

We argue that processes of this type are best treated in the theory of visibility developed in Calabrese 1995. Features are specified as marked or contrastive, based on the structure of the phonemic inventory and distributional constraints within a given language. Rules and constraints are then indexed to these distinctions; thus, a rule can be sensitive to contrastive, marked, or all specifications for a given feature. This allows us to analyze Sibe uvularization as rightward spreading of marked [high] specifications to eligible consonants. Given the structure of the Sibe vowel inventory, we can assume that the [-high] series is marked relative to its [+high] counterpart (cf. Calabrese 1995:381 on cross-linguistic markedness of height values). Uvularization is therefore spreading of the height specification of non-high vowels, but not of high vowels. By the same token, only marked feature specifications are visible to the rule; intervening [+high] specifications are thus ignored. Important features of this analysis are in (4-5).

The relativization of spreading targets to certain values of a given feature receives independent support from Russian, in which only contrastive values of voice are visible, and Tigrinya, in which only marked values of round are visible. In Russian, phrasal voicing assimilation spreads contrastive [voice] regressively within obstruent clusters (7b), ignoring intervening non-contrastive voicing specifications (7c-d; cf. Jakobson 1956, Hayes 1984). The Tigrinya case is formally identical to Sibe, in that spreading of round fails to affect intervening dorsals (6d-e), despite the fact that the inventory contains rounded dorsals (6b). The representational apparatus offered here is sufficiently general to model the surprising cases of long distance spreading, while at the same time well-grounded in an independently verifiable theory of markedness within the inventory. Notably, no proposal within Strict Locality can capture the Sibe or Tigrinya facts, as strictly local spreading will incorrectly neutralize phonemic contrasts in intervening segments. In fact, parochial representational additions cannot model the Sibe facts, as both vowels and consonants are implicated in the spreading process. The current proposal, however, relativizes the structural change of syntagmatic processes to operate on featural markedness as defined
in abstract paradigmatic terms, without appeal to a set of putative articulatory demands that impose a locality so strict that it is blind to the formal properties of the representation, counter to fact.


\[ (\text{X} \text{B} \text{C} \text{X} \text{D} \text{X}) \]

where \( X \) = a legitimate target for the feature \( [F] \)

(2) Sibe vowel inventory (Li 1996:189)

\[
\begin{array}{llll}
[+\text{high}] & \text{\#} & \dot{\text{\#}} & \text{\#} \\
[-\text{high}] & \varepsilon & \ddot{\text{\#}} & \text{\#} \\
\end{array}
\]

(3) \( k, x \rightarrow q, \chi \) when preceded anywhere in the word by a [-high] vowel (Li 1996:201-2)

a. non-self-perceived immediate past tense -\( xi/-xu/-\chi i/-\chi u \)

b. \( G\ddot{o}lmi(n)-qin\) long not *\( G\ddot{o}lme(n)qin\)

d. \( \text{bodu-}\chi u\) ‘to consider’, \( \text{lavdu-}\chi u\) ‘to become more’, \( \ddot{o}m\ddot{i}-\chi i\) ‘to drink’

d. \( \ddot{\text{i}}ldi(n)-\text{kin}‘\text{bright}’\), \( \text{ulu-kun}‘\text{soft}’\), \( \text{ti-xi}‘\text{to sit}’\), \( \text{t\ddot{u}r\ddot{i}-xu}‘\text{to rent}’\)

(4) The Sibe Uvularization Rule:

a. **access marked feature specifications**

b. \( \text{V C} \) (by (4a), [+high] specifications are not visible to the rule)

(5) Application of rule (4) to ‘to become more’ (3c)

\[
\begin{array}{llll}
\text{l a v d u} & \text{–} & \text{x u} \\
[-\text{hi}] & \ddot{\text{\#}} \\
\end{array}
\]

(6) Tigrinya (Leslau 1941:10)

a. “by the application of vowel harmony, all vowels may assimilate to following o and \( u\)” (Leslau 1941:10)

b. inventory of (relevant) consonant phonemes (Leslau 1941:3): \( k k' g g' k' k'' \)

<table>
<thead>
<tr>
<th>( \text{UR} )</th>
<th>( \text{SR} )</th>
<th>( \text{gloss} )</th>
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<tbody>
<tr>
<td>( s'\text{#}l\text{#}t )</td>
<td>( s'\text{#}l\text{#}t )</td>
<td>prayer</td>
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<td>( \text{madoj}\text{#}a )</td>
<td>( \text{madoj}\text{#}a )</td>
<td>hammer</td>
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<td>( k''\text{#}s'\text{#}aro )</td>
<td>( k''\text{#}s'\text{#}aro )</td>
<td>meeting</td>
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<td>( k\ddot{\text{#}}aro )</td>
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<td>tambourine</td>
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<td>( \text{nak}'\text{o} )</td>
<td>( \text{nak}'\text{o} )</td>
<td>cock’s crow</td>
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<td>( t'\text{#}k'u )</td>
<td>( t'\text{#}k'u )</td>
<td>his smoke</td>
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<td>( t'\text{#}k'=u )</td>
<td>( t'\text{#}k'=u )</td>
<td>his smoke</td>
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(7) Russian Voicing Assimilation (Calabrese 1995:441)

a. access contrastive feature specifications

b. \( [+\text{cons}]…\text{W}…[+\text{cons}] \) (where \( W \) must not contain a syllable head)

\[
\begin{array}{ll}
\text{Lar} & \text{Lar} \\
\text{[\alpha\text{voice}]} \\
\end{array}
\]

c. sonorants do not trigger voicing assimilation

\( /\text{bez prag-i}/ \rightarrow /\text{be[s pr]}\text{agi} ‘\text{without Prague}, not *\text{be[z br]}\text{agi} \)

d. sonorants are transparent to voicing assimilation

\( /\text{bez mts’ensk-a}/ \rightarrow /\text{be[s mts’]}\text{enska} ‘\text{without Mcensk}, not *\text{be[z mts’]}\text{enska} \)”
References
[ROA-489]