Class 5
Alternatives to Level Ordering

10/26/23

1 Level ordering: review

- Lexical Phonology and Morphology (LPM; Pesetsky 1979, Kiparsky 1982, Mohanan 1982, et seq.; following Siegel 1974, Allen (1978), *a.o*) divides affixes into two sets.
  - Level 1 affixes are added at the stem level (first stratum, internally cyclic)
  - Level 2 affixes are added at the word level (second stratum, non-cyclic)

(1) Types of affixes in LPM

a. **Level 1 affixes:** "stem affixes", attach earlier in the derivation
-al, *-(i)an*, *-ate*, *-ic*, *-(t)ion*, *-ity*, *-ive*, *-ous*, *-y* (N), etc.

b. **Level 2 affixes:** "word affixes", attach later in the derivation
-er (agentive), *-ful*, *-hood*, *-ism*, *-ist*, *-less*, *-like*, *-ly*, *-ness*, *-y* (Adj), etc.

- Motivation for this is: the two sets of affixes map pretty well onto clear distinctions in a number of areas.

Non-phonological distinctions between Level 1 and Level 2 (in English, and generally)

1. Bases of affixation
   - Level 1 affixes can attach to free-standing words and **bound roots**: *prolif-ic*, *frag-ment*, *ed-ible*
   - Level 2 affixes attach only to free-standing words; i.e. no words like **prolif-y* or **frag-ness*

2. Order of affixation
   - Level 1 affixes can attach to a constituent headed by another Level 1 affix (2a).
   - Level 2 affixes can attach to a constituent headed by another Level 2 affix (2d).
   - Level 2 affixes can attach to a constituent headed by a Level 1 affix (2b).
   - **But:** Level 1 affixes **cannot** attach to a constituent headed by a Level 2 affix (2c).

(2) Affix ordering

a.	✓	[[[Base] **1**] **1**] (1>1):	*curi-os₁-ity₁*
b.	✓	[[[Base] **1**] **2**] (1>2):	*myst-ic₁-ism₂*
c.	✗	[[[Base] **2**] **1**] (2>1):	**affix-less₂-ity₁*
d.	✓	[[[Base] **2**] **2**] (2>2):	*affix-less₂-ness₂*

∗ **N.B.:** No (obvious) difference in syntactic categories between the affixes in the different levels, so this seems to be a truly morpho(phono)logical restriction (if true).

3. Productivity
   - Level 1 affixes are generally lexically restricted; Level 2 are fairly/fully productive.
   - Even clearer: inflectional suffixes (*-s*, *-ed*, *-ing*) are completely productive and leave virtually all stem properties intact (i.e. clearly Level 2).

4. Semantic transparency
   - Level 1 affixes may yield semantically opaque derivatives.
   - Level 2 are relatively transparent.

Phonological distinctions between Level 1 and Level 2 in English

1. Stress attraction
   - Level 1 affixes (really, suffixes) attract stress, i.e. pull it to the right (3).
     - ◇ Stress in the derivatives is equivalent to stress in monomorphemic words:
       - ▷ Stress the penult if the final is heavy,
       - ▷ Stress the antepenult if the final and penult are light.

(3) Stress attraction in Level 1

	1ST/2ND SYLL STRESS IN BASE			2ND/3RD SYLL STRESS IN DERIVATIVE				
a.	*phóneme*	[**fóʊ**.nim]	→	*phoném-ic*	[fə.**ní**.mɪk]	(**phónem-ic*	[**fóʊ**.ni.mɪk]	)
b.	*sýllable*	[**sí**.lə.bl̩]	→	*sylláb-ic*	[sə.**lǽ**.bɪk]	(**sýllab-ic*	[**sí**.lə.bɪk]	)
			→	*sylláb-ify*	[sə.**lǽ**.bə.faɪ]	(**sýllab-ify*	[**sí**.lə.bə.faɪ]	)
c.	*prósody*	[**prá**.zə.ɾi]	→	*prosód-ic*	[prə.**zá**.ɾɪk]	(**prósod-ic*	[**prá**.zə.ɾɪk]	)
			→	*prosód-ify*	[prə.**zá**.ɾə.faɪ]	(**prósod-ify*	[**prá**.zə.ɾə.faɪ]	)
d.	*prodúctive*	[prə.**dʌ́k**.tɪv]	→	*productív-ity*	[pròʊ.dʌk.**tí**.vɪ.ɾi]	(**prodúctiv-ity*	[prə.**dʌ́k**.tɪ.vɪ.ɾi])	
	…σ́H/…σ́LL IN BASE			…σ́H/…σ́LL IN DERIVATIVE				

