Appendices to "Segmental Blocking in Dissimilation: An Argument for Co-Occurrence Constraints

Juliet Stanton, MIT

Appendix A: Additional segmental blocking cases

- Four additional patterns have been claimed to instantiate segmental blocking in dissimilation. If they do, it's not obvious how to account for them in co-occurrence-based or correspondence-based theories of dissimilation.
- In each case I believe there is an alternative interpretation/analysis available.

[labial] Dissimilation in Akkadian

- It has been claimed (by e.g. Hume 1992, Odden 1994), that the labials [u] and [w] block labial consonant dissimilation in Akkadian.
  - *Labial consonant dissimilation*: when attached to a form whose root contains a labial consonant, the prefix /m-/ (1a–c) is realized as /n-/ (1d–f).

(1) Labial dissimilation in Akkadian (von Soden 1969:64–66)

a.	/**m**a+girt+um/	→	[**m**a-girt-um]	gloss
b.	/**m**a+zūkt+um/	→	[**m**a-zūkt-um]	gloss
c.	/**m**a+**m**kūr+um/	→	[**n**a-**m**kūr-um]	gloss
d.	/**m**a+**p**tēt+um/	→	[**n**a-**p**tēt-um]	gloss

  - *Blocking claim*: intervening [u] or [w] blocks dissimilation.

(2) Labial dissimilation blocked in Akkadian (von Soden 1969:64–66)

a.	/**m**u̲+shī**m**+um/	→	[**m**u̲-shī**m**-um]	gloss
b.	/**m**u̲+ltā**b**ilt+u/	→	[**m**u̲-ltā**b**ilt-u]	gloss

- However, there is an alternative available: the prefix /ma-/ and its allomorph /me-/ undergo labial dissimilation, but the prefix /mu-/ does not.
  - This is the description provided by Akkadian grammars I have seen (Gelb 1961, von Soden 1969, Ugnad 1969, Huehnergard 1997, Caplice & Snell 2002).
  - In addition, it accounts for all data provided by von Soden (1969:64–66).
    - ≽ Let us assume that dissimilation is expected to apply if the prefix is /ma-/ (or its allomorph [me-]) and the root contains a labial.
    - ≽ Let us further assume that dissimilation is *not* expected to apply if (i) the prefix is /mu-/, and/or (ii) the root does not contain a labial.
    - ≽ This analysis predicts the behavior of 74/76 (97% of the relevant) forms.

(3) Forms with /m–/ preformative in von Soden 1969:64–66

Triggered?	Applied?	
	Yes	No
Yes	9	1
No	1	65

    - ≽ The two exceptions: *māmītum* (dissimilation should apply, but doesn't[1]), and *nubattum* (dissimilation applies, but shouldn't have).
    - ≽ What would differentiate the two analyses: does root-internal [u] block labial dissimilation? I have not found forms that would allow us to test this claim.
- **Question**: *why* would the /mu-/ prefix fail to undergo an alternation that the /ma-/ prefix (and its allomorph /me-/) undergo?
  - There are a couple of possible answers.
    1. /ma-/ has an allomorph [na-], but /mu-/ has no allomorph [nu-]. Why?
       (a) One possibility: that's just the way Akkadian works.
       (b) A second possibility: there are considerations of anti-homophony in play. There is an independent prefix /nu-/ that is used in various verbal conjugations (Ugnad 1969:81). Perhaps /mu-/ does not dissimilate so as to avoid confusion between a noun and a conjugated verb...
    2. The [m] in /mu-/ does not dissimilate due to a constraint on inalterability (e.g. Hayes 1986, Schein & Steriade 1986): [labial] is doubly linked.
  - Given the lack of available data, these seem equally plausible.
- **Conclusion**: the available data do not allow us to pick out one correct analysis for why the prefix /mu-/ fails to alternate. The analysis under which [u] directly blocks dissimilation is not any more likely than the analyses sketched above.

[1] The form *māmītum*, with the root <wmii>, has been claimed to show that labial dissimilation is blocked by an intervening *w* (Odden 1994:321). I am skeptical, as the root *w* is likely not present on the surface in any sense (see e.g. Huehnergard 1997:2), and it seems more likely that the form is just one in which dissimilation sporadically fails to apply.

