A Formal Theory of Dissimilation

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1 Introduction

Multiple constraint violations in a local context are categorically worse than the
same violations in a nonlocal context.

(2) Some Formulations (Smolensky 1993)
a. **Local Conjunction of C1 and C2**: C1 & C2 is violated when there is a [local
context] in which both C1 and C2 are violated.
b. **Self-Conjunction**: when C1 = C2 = C, C1 & C2 = C2 is violated when there is a
[local context] in which C is violated twice.

(3) Exemplification of LC in Syllable Parsing (Kager 1994, Alderete 1995)

OBSERVATION: σ {σ σ} σ is more harmonic than {σ σ} σ σ

(4) LC in Syllable Parsing

<table>
<thead>
<tr>
<th>Candidates</th>
<th>PARSE-SYLL²Adj Syll</th>
<th>PARSE-SYLL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>σ (σ σ) σ</strong></td>
<td>*!</td>
<td>**</td>
</tr>
<tr>
<td>{σ σ} σ σ</td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>

INTERPRETATION A self-conjoined PARSE-SYLL², defined for adjacent syllables, separates the
two candidates in the required way.

ABSTRACTION Stated more abstractly, multiple violations of a constraint C are tolerated, but more
than one violation of C in a local context, is absolutely forbidden.

(5) Application of LC in the analysis of Dissimilation

a. α ... β
   /   /   /   /   /   /
  F F F F F
   
   
   
   
   b. *α β → α β

OBSERVATION More than one instantiation of the feature F is licensed in nonlocal segments (a),
but more than one F is not licensed in neighboring segments (b).

INTERPRETATION A self-conjoined featural markedness constraint, *F², separates the two forms:
multiple violations of *F in neighboring segments are categorically worse than the same violations
in distant segments.

(6) Some Questions for the theory of Dissimilation

a. What is the character of the constraint(s) driving dissimilation?
b. How is the notion of locality to be characterized in dissimilation, in the sense of what can
stand between the target and trigger of the dissimilation process?
c. How are the constraint rankings that describe dissimilation similar in character to those
describing assimilation?
2 Dissimilation as Local Conjunction

2.1 Lyman's law

(7) Lyman's Law in Rendaku

<table>
<thead>
<tr>
<th>(a) Rendaku voicing</th>
<th>b. Rendaku blocked by Lyman's Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>iro+kami → irogami</td>
<td>kami+kaze *kami+gaze 'divine wind'</td>
</tr>
<tr>
<td>yo+sakura → yozakura</td>
<td>mono+šizuka *mono+jizuka 'tranquil'</td>
</tr>
<tr>
<td>e+tako → edako</td>
<td>siro+tabi *siro+dabi 'white tabi'</td>
</tr>
</tbody>
</table>

**OBSERVATION** Morphemes contain at most one voiced obstruent. More generally, *[a voi]* is contrastive in obstruents, but this contrast is limited to one obstruent per morpheme.

(8) Lyman's Law as self-conjunction of *[+voi]*

a. \(\&([+\text{voi}], [+\text{voi}]) = [+\text{voi}]^2\) is violated when \([+\text{voi}]\) is violated more than once
b. \([+\text{voi}]^2\text{MCat}\) is applied to the segments of a morpheme

Note 1. Crucially, \([+\text{voi}]^2\) is violated when \([+\text{voi}]\) is violated more than once in obstruents (voicing in sonorants does not block the application of Rendaku). One way to describe this fact is to self-conjoin the already complex constraint, \([+\text{son}]\) & \([+\text{voi}], \text{i.e. } \&([+\text{son}] \& [+\text{voi}], [+\text{son}] \& [+\text{voi}] = ([+\text{son}] \& [+\text{voi}]^2). The basic constraint, \([+\text{son}]\) & \([+\text{voi}],\) is independently motivated, given the fact that voiced obstruents are marked in segmental inventories cross-linguistically.