- Level 2 affixes always maintain the stress properties of their base, even if this results in an otherwise bad stress pattern (i.e. further back than …σ́H or …σ́LL). Compare:
  - ◇ Level 1 *-ity* (A → N): *productív-ity* [pròʊ.dʌk.**tí**.vɪ.ɾi] (…σ́LL)
  - ◇ Level 2 *-ness* (A → N): *prodúctive-ness* [prə.**dʌ́k**.tɪv.nɪs] (…σ́σH, *…σσ́H)

2. Trisyllabic shortening/“laxing”

- Level 1 suffixes cause underlyingly long/tense diphthongs in certain positions in the base to shorten to their “vowel shift correspondents” (4).
  - ▹ (One exception: *obese* [oʊbiːsɪɾi] (*[oʊbɛsɪɾi]).)
  - ◇ Similar dispreference for long vowels seen in monomorphemic words.
    - ▹ (Though there are some exceptions, e.g. *D*[oʊ]*berman*.)

(4) Trisyllabic shortening with Level 1

	Base				Derivative		
[aɪ]	*divine*	[dəv**áɪ**n]	→	[ɪ]	*divinity*	[dəv**í**nɪɾi]	(*[dəv**áɪ**nɪɾi])
[iː]	*serene*	[sər**íː**n]	→	[ɛ]	*serenity*	[sər**é**nɪɾi]	(*[sər**íː**nɪɾi])
[eɪ]	*profane*	[prof**éɪ**n]	→	[æ]	*profanity*	[proʊf**ǽ**nɪɾi]	(*[proʊf**éɪ**nɪɾi])
[oʊ]	*verbose*	[vərb**óʊ**s]	→	[a]	*verbosity*	[vərb**á**sɪɾi]	(*[vərb**óʊ**sɪɾi])
[aʊ]	*profound*	[prof**áʊ**nd]	→	[ʌ]	*profundity*	[proʊf**ʌ́**ndɪɾi]	(*[proʊf**áʊ**ndɪɾi])

- Level 2 affixes never trigger this kind of shortening (5):

(5) No shortening with Level 2

	Base		Derivative		
a.	*time* [t**áɪ**m]	→	*time-less-ness*	[t**áɪ**mlɪsnɪs]	(*[t**í**mlɪsnɪs])
b.	*hope* [h**óʊ**p]	→	*hope-ful-ly*	[h**óʊ**pfəli]	(*[h**á**pfəli])

3. Final clusters

- Level 2 affixes reduce root-final clusters that are illicit in word-final position (6b), just like roots do in actual word-final position (6a).
- Level 1 affixes, on the other hand, protect those illicit final clusters (6c).

(6) Treatment of root-final clusters in derivatives

	a. Base		b. Level 2 Derivative		c. Level 1 Derivative	
/mn/	*column*	[kálə**m**]	*column-like*	[kálə**m**ləik]	*column-ar*	[kalʌ́**mn**ər]
	autumn	[ɔ́tə**m**]	*autumn-y*	[ɔ́tə**mi**]	*autumn-al*	[ɔtʌ́**mn**əl]
/mb/	*bomb*	[bá**m**]	*bómb-er*	[ba**m**ər]	*bomb-ard*	[bə**mb**árd]
/gn/	*resign*	[rizáɪ**n**]	*resign-ing*	[rizáɪ**n**ɪŋ]	*resign-ation*	[rɛ̀zɪ**gn**éɪʃən]

4. Nasal assimilation

- Level 1 nasal-final prefixes (e.g., negative *in-*) undergo place assimilation to a base-initial consonant (7a).
- Level 2 nasal-final prefixes (e.g., negative *un-*) **don't** (obligatorily) undergo place assimilation (7b).

