A Lengthy Note on Labial Harmony Triggers: evidence from Tungusic and Mongolian languages
Beata Moskal, University of Connecticut (beata.moskal@uconn.edu)

1 Introduction

1.1 Labial harmony

In Yakut, suffixes agree in roundness with the vowel that immediately precedes them. In (1), in the left column, the suffixes are round; in the right column, the suffixes are unrounded:

(1) Labial harmony

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
<th>(Yakut; Krueger 1962)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tübbüg-ü</td>
<td>‘window-ACC’</td>
<td>tiih-i ‘tooth-ACC’</td>
</tr>
<tr>
<td>börön-ü</td>
<td>‘wolf-ACC’</td>
<td>et-i ‘meat-ACC’</td>
</tr>
<tr>
<td>murun-u</td>
<td>‘nose-ACC’</td>
<td>tïy-i ‘foal-ACC’</td>
</tr>
<tr>
<td>ox-u</td>
<td>‘arrow-ACC’</td>
<td>aɣa-ni ‘father-ACC’</td>
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</tbody>
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Vowel harmony between roots and suffixes involves alternations in the suffix: the accusative suffix in Yakut alternates between rounded variants –(n)ü/u and unrounded variants –(n)i/i.

1.2 What I will not talk about: segmental restrictions on labial harmony

As often noted, labial harmony is subject to segmental restrictions on the trigger-target complex; see, among many others, Steriade (1981), Van der Hulst & Smith (1988), Vaux (1993), Charette & Gökşel (1994, 1996), Kaun (1995, 2004), Nevins (2010) and Moskal (to appear a,b) for various approaches. However, given that the current talk focuses on length properties of triggers, I will not address segmental restrictions on labial harmony here. For present purposes, it suffices that in (most) Tungusic and Mongolian languages high vowels block labial harmony; as such, the discussion below is (largely) limited to low vowels.

1.3 Major claims

→ Labial harmony triggers are sensitive to length distinctions; specifically, to various levels corresponding to those identified in the prosodic hierarchy (Selkirk 1978, 1986; Nespor & Vogel 1986);

→ Lateral licensing (the harmonic wave) is absolutely local (van der Hulst & Smith 1988);

→ Positional licensing (wave activation) licenses the harmonic wave rather than a segment.
2 Trigger weight

A description of a trigger of labial harmony is that of a segment that is specified for the harmonising feature (i.e. labiality), which, as such then results in the presence of that feature on a varying alternant. However, this description does not make reference to the length of the trigger, and, as such, both (2a) as well as (2b) qualify as appropriate triggers for labial harmony:

(2) a. ʁʁɔtɔ-wɔ ‘grass-DEF.ACC.’  (Solon; Vaux 1993, Li 1996)
   b. mɔɔ-wɔ ‘tree-DEF.ACC.’

Indeed, though (2) is the canonical case, we will see immediately below that there are cases in which the situation is more complex by virtue of there being length restrictions on what qualifies as a trigger for labial harmony.

2.1 Bigger than a syllable

In Classical Manchu and Oroqen there is a restriction on the size of trigger (Zhang & Dresher 1996, Walker 2001). Specifically, whereas two successive round vowels do warrant a labial vowel in the suffix (3), a single rounded vowel does not (4).

(3) bɔ(ɔ-ŋgo) ‘colored’  (Classical Manchu; Walker 2001)
(4) a. tɔ-ŋɡa (*tɔ-ŋgo) ‘few, rare’
    b. gɔsi-ŋɡa (*gɔsi-ŋgo) ‘loving, compassionate’

2.2 Smaller than a syllable

In Baiyinna Orochen (Li 1996), we find the situation in which a short trigger induces rounding on the following syllable (5), but a long vowel does not (6).

(5) tɔl  ‘fire’  (Baiyinna Orochen; Li 1996)
(6) gɔɔl-ja (*gɔɔl-ɔ) ‘policy-INDEF.ACC.’