(9) a. IDENT[αvoi] >> [+voi]: obstruents have a surface voicing contrast
b. \([+\text{voi}]^2\text{MCat} \gg \text{IDENT[αvoi]}\): only one segment may be specified [+voi]

(10) Rendaku blocked by Lyman's Law: /kami+kaze/ → kami+kaze, *kami+gaze

<table>
<thead>
<tr>
<th>Candidates</th>
<th>([+\text{voi}]^2\text{MCat})</th>
<th>RENDAKU</th>
<th>([+\text{voi}])</th>
</tr>
</thead>
<tbody>
<tr>
<td>*** kami+kaze</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>kami+gaze</td>
<td>*!</td>
<td>**</td>
<td></td>
</tr>
</tbody>
</table>

**RESULT** OCP-effects derived from self-conjoined featural markedness constraint. Local conjunction of \([+\text{voi}]\) posits a threshold for number of voiced obstruents, effectively blocking the application of Rendaku in roots with voiced obstruents. Importantly, this result is derived regardless of the position of the voiced obstruent.

**QUESTION** Is the notion of locality relevant for local conjunction simply domain-based?

Note 2. There is a residual problem here, namely how to account for the fact that underlying voiced obstruents do not devoice to satisfy the dissimilatory constraint \([+\text{voi}]^2\text{MCat}); so why do you get *kami+kaze, and not kami+gaze?* The answer to this question involves considering the ranking of RENDAKU relative to the featural faithfulness constraints governing the realization of the underlying voice contrast. Suppose that the realization of underlying voicing (MAX[αvoi] in the theory defined in Lombardi 1996) is more important than the root-initial voicing characterizing Rendaku; realization of voicing in obstruents will therefore prevail over RENDAKU in satisfying the dissimilatory constraint, giving the desired effect in this class of examples.
2.2 Adjacency conditions

(11) Adjacency conditions on dissimulation rules

a. Head Adjacency (~Syllable Adjacency)
   The target and trigger must be adjacent syllable heads (or in adjacent syllables).

b. Root Adjacency (Segment Adjacency)
   The target and trigger must be adjacent root nodes.


(12) Dissimilation within a domain D

   Morphemes in Yamato Japanese have at most one voiced obstruent.

b. Liquid dissimilation in Georgian (Fallon 1993)
   r dissimilates to l when preceded by r in the word.

c. NC dissimilation in Gurindji (McConvell 1988)
   Pairs of underlying NC clusters are resolved by dropping the nasal of the second cluster.

(13) Dissimilation under Head Adjacency

a. Woleaiian low vowel dissimilation (Sohn 1971, 1975)
   The first member of a pair of low vowels dissimilates to the corresponding mid vowel.

b. Yimas rhotic dissimilation (Foley 1991)
   r dissimilates to t when the preceeding syllables contains an r.

c. Dahl's law in Kikuyu (Davy & Nurse 1982)
   k dissimilates to g when the following syllable contains a voiceless obstruent.

(14) Dissimilation under Root Adjacency

a. Arusa vowel raising (Levergood 1987)
   Mid vowels raise when they occur directly before a low vowel.

   Secondary [labial] is contrastive, yet labialized velars delabalize when they are directly preceded by a consonant specified for [labial].

c. Rhotic dissimilation in Ainu (Shibatani 1990)
   r becomes n directly before another r

(15) Locality Relations

a. Local Domains (LD):
   Given two segments $\alpha$ and $\beta$, $\alpha LD \beta$ iff $\alpha$ and $\beta$ are contained in domain described as $D$.
   (Here $D$ ranges over MCat's like Root and MWd, and possibly prosodic categories.)

b. Syllable Adjacency (LSA): 
   Given two segments $\alpha$ and $\beta$, $\alpha LSA \beta$ iff $\alpha$ and $\beta$ are contained in adjacent syllables.
   (This relation is reflexive; a syllable is adjacent with itself.)

c. Root Adjacency (LRA):
   Given two segments $\alpha$ and $\beta$, $\alpha LRA \beta$ iff $\alpha$ and $\beta$ are adjacent segments.