(7) Nasal place (non-)assimilation in prefixes

Initial-C Place	a. Level 1 /in-/	b. Level 2 /un-/
Bilabial	*i*[**m**]*possible*	*u*[**n**]*productive*
Labiodental	*i*[**ɱ**]*fallible*	*u*[**n**]*fortunate*
Velar	*i*[**ŋ**]*credible*	*u*[**n**]*coordinated*

5. Irregular alternations

- A number of irregular/restricted morphophonological alternations are triggered only by Level 1 affixes (8).
  - ◇ These include velar softening (8a,b), palatalization (8b–d), and assibilation (8a,e–g).

(8) Morphologically restricted alternations

a.	*opa*[k]*ue*	→	*opa*[s]*ity*
b.	*analo*[g]*(ue)*	→	*analo*[dʒ]*y*
c.	*permi*[t]	→	*permi*[ʃ]*ion*
d.	*allu*[d]*e*	→	*allú*[ʒ]*ion*
e.	*permi*[t]	→	*permi*[s]*ive*
f.	*pira*[t]*e*	→	*pira*[s]*y*
g.	*elu*[d]*e*	→	*elu*[s]*ive*

- Level 2 affixes never trigger these alternations, **or any other alternations**:

(9) No alternations with Level 2 affixes

a. *do*[g] ↛ **do*[dʒ]-*y* (dimin.)
b. *nu*[d]*e* ↛ **nu*[s]-*ist*
c. *rabbi*[t] ↛ **rabbi*[s]-*y* (Adj)

- Level 1 affixes can also trigger more suppletion-y, lexically idiosyncratic adjustments.
- Level 2 affixes always use the default allomorph.

(10) Suppletive allomorphy with Level 1

	Root	Level 2 affixation	Level 1 affixation
a.	*assume*	*assum-ing*	*assump-tion*
b.	*destroy*	*destroy-ing*	*destruc-tion*
c.	*conjoin*	*conjoin-ing*	*conjuc-tion*
d.	*maintain*	*maintain-ing*	*mainten-ance*
e.	*giant*	*giant-ish*	*gigant-ic*

2 Problems

- There is clearly a ton of evidence for this breakdown into two groups, and it really does hold up pretty well to scrutiny.

- But there are (at least) two problems:

  1. Level ordering doesn't actually account for the restrictions on affix order combinations when we look at the full picture.
  2. Some affixes, e.g. -*ize* and -*able*, take some properties from Level 1 and others from Level 2.

3 Fabb (1988): Affix order restrictions

3.1 Claim

1. Ordering properties purportedly derived by level ordering are insufficient to capture the distribution of affix combinations in English.
2. Affix specific attachment requirements better characterize what's going on.
3. Once we have those, level ordering does not add explanatory value.

3.2 Affixes

- Here are the affixes Fabb focuses on (>X means projects, X> means selects):

Figure 1: Frequently occurring suffixes (Fabb 1988:529, Table A)

