Long-distance Metaphony: A Generalized Licensing Proposal

Rachel Walker
University of Southern California
rwalker@usc.edu

1. Introduction

(1) Metaphony
A vowel harmony, occurring in certain Romance languages, in which a stressed vowel assimilates to a post-tonic high vowel. Most commonly involves raising. In cases under study, trigger vowel is high, word-final and suffixal.

(2) Ascrea (central Italy)
• Final high suffix vowel causes raising of preceding stressed /e, o/ to [i, u], respectively (2a). If an unstressed penult intervenes, it is unaffected (2b).
  a. metí [i] ‘reap’ (2 sg impf subj) cf. metésse (1sg)
  b. túre [u] ‘cloudy’ (m sg) * túri [u] cf. tóre [a] (f sg)

(3) Unstressed [e] in (2b) is transparent despite
• /e/ raising to [i] in stressed syllables;
• [i] being a permissible unstressed vowel in the language.

2. Metaphony Patterns: Two Locality Behaviors

In words with antepenultimate stress, systems vary according to whether height assimilation affects an intervening penult or operates across it.

(6) Vowel phoneme inventories
a. Ascrea
i u
e o

b. Nalón Valley & Tudanca Montañés
i u
e o
a
[ ] restricted to stressed syllables

(7) a. pínta pÍntU ‘calf’ (f/m)
úrdos úrdU ‘left-handed’ (m pl/sg)
séka sÉkU ‘dry’ (f/m)
óhos òhosU ‘eye’ (pl/sg)
sekilo sekíl ůU ‘to dry it (mass)/to dry him’
ahambrá ahámbrÁU ‘hungry’ (f/m)
b. antigwÍs ImU ‘very old’
porÉg AnU ‘oregano’

(5) Organization
• Metaphony patterns.
• Generalized Licensing proposal.
• Analysis: Metaphony in Romance languages of Italy and Spain.
• Cross-linguistic applications and issues; a metrical alternative.

(4) Preview of proposal:

a. Generalized Licensing
Metaphony is driven by a licensing constraint which requires that (perceptually) marked elements belong to a strong position. Licensing configurations include
• assimilation through local feature extension (e.g. spreading) to a strong position,
• assimilation at a distance through a correspondence relation.

b. Global Perspective
Metaphony is not an isolated phenomenon. Generalized Licensing is involved in a wide range of phonological processes, including assimilation, reduction, deletion, metathesis, and feature transfer (flop).
Ascrea (Lazio region, central Italy)

Data and description based on Fanti (1938-1940) and Maiden (1991).

- Metaphony in Ascrea raises stressed /e, o/ to [i, u] (8a), and stressed /e, o/ (2b). (Raising in Ascrea is restricted to certain inflections containing high vowels.)

(8) a. metésse metîfî 'reap' (1sg/2sg impf. subj.)
   vèlî 'this' (f pl/m pl)
   sórda sjîdu 'deaf' (f sg/m sg)
   prefónna prefînî 'profound' (f sg/m sg)

- Metaphony does not affect /u/.

(10) m[aj]m-n-o m[aj]m-n-i 'send (pres. ind.)' (1sg/2sg)

- Under antepenultimate stress, a final high vowel causes raising across an unaffected nonhigh vowel.

(9) a. tóreqa tîrâeu 'cloudy' (f sg/m sg)
   mîrse mîrtsêru 'died' (3sg/5pl)

b. Additional forms given by Fanti that show nonlocal raising:

(11) a. górdos gîrdu 'fat' (m pl/m sg)
   kordéros kîrdru 'lamb' (pl/sg)

b. (cf. Sp. gato) gîtdu 'cat' (m sg)
   (cf. Sp. blanco) bîndku 'white' (m sg count)

- In words with antepenultimate stress, a final high vowel causes raising across an unaffected nonhigh vowel.

(12) mátolo mîtolu 'I kill her/him'
   pàfâros pîfâru 'bird' (pl/sg)

Nalón Valley (Asturias region, northwestern Spain)

Data and description based on Hualde (1989, 1998). (Other work on Nalón includes Kaze 1989.)

- Like Ascrea, metaphony in the Nalón Valley variety shows raising. Stressed mid vowels become high in metaphonic contexts (11a), and stressed low vowels become [i] (11b).