[-voice] Dissimilation in Bantu

- Suzuki (1998:107) has claimed that Dahl's Law ([-voice] dissimilation) is blocked by all consonants *except* [k], in a number of Bantu languages.
- Bennett (2015:+65–+66) interprets this remark as pertaining to Dahl's Law as instantiated in Embu and Kuria, both described by Davy & Nurse (1982).
  - *Embu*: /k.k.k.-$C_{[-voice]}$/ → [k.ɣ.ɣ.-$C_{[-voice]}$], [ɣ.k.ɣ.-$C_{[-voice]}$]
  - *Kuria*: /k.k.k.-$C_{[-voice]}$/ → any combination of [k]s and [ɣ]s:

(4) Dahl's Law possibilities in Kuria

a. [ɣ.ɣ.ɣ.-$C_{[-voice]}$]	e. [k.k.ɣ.-$C_{[-voice]}$]
b. [k.ɣ.ɣ.-$C_{[-voice]}$]	f. [k.ɣ.k.-$C_{[-voice]}$]
c. [ɣ.k.ɣ.-$C_{[-voice]}$]	g. [ɣ.k.k.-$C_{[-voice]}$]
d. [ɣ.ɣ.k.-$C_{[-voice]}$]	h. [k.k.k.-$C_{[-voice]}$]

- Suzuki's (1998) apparent interpretation of these facts: a stem-initial [-voice] consonant can trigger voiceless dissimilation across a /k/, regardless of distance.
- Bennett (2015:+66) notes that there are alternative interpretations available.
  - The cases with multiple [ɣ]s (e.g. (4a–b)) can be attributed to [+voice] harmony among syllable-adjacent prefixal consonants (Lombardi, 1995).
  - The cases where dissimilation 'skips' over one or more [k]s (e.g. (4d,f,g)) can be explained if prefixal [k]s can also act as [-voice] dissimilation triggers.
- Both interpretations are capable of explaining the existing data.
- **Conclusion**: there is no reason to favor an interpretation of the data in which the many options in (4) are due to the fact that only [k] is transparent.

Nasal Cluster Effects in Gurindji

- McConvell (1988, 1993) describes a process of *long-distance nasal cluster effects* in Gurindji, whose application is dependent on the intervening material.
  - If the material between the two nasal-stop clusters is composed of only [+continuant] segments, the second nasal loses its [+nasal] feature.

(5) Nasal cluster effects (McConvell 1988:140,145)

a. /ka**nk**u̲la+**mp**a/ → [ka**nk**u̲la-**mp**a] 'on the high ground'

b. /ja**n-k**u-ji̲-**n-p**.../ → [ja**n-k**u-ji̲-**t-p**...] 'you two might come to me'

  - If one or more non-continuants intervenes, the nasal-stop clusters are preserved.

(6) Nasal cluster effects (McConvell 1988:141,145)

a. [ŋu-ŋa**nt**i̲pa-**ŋk**ulu ɲa-ɲa] 'they saw us'

b. [ŋa**nt**u-wu-ɟa-**n-k**u[a kari-ɲa] 'with whom did you stay?'

- There is reason to believe that nasal cluster effects in general (and particularly the pattern in Gurindji) should not be analyzed as dissimilation.
- See Stanton (2016b,2016a) for further discussion.

Backness Dissimilation in Quichean

- In many Quichean lgs. (incl. Tzutujil; Ohala 1993, Bennett 2015), [$k^{(')}$] palatalizes when followed by a [-round] vowel and another dorsal (Campbell 1977).
  - Conditioning environment depends on the language (Campbell 1977: Ch. 1).
    - ⪰ In some languages, palatalization applies only before [q]:

(7) $k^{(')} \rightarrow k^{y(')} / \_\_ V_{[-round]}\ q^{(')}$

    - ⪰ In others, palatalization applies before [q] and [x]:

(8) $k^{(')} \rightarrow k^{y(')} / \_\_ V_{[-round]}\ \{q^{(')}, x\}$

    - ⪰ In still others, palatalization applies before [q]; optionally before all velars:

(9) $k^{(')} \rightarrow k^{y(')} / \_\_ V_{[-round]}\ \{q^{(')}, (x), (ŋ), (k^{(')})\}$

  - *Note*: [-round] picks out the same vowels as [-back] (i,e,a); either is sufficient.
- There are a couple of reasons why the conditioning environment could be limited to environments with a [-round] (or [-back]) vowel.
  1. Back vowels (o,u) block backness dissimilation.
  2. Perhaps: enhancement of an insufficiently distinct contrast.
     - In the San Carlos Alzatate dialect of Pokomam (Campbell 1977:22), there is a process related to the velar palatalization processes of other languages.
       - ⪰ As in other systems, [$k^{(')}V_{[-round]}V$] is banned.
       - ⪰ But in the San Carlos Alzatate dialect, [$k^{(')}$] maps to [$q^{(')}$].