TABLE A

	Column 1 SUFFIX			Column 2 SUFFIX	Example
1.	-able	>A	V>	-able	manage-able
2.	-age	>N	V>	-age	steer-age
3.	-age	>N	N>	-age	orphan-age
4.	-al	>N	V>	-al	betray-al
5.	-al	>A	N>	-al	natur-al
6.	-an	>N	N>	-an	librari-an
7.	-an	>A	N>	-an	reptil-ian
8.	-ant	>N	V>	-ant	defend-ant
9.	-ant	>A	V>	-ant	defi-ant
10.	-ance	>N	V>	-ance	annoy-ance
11.	-ary	>N	N>	-ary	function-ary
12.	-ary	>A	N>	-ary	legend-ary
13.	-ate	>V	N>	-ate	origin-ate
14.	-ed	>A	N>	-ed	money-ed
15.	-en	>V	A>	-en	wid-en
16.	-er	>N	N>	-er	prison-er
17.	-er	>N	V>	-er	kill-er
18.	-ful	>A	N>	-ful	peace-ful
19.	-ful	>A	V>	-ful	forget-ful
20.	-hood	>N	N>	-hood	nation-hood
21.	-ic	>A	N>	-ic	metall-ic
22.	-ify	>V	N>	-ify	class-ify
23.	-ify	>V	A>	-ify	intens-ify
24.	-ion	>N	V>	-ion	rebell-ion
25.	-ish	>A	N>	-ish	boy-ish
26.	-ism	>N	A>	-ism	modern-ism
27.	-ism	>N	N>	-ism	despot-ism
28.	-ist	>N	A>	-ist	formal-ist
29.	-ist	>N	N>	-ist	method-ist
30.	-ity	>N	A>	-ity	profan-ity
31.	-ive	>A	V>	-ive	restrict-ive
32.	-ize	>V	A>	-ize	special-ize
33.	-ize	>V	N>	-ize	symbol-ize
34.	-ly	>A	A>	-ly	dead-ly
35.	-ly	>A	N>	-ly	ghost-ly
36.	-ment	>N	V>	-ment	contain-ment
37.	-ness	>N	A>	-ness	happi-ness
38.	-ory	>A	V>	-ory	advis-ory
39.	-ous	>A	N>	-ous	spac-ious
40.	-y	>A	N>	-y	heart-y
41.	-y	>N	A>	-y	honest-y
42.	-y	>N	V>	-y	assembl-y
43.	-y	>N	N>	-y	robber-y

→ Based on categorial selectional restrictions and phonological conditions on affixation (worth scrutinizing), he says we predict 614 possible combinations of 2 suffixes.

3.3 Predictions of level ordering

- Fabb then identifies each suffix as Level 1 or Level 2 based on its stress properties (cf. (3)):
  - Level 1 if it attracts stress, i.e. subject to "English Stress Rule"
  - Level 2 if it leaves stress properties of the base in tact, i.e. not subject to "English Stress Rule"

Figure 2: Affix levels based on phonological criteria (Fabb 1988:531, Table B)

TABLE B

	Column 1 SUFFIX			Column 2 SUFFIX
1.	-able	>2	2>	-able
2.	-age	>2	2>	-age
3.	-age	>2	2>	-age
4.	-al	>1	1>	-al
5.	-al	>1	1>	-al
6.	-an	>1	1>	-an
7.	-an	>1	1>	-an
8.	-ant	>1	1>	-ant
9.	-ant	>1	1>	-ant
10.	-ance	>1	1>	-ance
11.	-ary	>1	1>	-ary
12.	-ary	>1	1>	-ary
13.	-ate	>1	1>	-ate
14.	-ed	>2	2>	-ed
15.	-en	>2	2>	-en
16.	-er	>2	2>	-er
17.	-er	>2	2>	-er
18.	-ful	>2	2>	-ful
19.	-ful	>2	2>	-ful
20.	-hood	>2	2>	-hood
21.	-ic	>1	1>	-ic
22.	-ify	>1	1>	-ify
23.	-ify	>1	1>	-ify
24.	-ion	>1	1>	-ion
25.	-ish	>2	2>	-ish
26.	-ism	>2	2>	-ism
27.	-ism	>2	2>	-ism
28.	-ist	>2	2>	-ist
29.	-ist	>2	2>	-ist
30.	-ity	>1	1>	-ity
31.	-ive	>1	1>	-ive
32.	-ize	>2	2>	-ize
33.	-ize	>2	2>	-ize
34.	-ly	>2	2>	-ly
35.	-ly	>2	2>	-ly
36.	-ment	>2	2>	-ment
37.	-ness	>2	2>	-ness
38.	-ory	>1	1>	-ory
39.	-ous	>1	1>	-ous
40.	-y	>2	2>	-y
41.	-y	>1	1>	-y
42.	-y	>1	1>	-y
43.	-y	>1	1>	-y

- A restriction against Level 1 affixes appearing outside of Level 2 affixes does cut down further on the predicted number of combinations, but nowhere near enough.
  - It eliminates 155 pairs, bringing the number down to 459.