(10) m[aj]m-n-o m[aj]m-n-i 'send (pres. ind.)' (1sg/2sg)

1 Examples with intervening [o] are scarce in Fanti’s data. The form [sôkkoli] ‘clog’ (m pl) indicates that, like [e], [o] has the capacity to be transparent. This occurs alongside [sôdea] [sîdu] (f sg/m sg). The unstressed sequence [os] might be independently dispreferred: an issue for further research.

2 The m pl ending in Nalón Valley is produced as -os ~ -as. As Hualde (1998) points out, production of /o/ in this suffix appears to be moving towards [u], but without effect in metaphonic patterns.

1 Departing views on locality and/or the interpretation of distance linking are discussed by Calabrese (1995), van der Hulst & van de Weijer (1995), Halle, Vaux & Wolfe (2000), Mailhot & Reiss (2004), and Uffmann (2004), among others.

Locality issue

Raising of a stressed vowel across an unaffected nonhigh penult is nonlocal.

- In recent years, several researchers have argued that featural or gestural spreading carries only between articulatorily adjacent segments (e.g., Gafos 1996, Ni Chiosáin & Padgett 1997, 2001, Walker 1998; see also Bakovic 2000, Bakovic & Wilson 2000).

- Corresponds to understanding each instance of a feature as representing a continuous property or gesture (building on insights of Articulatory Phonology; Brown & Goldstein 1986, 1989, 1990).

- Accomplished from a formal perspective by (the equivalent of) a constraint on gapped configurations in Gen. (For perspectives on NoGAP’s universal illformedness, see the aforementioned work on locality, also Archangeli & Pulleyblank 1994, 2002, Pulleyblank 1996. Ni Chiosáin & Padgett 2001 characterize locality in terms of “convexity.”)

NoGAP:

Where α, β, and γ are segments

Perceptual transparency

- It has been proposed that certain so-called ‘transparent’ segments actually undergo assimilation, but without perceptible consequences. (In addition to research cited above, see, e.g., Fleming 1995, Walker & Pullum 1999; also experimental studies by Gafos & Benus 2003, Gick et al 2005, Walker et al. in preparation.)

- Imperceptibility explanation is not available for Ascrea & Nalón Valley. Nonhigh vowel raising is perceptible elsewhere in the system. Moreover, even in unstressed positions (most) expected raised qualities are attested and perceptible.
Summary

- Metaphony patterns under study involve assimilation of a stressed vowel to final unstressed (Tudanca: centralizing; Ascrea & Nalón Valley: raising).
- In words with antepenultimate stress, systems vary according to whether height assimilation affects an intervening, unstressed penult:
  - Tudanca – metaphony affects an intervening mid vowel;
  - Ascrea and Nalón Valley – metaphony does not affect an intervening nonhigh vowel, but operates across it.
- Transparency in Ascrea and Nalón presents a locality problem.

3. Licensing of Marked Structure

Proposal Overview

- Licensing constraint drives metaphony
  - High, unstressed vowels are a perceptually-marked structure (i.e. have relatively poor perceptibility). Their height features must be licensed by (also) being expressed in a prosodically-strong position.
- Licensing-at-a-distance is achieved by correspondence
  - Various configurations achieve licensing. Licensing across an intervening syllable is accomplished by correspondence between trigger and target, producing assimilation.

Positional Markedness: Licensing effects – Features


- Assimilation of weak position to strong position.
- Assimilation of strong position to weak position.
- Attraction of floating features to strong position.
- Migration of features from weak position to strong position.
- Loss of marked structure in weak position.

Licensing: Functional basis

Marked structure (i.e. complex, perceptually weak, articulatorily difficult, etc.) must find some expression in a strong position (Walker 2005).

Goal: Unite three licensing configurations (“Direct”/“Indirect” after Steriade 1995)

- “Direct” Licensing
- “Indirect” Licensing
- Identity Licensing

Chain

Let X be an element belonging to a given representation R. Then X’s chain is composed of X and all its correspondent elements within R.

Generalized Licensing: LICENSE $M_{\text{struc}}/P_{\text{strong}}$

Let

- $M_{\text{struc}}$ be a given type of marked structure,
- $P_{\text{strong}}$ be a given type of strong position,
- and R be a phonological representation.