(16) Self-Conjunction (C1 = C2 ≡ C, C1 & C2 ≡ C2) under Locality Relation L

If Cat1 and Cat2 are of the same category type, and Cat1 and Cat2 stand in the locality relation L, then C2 is violated iff C is violated twice in Cat1 and Cat2.
2.2.1 Case Study I: Wolean a-Raising

(17) Paradigms showing $a \rightarrow e$

<table>
<thead>
<tr>
<th></th>
<th>mata-/</th>
<th>mata-ja-/</th>
<th>mata-mu-/</th>
<th>mata-la-/</th>
<th>mata-ca-/</th>
<th>mata-mami-/</th>
<th>mata-mi-/</th>
<th>mata-jire-/</th>
<th>meta-/</th>
</tr>
</thead>
<tbody>
<tr>
<td>form</td>
<td>maat</td>
<td>metaj</td>
<td>metam</td>
<td>metal</td>
<td>metaš</td>
<td>matemam</td>
<td>metami</td>
<td>metaar</td>
<td>metal</td>
</tr>
<tr>
<td>tense</td>
<td>1s</td>
<td>1sg</td>
<td>2sg</td>
<td>3sg</td>
<td>1pl incl</td>
<td>1pl excl</td>
<td>2pl</td>
<td>3pl</td>
<td></td>
</tr>
</tbody>
</table>

OBSERVATION (Sohn 1971, 1975) $a$ dissimilates to $e$ when the following syllable also contains $a$.

(18) Morphologically related words

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yefar</td>
<td>yaferai</td>
<td>yefaremam</td>
<td></td>
</tr>
<tr>
<td>form</td>
<td>'shoulder'</td>
<td>'my shoulder'</td>
<td>'our shoulders'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tepani</td>
<td>xetapetap</td>
<td>xetapetapa</td>
<td></td>
</tr>
<tr>
<td>form</td>
<td>'to help it'</td>
<td>'to support'</td>
<td>'to support it'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>gemmat</td>
<td>ranjeran</td>
<td>xeranjeran</td>
<td>xeranjerena</td>
</tr>
<tr>
<td>form</td>
<td>'bailor'</td>
<td>'yellow'</td>
<td>'make yellow'</td>
<td>'make it yellow'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>gammel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>form</td>
<td>'bailor of'</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OBSERVATION. The site of $a$-Raising is predictable from a right-to-left scansion of the word, yafera, cf. yefaremam.

(19) a. Self-conjunction of *Phar: $\&(*\text{Phar}, *\text{Phar}) = *\text{Phar}$

b. *Phar$^2$ is defined for the Locality Relation of Syllable Adjacency ($L_{SA}$)

INTERPRETATION. A self-conjoined *Phar, defined for $L_{SA}$, characterizes the ill-formedness of two adjacent syllables containing low vowels.

(20) a. IDENT[Phar] >> *Phar: low/nonlow contrast

b. *Phar$^{2SA}$ >> IDENT[Place]: bans two low vowels in adjacent syllables

(21) Interrupted Power Hierarchy for *Phar

<table>
<thead>
<tr>
<th>Input: mata-l</th>
<th>*Phar$^{2SA}$</th>
<th>IDENT[Place]</th>
<th>*Phar</th>
</tr>
</thead>
<tbody>
<tr>
<td>mata</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>*! metal</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

RESULT. In the first candidate, there are two vowels which stand in the locality relation of head adjacency which violate *Phar twice, which is fatal for this candidate. Importantly, this result depends crucially on a relation-based characterization of locality.

Note 3. There is a residue of problems here to be addressed in deriving the full dissimilatory process, essentially involving predicting which vowel will dissimilate. One problem involves accounting for medial $a$-Raising in a form like matemam, which has three syllable adjacent low vowels; medial $a$-Raising is a straightforward consequence of the principle of minimal violation of the featural faithfulness constraints: the only single application of $a$-Raising which will satisfy the dissimilatory constraint is for the medial vowel.

Also, there is the problem with deriving the alternating pattern, biasing the second and fourth syllables in a form like yafaremam. This problem requires an independent treatment in the theory defined here. One idea is to posit iambic foot structure, rendering the fourth and second syllables heads of iamb, and employ a set of Head Faithfulness constraints (see McCarthy 1995, Beckman 1995) to account for the fact that these vowels do not change.
2.2.2. Case Study II: Arusa nonlow raising