(10) $k^{(')} \rightarrow q^{(')} / \_\_ V_{[-voice]}\ q$

     - A unified way of viewing (10) and in (7–9): they are reactions to decreased perceptibility of the $k^{(')}$–$q^{(')}$ contrast in $V_{[-back]}\{q,x\}$ environments.
       - ⪰ (10) involves *neutralization* of dorsal stop place contrasts, and
       - ⪰ (7–9) involve *enhancement* of dorsal stop place contrasts.
     - But *why* is the $k^{(')}$–$q^{(')}$ contrast compromised in this context?

- ⩾ Ohala 199X:256: *"Back velars cause a lowering of the F2 of adjacent vowels (Klatt & Stevens 1969, Ghazeli 1977). Back rounded vowels [. . .] have the lowest possible F2 of all vowels.*
- ⩾ Total speculation: let's assume that a cue to the contrast between $kV_{[-back]}$ and $qV_{[-back]}$ sequences is the quality of the following vowel: velars and uvulars lower F2 to a different extent. (On the role of F1 in dorsal place contrasts, see Gallagher 2016).
- ⩾ In $kV_{[-back]}q$ sequences we might imagine that the uvular consonant lowers the F2 of the preceding vowel, to the extent that the cues between $kV_{[-back]}q$ and $qV_{[-back]}q$ are no longer maximally available.
- ⩾ Because [+back,+round] vowels already have a very low F2, perhaps (i) the contrast between $kV_{[+back]}$ and $qV_{[-back]}$ is less dependent on vowel quality and/or (ii) [+back,+round] vowels are less susceptible to coarticulatory effects from neighboring dorsal consonants.

- **Conclusion**: I see no reason to a favor an analysis of this pattern that appeals to dissimilation over one that appeals to contrast neutralization/enhancement, though further details of the latter remain to be worked out.

Appendix B: Factorial Typology Results

Candidate set

Input	Candidates	Input	Candidates
/la+la/	[l_xa-l_xa] [l_xa-l_ya] [l_xa-r_xa] [l_xa-r_ya]	/krala+la/	[kr$_x$al$_y$a-l$_y$a] [kr$_x$al$_y$a-l$_z$a] [kr$_x$al$_y$a-r$_x$a] [kr$_x$al$_y$a-r$_z$a]
/la+l/	[l_xa-l_x] [l_xa-l_y] [l_xa-r_x] [l_xa-r_y]	/klara+la/	[kl$_x$ar$_y$a-l$_x$a] [kl$_x$ar$_y$a-l$_z$a] [kl$_x$ar$_y$a-r$_y$a] [kl$_x$ar$_y$a-r$_z$a]
/ra+ra/	[r_xa-r_xa] [r_xa-r_ya] [r_xa-l_xa] [r_xa-l_ya]	/krala+ra/	[kr$_x$al$_y$a-r$_x$a] [kr$_x$al$_y$a-r$_z$a] [kr$_x$al$_y$a-l$_y$a] [kr$_x$al$_y$a-l$_z$a]
/ra+r/	[r_xa-r_x] [r_xa-r_y] [r_xa-l_x] [r_xa-l_y]	/klara+ra/	[kl$_x$ar$_y$a-r$_y$a] [kl$_x$ar$_y$a-r$_z$a] [kl$_x$ar$_y$a-l$_x$a] [kl$_x$ar$_y$a-l$_z$a]
/klarda+la/	[kl$_x$ar$_y$da-l$_x$a] [kl$_x$ar$_y$da-l$_z$a] [kl$_x$ar$_y$da-r$_y$a] [kl$_x$ar$_y$da-r$_z$a]	/lara+la/	[l$_x$ar$_y$a-l$_x$a] [l$_x$ar$_y$a-l$_z$a] [l$_x$ar$_y$a-r$_y$a] [l$_x$ar$_y$a-l$_z$a]
/klarda+ra/	[kl$_x$ar$_y$da-l$_x$a] [kl$_x$ar$_y$da-l$_z$a] [kl$_x$ar$_y$da-r$_y$a] [kl$_x$ar$_y$da-r$_z$a]	/lara+ra/	[l$_x$ar$_y$a-r$_y$a] [l$_x$ar$_y$a-r$_z$a] [l$_x$ar$_y$a-l$_x$a] [l$_x$ar$_y$a-l$_z$a]
/lar+al/	[$l_x$ar$_y$-al$_x$] [$l_x$ar$_y$-al$_z$] [$l_x$ar$_y$-ar$_y$] [$l_x$ar$_y$-ar$_z$]	/ral+al/	[$r_x$al$_y$-al$_y$] [$r_x$al$_y$-al$_z$] [$r_x$al$_y$-ar$_x$] [$r_x$al$_y$-ar$_z$]
/lar+ar/	[$l_x$ar$_y$-ar$_y$] [$l_x$ar$_y$-ar$_z$] [$l_x$ar$_y$-al$_x$] [$l_x$ar$_y$-al$_z$]	/ral+ar/	[$r_x$al$_y$-ar$_x$] [$r_x$al$_y$-ar$_z$] [$r_x$al$_y$-al$_y$] [$r_x$al$_y$-al$_z$]