Interestingly, long vowels do not block harmony when a preceding short round vowel starts to induce rounding throughout the word:

(7) ɔl-xɔɔn-ɔ ‘fish-DIM-DEF.ACC.’  (Baiyinna Orochen; Li 1996)

3 The intuitive idea

In this paper, I propose that (labial) harmony triggers are sensitive to various levels in the prosodic hierarchy (Selkirk 1978, 1986; Nespor and Vogel 1986), given in (8) on the next page.
Specifically, the canonical case of labial harmony involves triggers at the syllabic level. However, I will argue that Classical Manchu (3-4) and Oroqen make reference to what roughly corresponds to the foot level. In the case of Baiyinna Orochen (5-7), reference is made to what corresponds to the moraic level.

4 The theoretical couch

The model I assume here is Radical cv Phonology (RcvP; van der Hulst 2005, 2012), which is based on Dependency Phonology (Anderson & Ewen 1987) and Government Phonology (Kaye, Lowenstamm & Vergnaud 1985). Crucially, the phonological representation of segments involves a small set of (unary) elements (cf. binary features). Relevant here is the element |U|, which represents ‘labiality/roundedness’.

In RcvP, vowel harmony alternations are represented as underspecified in the lexicon. When a lexical item is involved in a vowel harmony alternation, it includes a variable element “(ε)”.

Consider the RcvP representation for the indefinite accusative in Baiyinna Orochen, which alternates between [jɔ] and [ja]:

(9)  
\[-jA
A
(U)\]

4.1 Lateral licensing (the ‘harmonic wave’)

The variable element “[U]” can be laterally licensed, defined by van der Hulst (2012):

(10) A variable element X is licensed by a preceding/following occurrence of X.
Lateral licensing (indicated by “»”) amounts to the phonetic realization of the variable element. That is, in (11), the variable (U) is laterally licensed by an immediately preceding instance of [U], and the result is a rounded suffix [jɔ]:

(11) ɔ la- jɔ ‘fish-INDEF.ACC.’ (Baiyinna Orochen; Li 1996)
A A
U » U » (U)

If it is not licensed, it is not interpreted, and we observe an unrounded suffix [ja]:

(12) bi ra- ja ‘river-INDEF.ACC.’ (Baiyinna Orochen; Li 1996)
A A
(U)

→ Lateral licensing is absolutely local; that is to say, it requires immediate adjacency. In the following, lateral licensing is assumed to operate at the level of the rhyme (R).

4.2 Positional licensing (‘wave activation’)

In addition, a vowel needs to be ‘activated’ to be able to initiate lateral licensing (i.e., it must become a trigger); this is captured by positional licensing in van der Hulst (2012):

(13) A variable element X is licensed in position P (where P is the first/last syllable in domain D, where D is a Word or Stem/Root)

Here, I propose that position P is not limited to the syllable but is sensitive to different levels of the prosodic hierarchy (Selkirk 1978, 1986; Nespor and Vogel 1986). Specifically, I argue that positional licensing can be operative at various prosodic levels.

Dependency Phonology (DP) derives hierarchical notions by appealing to headship (Harris 1994); consider a DP-style prosodic representation for wisdom:

(14) Word •
     |
    Foot •
     |     |
    Rhyme R R
     |     |
    Nucleus O N O N
     |     |
   skeletal tier x x x x x x
     |     |
  segmental w i n t e r

→ Labial harmony is sensitive to levels corresponding to those in the prosodic hierarchy.

1I assume that harmonic elements in (non-alternating) roots are always (lexically) licensed and that only varying alternants (as on suffixes) are represented as a variable.
Furthermore, I propose that positional licensing does not license an element X, but the harmonic wave itself (i.e. lateral licensing).

For reasons discussed elsewhere (see references in §1.2), high round vowels do not trigger rounding on an alternating suffix:

\[(15) \quad \text{om-ma} \quad (*\text{om-mə}) \quad \text{‘who likes to drink’}\]

However, they are still phonetically round and as such require (a licensed instance of) the element [U]; this is an instance of (lexical) licensing of the element [U]. Clearly, this licensing cannot stem from positional licensing as intended here in the sense of activating a harmonic wave; as such, positional licensing cannot involve the licensing of an element.