Then

for any instance of $M_{\text{struc}}$ in R, some member of its chain belongs to $P_{\text{strong}}$ in R.


Licensing obeyed by three configurations (plus deletion)

- Correspondence, feature extension, etc. not stipulated in licensing constraint.
- Particular means by which licensing is satisfied in a given language is determined by constraint ranking.


Perceptual markedness: Detailing $M_{\text{struc}}$ applicable to features

i. Let $f$ be an occurrence of feature [F] in a representation R.
ii. Then $f$ may be characterized as perceptually marked according to one or more of the following restrictions:
   - a. $f$ is a specification that is perceptually difficult.
   - b. $f$ belongs to a prosodically weak position.
   - c. $f$ occurs in a perceptually difficult feature combination.


See Blumenfeld (to appear) for discussion of the “too-many-solutions” problem in relation to an OT analysis of Tudanca metaphony and a proposal in terms of implicational constraints.
(24) Metaphonic triggers are perceptually disadvantaged

• High vowels – lower amplitude, shorter duration.

• Unstressed vowels – reduced amplitude and duration, lack salient pitch contour.

(25) Licensing constraint that drives metaphony:

\[
\text{LICENSE (Height)-in-V}_{\text{[high]}} \quad \text{Henceforth LICENSE(Height)/}_{\text{[high]}}
\]

For any instance of [high], [low], [ATR] in a high vowel in a word, some member of that feature’s chain belongs to a stressed syllable.

• For expositional convenience, (25) is used a cover constraint for individual licensing constraints pertaining to [high], [low], [ATR].

• In interests of uniformity across Romance, licensing constraints for all height Fs are assumed to be ranked at same place in a given hierarchy, but this is not crucial.

• In metaphony patterns under study, licensing is posited to be further restricted to word-final suffix Vs, as (sole) carriers of a morphological distinction (e.g. m sg) (after Majors 1998, see also Maiden 1991 on morphological conditioning in phonological metaphonic patterns of Italy; cf. Dillon 2004).

4. Analysis: Local vs. Nonlocal Metaphony in Central Veneto and Ascrea

4.1 Local vs. non-local metaphony

Ascrea – Recall principal facts:

• High vowel suffix raises stressed /e, o/ to [i, u] (26a) and stressed /e, o/ to [e, o] (26b). Under antepenultimate stress, raising occurs across an unaffected nonhigh penult (26c).

(26) a. métsēse mētjē ‘reap’ (1sg/2sg impf. subj.)
   prefōnna prefōnna ‘profound’ (f sg/m sg)
   b. méto mōtī ‘reap’ (1sg/2sg pres. ind.)
   kapōtī kapōtī ‘overturn’ (1sg/2sg pres. ind.)
   c. tōreqa tīreqa ‘cloudy’ (f sg/m sg)
   mārtse mārtser ‘died’ (3sg/3pl)

Key rankings

• Metaphony causes raising of /e o e/ in a stressed syllable. Hence the licensing constraint dominates IDENT-IO for [high] and [ATR] (IDENT-[F]) formulated after McCarthy & Prince 1995; [e o] assumed to be mid [-ATR] vowels, after Calabrese 1988.

(27) Metaphony: LICENSE(Height)/[I] >> IDENT-IO(high)∗

For demonstration purposes, only the [high] height feature is shown here.

\[
\begin{array}{c|c|c}
\text{Input} & \text{License} & \text{Output} \\
\hline
\text{Prefōnna} & \text{License(Height)/[I]} & \text{IDENT-IO(high)} \\
\hline
\text{a. prefōnna} & \text{[+high]} & \ast \\
\text{b. prefōnna} & \text{[+high]} & \ast! \\
\text{c. prīfōnna} & \text{[+high]} & \ast! \\
\end{array}
\]

On sub-optimality of a candidate which lowers the unstressed vowel (e.g. /prefōnna/ \rightarrow *([prefōnna]), see Walker (2005).

• Under antepenultimate stress, metaphony leaves an intervening nonhigh penult vowel unaffected. This results from an identity licensing configuration. Therefore, IDENT-IO(high) dominates INTEGRITY, which prohibits multiple correspondence.