Co-occurrence-based theory: constraints

- *[r]. . . [r]: assign one violation mark for each pair of [r]s in a word.
- *[l]. . . [l]: assign one violation mark for each pair of [l]s in a word.
- IO-IDENT[±lateral]: assign one violation mark for each [αlateral] input consonant with a [-αlateral] output correspondent.

Co-occurrence-based theory: predictions

1. **Pattern**: Full identity
   Ranking: IO-IDENT[±lateral] ≫ *[r]…[r], *[l]…[l]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

2. **Pattern**: [r]-dissimilation
   Ranking: *[r]…[r] ≫ IO-IDENT[±lateral] ≫ *[l]…[l]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

3. **Pattern**: [l]-dissimilation
   Ranking: *[l]…[l] ≫ IO-IDENT[±lateral] ≫ *[r]…[r]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

4. **Pattern**: [l]-dissimilation and [r]-dissimilation. If a word must have two [l]s or two [r]s, the form with two [l]s is selected.
   Ranking: *[r]…[r] ≫ *[l]…[l] ≫ IO-IDENT[±lateral]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

5. **Pattern**: [l]-dissimilation and [r]-dissimilation. If a word must have two [l]s or two [r]s, the form with two [r]s is selected.
   Ranking: *[l]…[l] ≫ *[r]…[r] ≫ IO-IDENT[±lateral]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-ra]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

Correspondence-Based theory: constraint set

- CORR[l]: assign one violation for each pair of non-corresponding [l]s.
- CORR[r]: assign one violation for each pair of non-corresponding [r]s.
- CC-SROLE: corresponding consonants must have the same syllabic role.
- CC-EDGE(σ): corresponding consonants must reside within the same syllable.
- IO-IDENT[±lateral]: assign one violation mark for each [αlateral] input consonant with a [-αlateral] output correspondent.

Correspondence-Based theory: predictions

1. **Pattern**: Identity
   Rankings: (i) CORR[r], CORR[l], IO-ID[±lat] ≫ CC-EDGE(σ), CC-SROLE
   (ii) CORR[l], IO-ID[±lat] ≫ CC-SROLE ≫ CORR[r] ≫ CC-EDGE(σ)
   (iii) CORR[l], IO-ID[±lat] ≫ CC-EDGE(σ) ≫ CORR[r] ≫ CC-SROLE
   (iv) CORR[l], IO-ID[±lat] ≫ CC-EDGE(σ), CC-SROLE ≫ CORR[r]
   (v) CORR[r], IO-ID[±lat] ≫ CC-SROLE ≫ CORR[l] ≫ CC-EDGE(σ)
   (vi) IO-ID[±lat], CC-SROLE ≫ CORR[r], CORR[l] ≫ CC-EDGE(σ)
   (vii) IO-ID[±lat], CC-SROLE ≫ CORR[l] ≫ CC-EDGE(σ) ≫ CORR[r]
   (viii) CORR[r], IO-ID[±lat] ≫ CC-EDGE(σ) ≫ CORR[l] ≫ CC-SROLE
   (ix) IO-ID[±lat], CC-EDGE(σ) ≫ CORR[r], CORR[l] ≫ CC-SROLE
   (x) IO-ID[±lat], CC-EDGE(σ) ≫ CORR[l] ≫ CC-SROLE ≫ CORR[r]
   (xi) CORR[r], IO-ID[±lat] ≫ CC-EDGE(σ) ≫ CORR[l]
   (xii) IO-ID[±lat], CC-SROLE ≫ CORR[r] ≫ CC-EDGE(σ) ≫ CORR[l]
   (xiii) IO-ID[±lat], CC-EDGE(σ) ≫ CORR[r] ≫ CC-SROLE ≫ CORR[l]
   (xiv) IO-ID[±lat], CC-EDGE(σ), CC-SROLE ≫ CORR[r], CORR[l]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