→ Positional licensing (wave activation) licenses the harmonic wave rather than an element X.

5 Analysis

5.1 Garden-variety triggers

Regarding canonical labial harmony triggers (2), these involve a positionally licensed harmonic wave (indicated by subscript \(p\)) at the level of the Rhyme, and subsequent lateral licensing (\(\triangleright\)).

\[(2) \quad \text{a. } \text{ʒrɔt-tə-wɔ ‘grass-DEF.ACC.’} \quad \text{(Solon; Vaux 1993, Li 1996)}
\text{b. } \text{ʦɔɔ-wɔ ‘tree-DEF.ACC.’}\]

\[(16) \quad \text{a. } \text{R}_p \triangleright \text{R} \triangleright \text{R} \triangleright \text{R} \quad \text{b. } \text{R}_p \triangleright \text{R} \]

\[
\begin{array}{cccccccc}
\text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} \\
\text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} & \text{x} \\
\text{c} & \text{r} & \text{ɔ} & \text{t} & \text{ɔ} & \text{w} & \text{ɔ} & \text{m} & \text{ɔ} & \text{w} & \text{ɔ} \\
\text{U} & \text{U} & \text{U} & \text{U} & (\text{U}) & \text{U} & (\text{U}) \\
\end{array}
\]

In canonical systems lateral licensing (the harmonic wave) proceeds syntagmatically at the Rhymal level, and positional licensing (wave activation) occurs at the Rhymal level as well. Crucially, wave activation (subscript \(p\)) licenses the harmonic wave (\(\triangleright\)).

5.2 Supra-rhymal triggers: at the level of the ‘foot’

Regarding the type that requires a bisyllabic sequence to trigger labial harmony (3-4), positional licensing (wave activation) seems to make reference to the level of the foot.

\[(3) \quad \text{bo[l]o-ŋgo ‘colored’} \quad \text{(Classical Manchu; Walker 2001)}\]

\(^2\) In the following, I do not represent the level of the Nucleus for expository reasons.
(4)  a.  gosi-ŋga (*gosi-ngo) ‘loving, compassionate’  
    b.  to-ŋga (*to-ŋgo) ‘few, rare’

That is, the position that is successfully licensed seems to be a foot, which in turn licenses the harmonic wave to start at the foot head.

Remember that lateral licensing is always operative at the Rhymal level (“//” indicates failure of potential lateral licensing).


\[
\begin{array}{cccc}
R & R & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
R & R & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
R & // & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
R & // & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{b o t o ŋg o} & \text{g o s i ŋg a} & \text{t o ŋg a} \\
\text{U} & \text{U} & (U) & (U) \\
\end{array}
\]

In (17a), a foot is activated as a trigger since the potential trigger includes a licensed instance of \[U\]; concomitant lateral licensing proceeds at the Rhymal level.

In (17b), a foot is again activated as a trigger, but lateral licensing (harmonic wave) is blocked since the second syllable violates locality by lacking \[U\].

(17c) shows that positional licensing (wave activation) crucially operates within the domain of the (potential) trigger; in other words, the potential trigger (i.e. the root to-) does not form a foot by itself: positional (and lateral) licensing fail.

Note also that positional licensing (wave activation) merely initiates lateral licensing (harmonic wave). As such, in (18/19) below, even though the root does not contain feet successively, and labial harmony is observed throughout the entire word.