(28) INTEGRITY-IO

(29) Multiple correspondence under long-distance licensing

\[
\begin{array}{c|c|c|c}
\text{Input} & \text{License} & \text{Output} \\
\hline
\text{[tūrequ]} & \text{LICENSE(Height)/[I]} & \text{IDENT-IO(high)} & \text{INTEGRITY-IO} \\
\hline
\text{a. tūrequ} & \text{[+hi]} & \ast & \ast \\
\text{b. tūrequ} & \text{[+hi]} & \ast! & \ast! \\
\end{array}
\]

6 For simplicity, the representations here show linkage between vowels, but there is reason to believe that propagated features in vowel harmony carry through consonants as well. See Ní Chiosáin & Padgett (2001).
• In adjacent syllables, indirect licensing is favored over identity licensing, because it minimizes violations of INTEGRITY.

(31) Indirect licensing favored in adjacent syllables.

<table>
<thead>
<tr>
<th>prefix</th>
<th>LICENSE(height)/ô</th>
<th>IDENT-IO(high)</th>
<th>INTEGRITY-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. prefùnnu</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. prefùnnu</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

(32) Results

• Correspondence is recruited as a means of satisfying licensing while minimizing violations of IDENT – produces Identity Licensing configuration.
• When trigger and target are in adjacent syllables, Indirect Licensing configuration is preferred to minimize INTEGRITY violations.
• Analysis of Nalón Valley metaphony is similar in essentials to that of Ascrea.
• Stepwise raising addressed in §4.2.

Recall principal facts for metaphony in Tudanca:

• A final unstressed high vowel, which is regularly centralized, causes centralization of stressed vowels (33a). Under antepenultimate stress, centralizing metaphony affects both the stressed antepenult and intervening penult vowel (33b).

a. óhos óhU \(\text{‘eye (m pl/sg)’}\)

b. antigwÍs I\(\text{mU}\) \(\text{‘very old’}\)

orÉg or\(\text{U}\) \(\text{‘oregano’}\)

(33)

Key rankings

• LICENSE(height)/ô dominates IDENT-IO(ATR) to produce centralizing alternations.
• Under antepenultimate stress, an intervening penult vowel also undergoes metaphony. Hence INTEGRITY dominates IDENT-IO(ATR) to prevent distance licensing.

(34) Affected penult: LICENSE(height)/ô, INTEGRITY-IO >> IDENT-IO(ATR)

<table>
<thead>
<tr>
<th>/oreganu/</th>
<th>LICENSE(height)/ô</th>
<th>INTEGRITY-IO</th>
<th>IDENT-IO(ATR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. orÉg(\text{AnU}) (\text{[-ATR]})</td>
<td>*</td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>b. orÉ(\text{gAnU}) (\text{[-ATR]})</td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
</tbody>
</table>

(35) Summary

• Metaphony in Ascrea, Nalón Valley, and Tudanca is driven by a licensing requirement for height features in perceptually marked vowels.
• Representations are available that accomplish assimilation by feature extension and by correspondence. Rankings determine outcome for the language in question.
• Ascrea – transparent unstressed penult
  LICENSE(height)/ô >> IDENT-IO(high)/(ATR) >> INTEGRITY-IO

Tudanca – affected unstressed penult
  LICENSE(height)/ô, INTEGRITY-IO >> IDENT-IO(ATR)

4.2 Gradual vowel raising

(36) Ascrea stepwise raising
Accomplished by local conjunction of IDENT constraints for [high] and [ATR] (after Kirchner 1996; on constraint conjunction, see Smolensky 1993).

(37) IDENT-IO(high) \&\(\text{seg}\) IDENT-IO(ATR)
If a segment violates IDENT(high), it does not violate IDENT(ATR), and vice versa.