2. **Pattern**: [r]-dissimilation
   Ranking: CORR[r], CC-EDGE(σ), CC-SROLE ≫ IO-ID[±lat] ≫ CORR[l]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

3. **Pattern**: [l]-dissimilation
   Ranking: CORR[l], CC-EDGE(σ), CC-SROLE ≫ IO-ID[±lat] ≫ CORR[r]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

4. **Pattern**: [l]-dissimilation and [r]-dissimilation. If a word must have two [l]s or two [r]s, the form with two [l]s is selected.
   Ranking: CORR[r], CC-EDGE(σ), CC-SROLE ≫ CORR[l] ≫ IO-ID[±lat]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

5. **Pattern**: [l]-dissimilation and [r]-dissimilation. If a word must have two [l]s or two [r]s, the form with two [r]s is selected.
   Ranking: CORR[l], CC-EDGE(σ), CC-SROLE ≫ CORR[r] ≫ IO-ID[±lat]
   Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-ra]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

6. **Pattern**: [r]-dissimilation if syllabic roles mismatch
   Ranking: (i) CORR[r], CC-SROLE ≫ IO-ID[±lat] ≫ CORR[l] ≫ CC-EDGE(σ)
   (ii) CORR[r], CC-SROLE ≫ IO-ID[±lat] ≫ CC-EDGE(σ) ≫ CORR[l]

Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

7. **Pattern**: [l]-dissimilation in syllabic roles mismatch
Ranking: (i) CORR[l], CC-SROLE ≫ IO-ID[±lat] ≫ CORR[r] ≫ CC-EDGE(σ)
(ii) CORR[l], CC-SROLE ≫ IO-ID[±lat] ≫ CC-EDGE(σ) ≫ CORR[r]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-la]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

8. **Pattern**: Complicated syllabic role pattern #1
Ranking: CORR[r], CORR[l] ≫ CC-SROLE ≫ IO-ID[±lat] ≫ CC-EDGE(σ)
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

9. **Pattern**: Complicated syllabic role pattern #2
Ranking: CORR[r], CC-SROLE ≫ CORR[l] ≫ IO-ID[±lat] ≫ CC-EDGE(σ)
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

10. **Pattern**: Complicated syllabic role pattern #3
Ranking: CORR[l], CC-SROLE ≫ CORR[r] ≫ IO-ID[±lat] ≫ CC-EDGE(σ)
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

11. **Pattern**: Transsyllabic [r]-dissimilation
Ranking: (i) CORR[r], CC-EDGE(σ) ≫ IO-ID[±lat] ≫ CORR[l] ≫ CC-SROLE
(ii) CORR[r], CC-EDGE(σ) ≫ IO-ID[±lat] ≫ CC-SROLE ≫ CORR[l]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-r]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

12. **Pattern**: Transsyllabic [l]-dissimilation
Ranking: (i) CORR[l], CC-EDGE(σ) ≫ IO-ID[±lat] ≫ CORR[r] ≫ CC-SROLE
(ii) CORR[l], CC-EDGE(σ) ≫ IO-ID[±lat] ≫ CC-SROLE ≫ CORR[r]

Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-l]	/klara+la/	[klara-ra]
/ra+ra/	[ra-ra]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

13. **Pattern**: Complicated transsyllabic pattern #1
Ranking: CORR[r], CORR[l] ≫ CC-EDGE(σ) ≫ IO-ID[±lat] ≫ CC-SROLE
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

14. **Pattern**: Complicated transsyllabic pattern #2
Ranking: CORR[r], CC-EDGE(σ) ≫ CORR[l] ≫ IO-ID[±lat] ≫ CC-SROLE
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-l]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-r]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

15. **Pattern**: Complicated transsyllabic pattern #3
Ranking: CORR[l], CC-EDGE(σ) ≫ CORR[r] ≫ IO-ID[±lat] ≫ CC-SROLE
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-la]	/krala+la/	[krala-ra]
/la+l/	[la-l]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-ra]
/ra+r/	[ra-r]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

16. **Pattern**: Complicated mixed pattern #1
Ranking: CORR[r], CORR[l] ≫ CC-EDGE(σ), CC-SROLE ≫ IO-ID[±lat]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