(22) a.  
\[ea \rightarrow ia\]  
\[/\text{il-nojine-ak}/ \rightarrow \text{ilnojinjak}\]  
\[\text{hyenas}\]  
\[/\text{n-koshok-ak}/ \rightarrow \text{nkoshuak}\]  
\[\text{stomaches}\]  
\[/\text{n-kare-ak}/ \rightarrow \text{nkariak}\]  
\[\text{water (pl)}\]  
\[/\text{kitok-ak}/ \rightarrow \text{kituak}\]  
\[\text{big (pl)}\]  
\[/\text{ate-dek-a}/ \rightarrow \text{atedia}\]  
\[\text{'i cursed'}\]  
\[/\text{a-to-lok-a}/ \rightarrow \text{atotua}\]  
\[\text{I intercepted it}\]

b.  
\[oa \rightarrow ua\]  
\[/\text{nkoshuak}\]  
\[\text{I was red}\]

OBSERVATION (Levergood 1987) Mid vowels raise to their corresponding high vowels when they directly precede a low vowel.

(23) a  
\[\text{etanyokyena}\]  
\[\text{It was red}\]  
\[\text{atoodgra}\]  
\[\text{I was tall}\]

b  
\[\text{elakwani}\]  
\[\text{People are very far away}\]  
\[\text{todoran}\]  
\[\text{I was red}\]

CLARIFICATION Mid vowels separated from a low vowel by a consonant do not raise.


a. Featural Classification

<table>
<thead>
<tr>
<th>Cor</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>e</td>
<td>o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a/o</th>
<th>a → i a</th>
</tr>
</thead>
<tbody>
<tr>
<td>[D, P] [P]</td>
<td>[D] [P]</td>
</tr>
</tbody>
</table>

b. Input-Output Pairing

| InterpreTation | The first vowel of the VV sequences dissimilates its Phar specification before another pharyngeal vowel. In mid+low vowel sequences this involves dropping the Phar in the mid vowel; in low+low VV sequences, this involves double linking of Phar. |


b. *Phar^2 is defined for the Locality Relation of Root Adjacency (L_{RA})

| Interpretation | A self-conjoined *[Phar], defined for L_{RA}, characterizes the ill-formedness of two adjacent vowels with a pharyngeal specification. |

(26) a. IDENT[Place] >> *Phar: vowels have a height contrast

b. *Phar^2_{RA} >> IDENT[Place]: bans two adjacent vowels with a Phar specification

(27) Interrupted Power Hierarchy for *Phar yields dissimilation of Phar

<table>
<thead>
<tr>
<th>Input: e a</th>
<th>*Phar^2_{RA}</th>
<th>IDENT[Place]</th>
<th>*Phar</th>
</tr>
</thead>
<tbody>
<tr>
<td>[D P] [P]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>e a</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>[D P] [P]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>i a</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>[D] [P]</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
</tbody>
</table>

RESULT Root adjacent vowels dissimilate for their Phar specification.
Note 4. There is a rich residue of problems to be addressed in a full account of the patterns here. For example, why don't low vowels lose their Phar specification instead of the mid vowels raise. Two possible treatments come to mind: (i) Faithfulness to primary Phar is higher ranked than nonprimary Phar, and so it doesn't change; (ii) Adding features is more costly than losing features (DEPI[F] >> MAX[F]), raising $a$ to $i$ will involve adding a coronal feature in the output, whereas raising $e$ to $i$ simply involves dropping Phar in the output.

Further, Why don't the low+mid vowel sequences trigger dissimilation? This fact has an independent account. One idea is that a gradual sonority fall in VV sequences is more harmonic than a marked fall, e.g. $ae$ is more harmonic than $ai$; the constraints responsible for this outweigh the dissimilatory constraint, *Phar$^R_A$.

(28) Contrasting Arusa with Wolealian

<table>
<thead>
<tr>
<th>Arusa Dissimilation under $L^{RA}$</th>
<th>Woleanian dissimilation under $L^{SA}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) $e\ a \rightarrow i\ a$</td>
<td>(i) *$e...a \rightarrow i...a$</td>
</tr>
<tr>
<td></td>
<td>*$o...a \rightarrow u...a$</td>
</tr>
<tr>
<td>(ii) $o\ a \rightarrow u\ a$</td>
<td></td>
</tr>
</tbody>
</table>

OBSERVATION Dissimilation patterns are complementary.

INTERPRETATION It comes in two parts, Part 1 deals with the (lack of) dissimilation with mid vowels (31ii), and Part 2 deals with the (lack of) dissimilation with the low vowels (31ii).