(38) IDENT(high) \&\(\text{seg}\) IDENT-IO(ATR) >> LICENSE(height)/ô >> IDENT-IO(high)/(ATR)

<table>
<thead>
<tr>
<th>/m(\text{ti}/)</th>
<th>IDENT(high)&amp;(\text{seg}) IDENT-IO(ATR)</th>
<th>LICENSE(height)/ô</th>
<th>IDENT-IO(high)/(ATR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ## mé(\text{ti})</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>b. mé(\text{ti})</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c. (\text{mi})</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

• Low vowels are not affected in Ascrea metaphony because of a high-ranking identity constraint for [low] i.e., as a consequence of the ranking: IDENT-IO(low) >> LICENSE(height)/ô.
(39) Nalón Valley metaphony
   • /a/ → [ɔ]: Attributable to effect of contrast preservation – avoids merger of /a/
     with an existing mid vowel under raising (see Lubowicz 2003 for a formal approach to
     contrast preservation).

5. Cross-linguistic applications and issues

5.1 Applications of Generalized Licensing across languages

(40) **Recall:** Three licensing configurations

<table>
<thead>
<tr>
<th>Direct Licensing</th>
<th>Indirect Licensing</th>
<th>Identity Licensing</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_{\text{strong}}$</td>
<td>$P_{\text{weak}}$</td>
<td>$M_{\text{struc}}$</td>
</tr>
<tr>
<td>$P_{\text{strong}}$</td>
<td>$P_{\text{weak}}$</td>
<td>$M_{\text{struc}}$</td>
</tr>
<tr>
<td>$P_{\text{strong}}$</td>
<td>$P_{\text{weak}}$</td>
<td>$M_{\text{struc}}$</td>
</tr>
</tbody>
</table>

(41) **Indirect Licensing**

Ranking schema: LICENSE $M_{\text{struc}} / P_{\text{strong}}$ INTEGRITY-IO >> IDENT-IO(F)

Exx:
- *Tudanca Montañés* – [–ATR] licensed by $\delta$; alternations in $\delta$.
- *Aimara* (Jaquar dialect) – All features of final unstressed vowels licensed by a
  stressed vowel; alternations in $\delta$ (Cerón-Palomino Lopez 2003).
- *Koya* – Features of short, unstressed high Vs and /a/ (often realized as [ɔ])
  licensed by long, stressed vowels; alternations in $\delta$ (Majors 1998).
- *Classical Mongolian* – [Round] in nonhigh Vs licensed by initial syllable
  (Walker 2001b).
- *Japanese* – Cs with complex Place (secondary articulation) formed in mimetic
  palatalization licensed by initial syllable (Zolt 1996, 1997).

(42) **Identity Licensing**

Ranking schema: LICENSE $M_{\text{struc}} / P_{\text{strong}}$ >> IDENT-IO(F) >> INTEGRITY-IO

Exx:
- *Ascrea* – [+high], [+ATR] (in a high V) licensed by $\delta$.
- Identity licensing could also arise under LICENSE $M_{\text{struc}} / P_{\text{strong}}$ >> *M >>
  INTEGRITY, where *M blocks an intervening vowel from undergoing assimilation.

(43) **Direct Licensing**

Ranking schema:

LICENSE $M_{\text{struc}} / P_{\text{strong}}$ CRISP-EDGE(Φ, F), (INTEGRITY-IO) >> IDENT-IO(F)

CRISP-EDGE(Φ, F) requires that a chain for F be wholly contained within a given
syllable.

(For formal definitions of CRISPEDGE constraints, see Itô & Mester 1999, Walker 2001b,
Kawahara to appear.)

Exx:
- *Italian* – [–ATR] mid V licensed by $\delta$; alternations in $\delta$ (Crosswhite 2004).
- *Eximbi* – Vowel height features licensed by initial syllable; migrate from root
to prefix (Walker 2001a).
- *Ligurian* – Final unstressed [i] undergoes metathesis with a stem-final C to
  form a diphthong in the licensing $\delta$ (Forner 1975).
- *Luiseno* – neutralization of a mid/high vowel contrast in unstressed syllables
  via raising (Crosswhite 1999).
- *Arabic dialects* – High unstressed vowels undergo deletion (in certain
  circumstances) (e.g. Brame 1974, Hayes 1995).
- *Western Popoluca* – [C-Place] licensed by syllable onset (Steriade 1995).
- *Japanese* – Cs with complex Place (secondary articulation) formed in mimetic
  palatalization licensed by initial syllable (Zolt 1996, 1997).