17. **Pattern**: Complicated mixed pattern #2
Ranking: CORR[r], CC-SROLE ≫ CORR[l] ≫ CC-EDGE(σ) ≫ IO-ID[±lat]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-ra]
/lar+al/	[lar-al]	/ral+al/	[ral-al]
/lar+ar/	[lar-al]	/ral+ar/	[ral-al]

18. **Pattern**: Complicated mixed pattern #3
Ranking: CORR[r], CC-EDGE(σ) ≫ CORR[l] ≫ CC-SROLE ≫ IO-ID[±lat]

Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-la]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-la]
/klarda+la/	[klarda-la]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-la]	/lara+ra/	[lara-la]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

19. **Pattern**: Complicated mixed pattern #4
Ranking: CORR[l], CC-EDGE(σ) $\gg$ CORR[r] $\gg$ CC-SROLE $\gg$ IO-ID[$\pm$lat]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-ra]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-ra]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-ra]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-al]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-al]

20. **Pattern**: Complicated mixed pattern #5
Ranking: CORR[l], CC-SROLE $\gg$ CORR[r] $\gg$ CC-EDGE(σ) $\gg$ IO-ID[$\pm$lat]
Surface pattern:

Input	Output	Input	Output
/la+la/	[la-ra]	/krala+la/	[krala-la]
/la+l/	[la-r]	/klara+la/	[klara-ra]
/ra+ra/	[ra-la]	/krala+ra/	[krala-la]
/ra+r/	[ra-l]	/klara+ra/	[klara-ra]
/klarda+la/	[klarda-ra]	/lara+la/	[lara-la]
/klarda+ra/	[klarda-ra]	/lara+ra/	[lara-ra]
/lar+al/	[lar-ar]	/ral+al/	[ral-ar]
/lar+ar/	[lar-ar]	/ral+ar/	[ral-ar]

References

Campbell, Lyle (1977). *Quichean Linguistic Prehistory*. University of California Press, Berkeley, CA.

Caplice, Richard & Daniel Snell (2002). *Introduction to Akkadian*. Editrice Pontifico Istituto Biblico, Rome.

Davy, J. J. M. & Derek Nurse (1982). Synchronic versions of Dahl's Law: The multiple applications of a phonological dissimilation law. *Journal of African Languages and Linguistics* 4, 157–195.

Gallagher, Gillian (2016). Vowel height allophony and dorsal place contrasts in Cochabamba Quechua. *Phonetica* 73, 101–119.

Gelb, I. J. (1961). *Old Akkadian Writing and Grammar*. The University of Chicago Press, Chicago.

Ghazeli, Salem (1977). *Back Consonants and Backing Coarticulation in Arabic*. Ph.D. thesis, University of Texas at Austin, Austin, TX.

Huehnergard, John (1997). *The Akkadian Dialects of Carchemish and Ugarit*. Ph.D. thesis, Harvard University, Cambridge, MA.

Hume, Elizabeth (1992). *Front vowels, coronal consonants and ther interaction in nonlinear phonology*. Ph.D. thesis, Cornell University, Ithaca, NY.

Klatt, Dennis H. & Kenneth N. Stevens (1969). Pharyngeal consonants. *Quarterly Progress Report, Research Laboratory of Electronics, MIT* 93, 207–216.

Lombardi, Linda (1995). Laryngeal features and syllable well-formedness. *Natural Language and LInguistic Theory* 13, 39–74.

McConvell, Patrick (1988). Nasal cluster dissimilation and constraints on phonological variables in Gurundji and related languages. *Aboriginal linguistics* 1, 135–165.

McConvell, Patrick (1993). [-nasal] spreading in Gurindji and related Australian languages. Casuarina: Northwest Territories University, Australia, ms.

Odden, David (1994). Adjacency Parameters in Phonology. *Language* 70, 289–330.

Ohala, John J. (1993). The phonetics of sound change. Jones, Charles (ed.), *Historical Linguistics: Problems and Perspectives*, Longman, London, 237–278.

von Soden, Wolfram (1969). *Grundriss der Akkadischen Grammatik*. Pontificum Institutum Biblicum, Rome.

Stanton, Juliet (2016a). Effects of allophonic nasalization on NC clusters: a contrast-based account. *To appear in NELS 46 Proceedings*.

Stanton, Juliet (2016b). Trigger Deletion in Gurindji. Ms., MIT. Draft available online at `http://web.mit.edu/juliets/www/gurindji.pdf`.

Ugnad, Arthur (1969). *Akkadian Grammar*. Scholars Press, Atlanta, GA.