(18)  [osoxo-ŋgo] ‘having claws’

(19)  a.  *   b.  *

\[
\begin{array}{cccc}
R & R & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
R & R & R & R \\
x & x & x & x \\
| & | & | & | \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{o s o ŋg o} \\
\text{U} & \text{U} & \text{U} & (U) \\
\end{array}
\]

\[^3\text{I do not make any claims as to the syllabification of the \[/-NgA/\] suffix.}\]

\[^4\text{As briefly mentioned above (§1.2), harmony is also blocked if the second vowel is a high \textit{round} vowel /u/, as in \textit{[nomulaxa]} ‘to preach’, which does contain the element [U]. Segmental restrictions on labial harmony result in high vowels blocking lateral licensing (harmonic wave) and, as such, although they are prosodically well-formed regarding positional licensing (wave activation), they fail at the level of lateral licensing (harmonic wave).}\]
However, though at first blush the relevant constituent seems to be a foot, consider the following data:

(20) a. moːro-ro 'moan-PRES.'
    b. oloː-ro 'boil-PRES.'
    c. doː-ɾə (*doː-ro) 'mince-PRES.'

Particularly, the root in (20c) constitutes a foot in the traditional sense, and as such should induce rounding on its suffix, counter to what we observe.

Indeed, DP refers to the concept of headedness rather than a constituent ‘foot’ per se; this allows for two logical ‘types’ of feet: (i) a constituent containing two x-slots, and (ii) a constituent containing two Rhymes.

(21) a. •p
    b. •p
    c.

Crucially, Oroqen makes reference to the constituent of two Rhymes (a ‘weight insensitive’ foot) rather than two x-slots.

5.3 Sub-rhymal triggers: at the level of the ‘mora’

The type where long vowels fail but short vowels do trigger labial harmony (5-7) is accounted for by positional licensing operating at the level of the skeletal tier:

(5) ɔlɔ-ja ‘fish-INDEF.ACC.’ (Baiyinna Orochen; Li 1996)
(6) gɔl-ja (*gɔl-ja) ‘policy-INDEF.ACC.’

(22) a. R » R » R
    b. R // R

In (22a), positional licensing occurs at the level of the skeletal tier, with concomitant lateral licensing at the Rhymal level.
In (22b), however, positional licensing is blocked (*p). I suggest that the reason is that the head of the long vowel is already involved in a syntagmatic licensing relation: the head of the long vowel (x₁) licenses its dependent (x₂). In particular, I propose that, in the case of labial harmony, a position cannot bear two markings for syntagmatic licensing. (cf. (16b) where positional and head-dependent licensing are on separate positions, the Rhyme and skeletal position, respectively.)

Note that this formulation allows for long vowels not to block labial harmony, since at that stage they are involved in lateral licensing (harmonic wave), which operates at the Rhymal level and as such does not make a distinction between short and long vowels.

\[
\text{fish-DIM-DEF.ACC.}
\]

(7) ɔl-ɔɔn-ɔn  'fish-DIM-DEF.ACC.'

(23)  
\[
\begin{array}{cccc}
R & \rightarrow & R & \rightarrow & R & \rightarrow & R \\
\hline
\chi_p & \chi & \chi & \chi & \chi & \chi & \chi \\
\hline
\circ & \circ & \circ & \circ & \circ & \circ & \circ \\
\hline
U & U & (U) & (U)
\end{array}
\]

In a similar vein, in Khalkha Mongolian it is only the head of a diphthong that is relevant for whether lateral licensing (harmonic wave) is successful or not.

\[
\text{food-COM-RFL}
\]

(24) ɔɔlʒ-øi-ɡa  ‘food-COM-RFL’  (Khalkha Mongolian; Svantesson et al. 2005)

\[
\text{cat-COM-RFL}
\]

Cf. c’aas-t’ai-ga  ‘cat-COM-RFL’

In (24) ɔɔlʒ-øi-ɡa, at the skeletal tier adjacency of labial elements is violated, since the second element of the diphthong /øi/ is unrounded. However, lateral licensing (harmonic wave), operating at the Rhymal level, proceeds to the final morpheme (see also Sezer & Wetzels 1986).

6 Conclusion

- Labial harmony triggers are sensitive to length distinctions; specifically, I have shown that positional licensing (wave activation) can be operative at the rhymal, supra-rhymal and sub-rhymal level;

- Lateral licensing (the harmonic wave) is absolutely local (van der Hulst & Smith 1988);

- Positional licensing (wave activation) licenses the harmonic wave rather than an element.
References