⋆ **How many are there actually?** Only about 50. Level ordering isn't sufficient to explain this.

3.4 Fabb's factors

- Fabb identifies several kinds of restrictions that massively narrow down the possibility space.

3.4.1 Root-attaching suffixes

- 28 of the suffixes *never* attach outside another suffix.

Figure 3: Suffixes that can't follow suffixes (Fabb 1988:532–533, ex. (1))

[2] deverbal -age
[3] denominal -age
[4] deverbal -al
[6] noun-forming -an
[7] adjective-forming -an
[8] noun-forming -ant
[9] adjective-forming -ant
[10] -ance
[13] -ate
[14] denominal -ed
[18] denominal -ful
[19] deverbal -ful
[20] -hood
[22] denominal -ify
[23] deadjectival -ify
[25] -ish
[27] denominal -ism
[29] denominal -ist
[31] -ive
[33] denominal -ize
[34] deadjectival -ly
[35] denominal -ly
[36] -ment
[38] -ory
[39] -ous
[40] adjective-forming -y
[42] deverbal -y
[43] denominal noun-forming -y

- He doesn't do the calculations here, but this must eliminate a ton of the unattested combinations.

⋆ How do we capture this in a modern framework?

- All of the suffixes Fabb is considering are derivational affixes.
  - We probably want to treat them as categorizing heads, i.e. flavors of *little somethings* (*v, a, n*).

→ The suffixes in Figure 3 must all have a restriction to select only for bare roots (or maybe V, A, N, if those are still things).
  - This seems like a *syntactic* restriction, because it would have to be limiting possible structures.
  - Also presupposes that each of these affixes is truly a different syntactic element. This undercuts the idea that we can treat the choice between, e.g., *-ist* and *-er* as allomorphy.

∗ *Question for the s-siders in the room*: how are syntactic selectional restrictions encoded?

- **N.B.** Fabb says this restriction means that bracket erasure (Kiparsky 1983) must be wrong, because it has to treat [Root] differently than [[Root]Suffix].
  - I'm not sure this holds up once we take the more nuanced categorial view.
  - ...But we've already seen that it can't be true of DM (roughly equivalent to "replacive VI").

3.4.2 Restrictions to specific suffixes

- Several suffixes can attach to roots and to only one other suffix:

Figure 4: Suffixes that can follow one specific suffix (Fabb 1988:534, ex. (2))

[11] Noun-forming -ary	-ionary	eg. revolutionary (noun)
[12] Adj-forming -ary	-ionary	e.g. revolutionary (adj)
[16] denominal -er	-ioner	e.g. vacationer
[21] -ic	-istic	e.g. modernistic
[38] -(at)ory	-ificatory	e.g. modificatory
[40] deadjectival -y	-ency	e.g. residency

- However we're implementing the root-only selectional restriction, we can do the same for the specific affix (disjunctively), since it will be a unique syntactic object as well.

∗ Fabb points out an interesting case: the deadjectival demonym nominalizer *-er* only attaches to adjectives formed by *-ern* (*south-ern, north-ern, west-ern, east-ern* – are there any others?).
  → This would be a case where the selection frame only contains the one specific affix, not roots or anything else.