Part 1: It isn't enough that root adjacent vowels be partially dissimilar; any two violations of *Phar in adjacent vowels triggers dissimilation in Arusa. In Wolealian, dissimilation is triggered by a self-conjoined *1-Phar: since only low vowels have a primary Phar specification, only a pair of low vowels will dissimilate. One form of linguistic evidence supporting the distinction in the rank of Phar in mid vowels and low vowels is that mid vowels and high vowels pattern as a class that excludes low vowels in many types of height harmony; if this class is characterized by a primary dorsal specification, the necessary distinctions can be made.

Part 2: The same constraints are at work in (ii). Arusa licenses V-to-V spreading as a means of satisfying *Phar$^R_A$; the same strategy is not available in Woleanian because the offending low vowels are nonadjacent.

(29) A Parallel in Tashlhiyt Berber Labial Dissimilation (Selkirk 1993)

<table>
<thead>
<tr>
<th>Aorist</th>
<th>Preterit</th>
<th>Agent, sg.</th>
<th>Agent, pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>gru</td>
<td>g$^w$ra</td>
<td>amgru</td>
<td>imgra</td>
</tr>
<tr>
<td>g$^w$rd</td>
<td>g$^w$rd</td>
<td>amgrud</td>
<td>imgrad</td>
</tr>
<tr>
<td>9g$^w$</td>
<td>9g$^w$a</td>
<td>tamggant</td>
<td>timgganin</td>
</tr>
<tr>
<td>kru</td>
<td>k$^w$ra</td>
<td>amkray</td>
<td>imkrayn</td>
</tr>
</tbody>
</table>

OBSERVATION (Jebbour 1985, Lasri 1991) In some varieties of Tashlhiyt Berber (Tiznit, Tidli), labialized velar dissimilate with a labial consonant directly preceding it.

(30) Dissimilation of [labial] assuming different rank

<table>
<thead>
<tr>
<th>a. i m g$^w$ r a</th>
<th>b. i m g r a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Dor</td>
<td>Lab Dor</td>
</tr>
</tbody>
</table>

INTERPRETATION (Selkirk 1993) Under conditions of root adjacency, secondary Lab dissipilates with a primary Lab; under root adjacency a stronger form of dissimilation is exerted.
2.3 Summary and Implications

(31) Factorial Typology relative to Power Hierarchies

\[
\begin{align*}
*F^3_L & \gg \quad (iii) & \gg & *F^2_L & \gg \quad (ii) & \gg & *F & \gg \quad (i) \\
\uparrow & & & \uparrow & & & \uparrow & \\
\text{Faith [F]} & & & \text{Faith [F]} & & & \text{Faith [F]} &
\end{align*}
\]

RESULT: Permuting the rankings of the featural faithfulness constraint, Faith [F], relative to the markedness power hierarchy for *F gives three types of languages:
(i) one in which the feature [F] is not contrastive at all,
(ii) one in which [F] are restricted to one segment per local context,
(iii) and languages in which [F] contrasts are not restricted to a single segment per local context.

(32) A Typology relative to Locality Relations

\[
\begin{align*}
*F^2_{RA} & \gg \quad (iii) & \gg & *F^2_{SA} & \gg \quad (ii) & \gg & *F^2_{PrWd} & \gg \quad (i) \\
\uparrow & & & \uparrow & & & \uparrow & \\
\text{Faith [F]} & & & \text{Faith [F]} & & & \text{Faith [F]} &
\end{align*}
\]

RESULTS: Reranking Faith [F] relative to self-conjoined *F constraints ordered hierarchically by the locality relation they are defined for yields a clear cut typology for dissimilation processes:
(i) dissimilation within the domain of the word,
(ii) dissimilation in which the target and the trigger are in adjacent syllables,
(iii) and dissimilation in which the target and the trigger are in adjacent segments.

