In this talk we present a new account of consonant mutations triggered by certain affixes in Chaha, a Southern Ethiopian Semitic language. These processes have attracted attention because they involve putatively floating segmental features that dock in places that do not appear to be tied to the edge of a prosodic word or stem. Prior accounts using alignment constraints have proven untenable, and while the autosegmental approach fares better empirically, it still leaves interesting generalizations unexplained. We propose a search-based account that provides the necessary empirical coverage and furthermore predicts some of the characteristics of the processes that have until now been stipulated.

Banksira (2000) identifies two abstract suffixes in Chaha, /U/ and /I/. Both trigger palatalization, though they target slightly different classes of segments; /U/ also triggers labialization. For example, in (1), the verbal participle exhibits palatalization of the stem-final consonant if it is eligible (i.e., an alveolar or velar) and labialization of the rightmost eligible consonant (i.e., a labial or velar). A similar pattern obtains for derived nouns, adjectival/nominal participles, and the 3.m.sg object affix. Previously, the labialization effect has been attributed to a floating [\texttt{[\textsc{round}]}/U/], deriving the forms in (1) via featural alignment constraints (for instance, Akinlabi 1996, McCarthy 2003). However, Banksira (2008) argues against the floating-feature analysis and in support of the account presented in Banksira (2000): the forms in (1) involve the affix /U/ spreading its [\texttt{[\textsc{round}]}/U/ and [\texttt{+[high]}] features separately, then delinking; /I/ behaves slightly differently, spreading [\texttt{[-back]}]. Forms such as those in (2) demonstrate that the pattern of labialization cannot be analyzed as simply floating within the prosodic word; otherwise, we would expect the final -m in these forms and the case markers in the center column forms to undergo labialization. However, the patterns in (2) are readily explained if the underlying representations are as in (3a) corresponding to the left column of (2), (3b) corresponding to the center column, and (3c) corresponding to the right column. In each case, as Banksira (2008) notes, /U/ can only affect segments to its left.

As the forms in (1) and (2) show, palatalization and labialization have different domains of application. The locality properties of palatalization are summarized in (4), while Banksira (2000) argues that labialization is not subject to any locality restrictions. We argue that this difference between these two processes is best explained not through autosegmental dissociation, spreading, and delinking, but with the \textit{search} algorithm used in conjunction with a \textit{copy} algorithm for establishing probe-goal relations in assimilation contexts by Mailhot & Reiss (2007) and extended to account for affix and reduplicant placement via iterated applications of \textit{search} and \textit{concatenate} by Samuels (2008). The \textit{search}, \textit{copy}, \& \textit{concatenate} mechanisms give us the means to express the generalizations in (4) formally, and to dispense with /U/ and /I/ \textit{per se}; we can instead manipulate the features [\texttt{[\textsc{round}, high, back]}] directly, treating them as infixes with formal conditions on \textit{search} and \textit{concatenate} yielding both their locality restrictions and possible targets. We further argue that the leftward directionality of the consonant mutations observed in Chaha need not be stipulated. Rather, this provides evidence that phonology proceeds cyclically from the root outwards, as in ‘phonological derivation by phase,’ (Marvin 2003 and others), a hybrid of Lexical Phonology and Distributed Morphology which makes use of morphosyntactic phases to drive phonological rule application and define phonological domains. At the time labialization and palatalization are initiated, the tense morpheme, and the case and object markers in the case of (4b), are simply not present in the derivation; therefore, they cannot be targeted by \textit{search}. Moreover, the previously unexplained blocking effect of subject affixes on labialization of root consonants by the 3.m.sg object affix is predicted by this model.
(1) Mutations in verbal participles (from Banksira 2000:187)

   imperative  participle  gloss
a. t'ibš t’ibwìf  ‘well-roasted’
b. a-draft’  diffwic’  ‘overstrained’
c. gims  gimwìf  ‘broken in big chunks’
d. k’amba  k’ambwìa  ‘broken at once’

(2) Labialization with subject & object affixes (from Banksira 2008:8-9)

Left column: 3f.sg subject, 3m.sg object
Center column: Impersonal subject, 3f.sg object
Right column: Impersonal subject, 3m.sg object

a. nəkəβ-əc(ə)-βw-ə-m  nəkəβw-p-a-m  nəkəβw-pw-ə-m
b. bəkər-əc(ə)-βw-ə-m  bəkərw-p-a-m  bəkərw-pw-ə-m
c. met’ər-əc(ə)-βw-ə-m  mewt’ər-p-a-m  mewt’ər-pw-ə-m
d. sədəd-əc(ə)-βw-ə-m  səjaj-p-a-m  səjaj-pw-ə-m

(3) a. √ -3f.sg.subj -instr -3m.sg.obj -T
   / -əc(ə) -β -əU -m/

   b. √ -imp.subj -instr -3f.sg.obj -T
   / -U -ββ -a -m/

   c. √ -imp.subj -instr -3m.sg.obj -T
   / -U -ββ -U -m/

(4) Restrictions on palatalization & labialization (from Banksira 2008:9)

a. **Coronal palatalization**
   A coronal is palatalized if it is left adjacent to a trigger (/I/ or /U/ = [high, ±back]).

b. **Dorsal palatalization**
   A dorsal is palatalized if Coronal Palatalization does not apply and no coronal intervenes
   between the target and a trigger (/I/ = [high, -back])

c. **Labialization**
   A labial or velar is rounded if it is the nearest preceding target (trigger being /U/).

References