- There are a few suffixes that pick out a small set + roots:

Figure 5: Suffixes that can follow a small set of suffixes (Fabb 1988:536, ex. (4))

SUFFIX	COMBINES WITH
[5] Noun-selecting-al	-ion -ment -or
[24] -ion	-ize (both) -ify (both) -ate
[30] -ity	-ive -ic -al -an -ous -able
[26] Adj-selecting -ism	-ive -ic -al -an
[28] Adj-selecting -ist	-ive -ic -al -an
[32] Adj-selecting -ize	-ive -ic -al -an

- Fabb rightly wants to find features that unify the particular sets, especially given that there seems to be some recurrence / overlap.
  - They do all come from the Latinate vocabulary, which seems like it might need to be legitimately represented in this system (stay tuned).
  - But it's not an exhaustive list of adjective-forming Latinate suffixes.

- Nothing about the system we're developing obviously precludes listing, but it does seem to be missing something.

3.4.3 Unrestricted suffixes

- Fabb finds only 3 suffixes that have basically no restrictions (beyond categorial restrictions):

Figure 6: Unrestricted suffixes (Fabb 1988:535, ex. (3))

[1] -able
[17] deverbal -er
[37] -ness

- This can be interpreted just as full productivity. Note that these are all "Level 2".

3.5 Take-aways

- Fabb never goes back and does the math about how well these restrictions do in narrowing down the set, partially because some of them aren't fully formalized.
- But it's fair to say that they massively narrow down the set of possible combinations in the right direction.

- The main point is that it looks like it's not morphological restrictions but syntactic restrictions that govern affix combinations (though it is largely arbitrary, which should maybe worry us a little).

- It doesn't like level ordering is going to gain us much if anything in light of these restrictions.
  → So, the ordering properties putatively derived from a level ordering theory aren't strong evidence in favor of such a theory.
    * Fabb is careful not to say that it means that a level ordering theory is completely wrong, especially in the realm of phonology. Only that maybe the truly morphological evidence for it isn't super strong.

⋆ So, what about the phonological evidence?

4 Stanton & Steriade: lexical indexation, not level ordering

- Stanton & Steriade (2014, 2019, 2021), Steriade & Stanton (2020) develop a model of the phonology-morphology interface based on Base-Derivative Correspondence (Benua 1997), Lexically-indexed constraints (Pater 2000, et seq.), and Lexical Conservatism (Steriade 1997, et seq.).
- They capture the phonological properties associated with the traditional Level 1 vs. Level 2 distinction with affix-specific constraint rankings, united lexical indices.

4.1 English level ordering in Stratal OT

- One way to characterize the phonological properties of Level 1 vs. Level 2 affixes:
  ◦ Words headed by Level 1 affixes are subject to (semi-)regular (morpho)phonological processes
  ◦ Words headed by Level 2 affixes aren't, which means they are *faithful to their base*

- Stratal OT gives us a clean way to generate this difference (if it's true):

(11) a. **Stem-level grammar:** regular English stress pattern, palatalize, trisyllabic shortening $\gg \mathcal{F}_{\text{IO}}$
↪ applies processes to reduce markedness
b. **Word-level grammar:** $\mathcal{F}_{\text{IO}} \gg$ regular English stress pattern, palatalize, trisyllabic shortening
↪ doesn't apply processes, because it needs to remain faithful

→ Note that this involves promotion of faithfulness when moving to a higher stratum.
  ◦ This leaves open the possibility that BD-correspondence will be able to capture the observation that word-level affixation preserves properties of related forms.

4.2 What about –*ize*?

- Problem is, not all affixes fit neatly into one group or the other. For example, *-ize* has some properties of "Level 1" affixes (12a) but some properties of "Level 2" affixes (12b):

(12) **Properties of –*ize***

a. **"Level 1" properties:** occurs with bound roots, occurs inside Level 1 affixes, preserves final clusters, shows some irregular alternations

b. **"Level 2" properties:** no stress attraction, no trisyllabic shortening

4.2.1 Level 1 properties

1. Occurs with bound roots:

(13) *-ize* with bound roots

bapt-ize	cf. *bapt-ism*
antagon-ize	cf. *antagon-ist-ic*
legitim-ize	cf. *legitim-ate*
emphas-ize	cf. *emphat-ic*
anonym-ize	cf. *anonym-ous*
sensit-ize	cf. *sensit-ive*
mechan-ize	cf. *mechan-ic*, *mechan-ism*
evangel-ize	cf. *evangel-ic-al*
catech-ize	cf. *catech-ism*