(33) Correlations in Featural Markedness Results, Part I

• Featural Markedness derived by the presence of a constraint *F
• Dissimilatory effects derived by subordinating Faith[F] to a self-conjoined *F
• RESULT: Only 'marked' features will participate in dissimilation processes
  a. Example 1. *[+son] & *[+voi], but no analogous *[[-son]] & *[[-voi]]; the prediction
     then is that only voiced obstruents will participate in dissimilation processes
     because the theory only gives (*[-son] & *[+voi])^2 as a dissimilatory constraint
  b. Example 2. The theory of the inventory gives us NOLOVGWORDVowel (Rosenthal 1994), but no analogous NOSHORTVOWEL; thus only long vowels will
dissimilate by NOLOVGWORDVowel^2

(34) Correlations in Featural Markedness Results, Part II

• Featural markedness constraints are structured in meta-constraints on rankings, e.g., Prince
  & Smolensky's 1993 Markedness Subhierarchy for Place: *Lab >> *Dor >> *Cor
• The meta-constraint carries over to relations between power hierarchies, e.g. *Lab >> *Cor
  means that a labial is always worse than a coronal; thus two labials is worse than two
coronals, i.e. *Lab^2 >> *Cor^2
• Certain entailments can therefore be derived in dissimilation patterns by considering the
  factorial typology of this markedness subhierarchy for *Place^2 and Faith(Place)
RESULT: If a language dissipates for Cor, it dissipates for Lab.
  i. Faith(Place) >> *Lab^2 >> *Cor^2: No dissimilation
  ii. *Lab^2 >> Faith(Place) >> *Cor^2: Lab dissimilation, no Cor dissimilation
  iii. *Lab^2 >> *Cor^2 >> Faith(Place): Lab and Cor dissimilation
(35) Formal Parallels between Dissimilatory and Assimilatory Processes

a. **Dissimilation**, compelled by \( \ast F^2 \)

\[
\begin{array}{c|c}
\alpha_C & \beta_C \\
\hline
F_i & \neq \\
\end{array}
\]


b. **Assimilation**, compelled by \( \ast F^2 \)

\[
\begin{array}{c|c}
\alpha_C & \beta_C \\
\hline
F_i & F_i' \\
\end{array}
\]

**OBSERVATIONS**

The formal parallels between dissimilation and assimilation processes are rich:

(i) Both processes make reference to segments of the same natural class.
(ii) Both dissimilation and assimilation are subject to a set of locality conditions, often the *same* locality conditions.
(iii) Both processes effect loss of featural loss. In dissimilation, an underlying feature is deleted and an default one is put in its place. In assimilation, certain positional biases are exerted, with the effect of supplanting the featural specification of an underlying segment.

(36) The Role of Local Conjunction in Assimilation

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Operative Constraint</th>
</tr>
</thead>
<tbody>
<tr>
<td>\ast V C C V</td>
<td>V C C V</td>
<td>\ast CPlace^{2}_{RA}</td>
</tr>
<tr>
<td>Place</td>
<td>Place</td>
<td>\backslash /</td>
</tr>
</tbody>
</table>

b. \ast C V C V C | C V C V C | \ast VPlace^{2}_{SA} |
| Place | Place | \backslash / |

**OBSERVATION** (Beckman 1995, forthcoming) Assimilation, affected by featural spreading, is driven by featural markedness. Additional characteristics of assimilation or harmony rules receive an independent account. For example, the directionality of spreading is governed by positional biases, e.g. by Root Faith or Onset Faith (McCarthy & Prince 1995, Lombardi 1996).

(37) Some Schematic Rankings

a. **Dissimilation**

\( \ast \ast F^2_L \Rightarrow \text{Faith}[F] \): More than one instantiation of \( F \) in a local context defined by \( L \) is not allowed.

\( \ast \text{STAY}[F] \Rightarrow \ast F^2_L \): Spreading is not employed under pressure from \( \ast F^2_L \)

b. **Assimilation**

\( \ast \ast F_{C^2}^2_L \Rightarrow \text{Faith}[F_C] \): More than one instantiation of members of the major class of features \( F_C \) is not allowed in a local context defined by \( L \).

\( \ast \ast F_{C^2}^2_L \Rightarrow \text{STAY}[F] \): Spreading is employed under pressure from \( \ast F_{C^2}^2_L \)

**OBSERVATION**

Dissimilation may be treated on a par with assimilation in that both involve local conjunction of featural markedness constraints, where the dissimilatory constraint targets a subset of the set of segments targeted in the constraint driving assimilation. The two classes of processes, radically different in surface form, are distinguished largely on the basis of the ranking of the anti-spreading constraint relative to the self-conjoined featural markedness constraint.
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