(44) **Summary**

The constraints and structures involved in metaphony are also involved in many
other phonological processes and patterns in diverse languages.

5.2 Proximity in Licensing

Selecting the closest licensor

Scale restricting proximity of corresponding segments:

On proximity applied to correspondence, see Rose (2004), Rose & Walker (2004). Other work on
conditions restricting proximity of interacting segments includes Odden (1994), Suzuki (1998),
relations in a constraint-free approach to vowel harmony.

(45) **PROXIMITY-X** - Correspondent elements are separated by no more than X.

(46) **PROXIMITY-SEG** >> **PROXIMITY-µ** >> **PROXIMITY-µµ** >> **PROXIMITY-σσ** >> … >>
**PROXIMITY-∞**
• Particular units relevant for PROXIMITY-X scale remain to be determined.
• PROXIMITY-X constraints must be dominated to produce long-distance Identity Licensing; however, they will favor the closest licensor.

(47) Closest licensor: LICENSE(F)/ð >> PROX-Seg >> ... PROX-µµ >> ... PROX-∞

<table>
<thead>
<tr>
<th></th>
<th>LICENSE(F)/ð</th>
<th>PROXIMITY-Seg</th>
<th>PROXIMITY-µµ</th>
<th>PROXIMITY-∞</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td>*</td>
<td>*!</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

6. A Metrical Alternative

(48) Metrical approach to metaphony: (Hualde 1989)

(For related work, see also Zubizarreta 1979, Halle & Vergnaud 1981, Poser 1982, van der Hulst & Smith 1982, Piggott 1996.)

• Feature assimilation takes place through metrical structure (rule parameter).
• Assimilating feature percolates through the metrical structure constructed for assignment of stress.
• Antepenultimate stress: Extrametrical final σ is adjoined to preceding foot.
• Participation of unstressed penult determined by target parameter – Head or V.

(49) Two metrical-based rules (by extension from Hualde 1989)

a. Tudanca
  Operation: spread
  Mode: metrical
  Domain: stress foot
  Argument: [–ATR]
  Target: V

b. Ascrea
  Operation: spread
  Mode: metrical
  Domain: stress foot
  Argument: [+high], Trigger: __##
  Target: head

(50) Resulting representations:

a. Tudanca
  orÉgAnU
  ñú
  [-ATR] [+high]

b. Ascrea
  túregu

(51) Issues in comparison to Generalized Licensing approach

a. Motivation
  Metrical Approach misses Generalized Licensing’s explanation that metaphony expresses otherwise perceptually weak elements in Pos\_strong. Also, the perceptual weakness is not just prosodic in nature (unstressed), but also featural (high Vs).

b. Cross-linguistic conspiracies
  Generalized Licensing unites phenomena targeting M\_struc that lacks association to Pos\_strong. It accommodates repairs along lines of direct, indirect, and identity licensing, plus deletion/feature change, resulting in broad empirical coverage. Metrical rules address assimilation phenomena in particular.

c. Formal representations
  Generalized Licensing maintains notion that each feature specification is a continuous element, achieving a closer connection between formal representations and gestural models of language production. Gapped configuration in (50b) lacks this connection.

d. Locality
  Both approaches predict potential for nonlocal interactions.
  In Metrical Approach, these are restricted to domain of the foot together with any appended syllables.
  In Generalized Licensing Approach, interactions at any distance in a word are predicted possible (in some language), provided that closest licensor is selected. Further research on phenomena bearing on locality question is needed.

(52) Metaphony: Theoretical issues addressed here

• Reveals nonlocal assimilations across vowels whose transparency cannot be attributed to lack of perceptible participation.
Shows a positional markedness licensing distribution, wherein perceptually marked structure requires licensing by association to a strong position.

(53) Generalized Licensing approach

- Incorporates notion of chains in phonological representations and licensing.
- Accommodates three licensing configurations: direct, indirect, and identity licensing, plus deletion, feature change/reduction.
- Long-distance identity licensing configuration and adjacent indirect licensing can occur together in same licensing pattern.
- The choice of licensing configuration is an epiphenomenon of constraint ranking.

Further Research

- Explore extensions to transparency in more familiar vowel harmonies, such as Ural-Altaic patterns, in which harmony is initiated by an word-initial vowel.

References