2. Occurs inside other Level 1 affixes:
   - *-iz-ation*, (*-iz-ance*)

3. Preserves final clusters (cf. *iambic*, *hymnal*, *autumnal*)
   - *solemnize* (OED: [sáləmnaɪz])
   - *autumnize* (OED: [ɔ́ːtəmnaɪz])
   - *columnize* (predicted [káləmnaɪz], maybe variation)

4. Triggers some irregular alternations:
   - Velar softening: *angli*[s]*ize* (cf. *Angli*[k]*an*), *publi*[s]*ize* (cf. *publi*[k])
   - *dr*[a]*ma* → *dr*[æ]*matize* (∼ *dr*[a]*matize*)
   - Occasional assibilation: Google hits for *democracize*, *legitimacize*

4.2.2 Level 2 properties

1. Does not trigger trisyllabic shortening:
   - *v*[aɪ]*tal* → *(re-)v*[aɪ]*talize* (**v*[ɪ]*talize*); *imm*[oʊ]*bile* → *imm*[oʊ]*bilize* (**imm*[a]*bilize*)

2. Stress remains intact (no rightward shift):
   - *mílitarize*, *álphabetize*, *pálatalize*, *cháracterize*, *cátegorize* (**càtegórize*)

4.3 Resolving the level ordering problem

∗ It's not just *-ize*. Similar discrepancies with *-ee*, *-able*, and maybe others.

- The Lexical Phonology/Stratal OT approach of having two distinct, well-defined levels can't explain the split behavior of affixes like *-ize*.
  - The traditional approach of saying that *it can be either level* doesn't really work either, because its properties are consistently split.
  - → Something more complex must be going: individually indexed Base-Derivative faithfulness constraints/rankings could do the job (Stanton & Steriade 2014 et seq.):

(14) Rankings for different affix types

	Stress	**Velars**
"Standard Level I"	STRESS ≫ Base-Deriv $\mathcal{F}$	VELAR SOFTENING ≫ Base-Deriv $\mathcal{F}$
-ize	Base-Deriv $\mathcal{F}$ ≫ STRESS	VELAR SOFTENING ≫ Base-Deriv $\mathcal{F}$
"Standard Level II"	Base-Deriv $\mathcal{F}$ ≫ STRESS	Base-Deriv $\mathcal{F}$ ≫ VELAR SOFTENING

→ Stanton & Steriade are working on a book. It's hard to decipher the full story from the handouts and slides. Maybe some other time...

- In case we have more time, here's one part of the story (cribbed from another handout of mine):

5 Local vs. Remote bases (time permitting)

- We've assumed that for any complex form, there's only one possible base to be faithful to: the immediate subconstituent.
- There's evidence that we need more freedom in selecting bases:
  - → Sometimes it's something other than the immediate subconstituent which must act as the base.

⋆ This will be easy to formalize in the Parallel OT w/ BD correspondence model, but not in the Stratal OT model.

5.1 Types of accentual faithfulness in Australian languages

- Stanton (2014, 2015) shows that Australian languages with quantity insensitive left-to-right alternating stress (QI L→R) show cyclic stress effects of one of two types:
  1. Faithfulness to the immediate morphological subconstituent — the *local base* (B_L).
  2. Faithfulness to the root in isolation — the *remote base* (B_R).[1]
- Stanton (following Steriade 1999, Stanton & Steriade 2014, Steriade & Yanovich 2015, *a.o.*) analyzes this by positing that base selection is controlled by violable constraints:

(15) **Base preference constraints** (Stanton 2015:55)

a. CORRB$_L$: Assign a violation * if a derivative does not correspond with its **local** base.
b. CORRB$_R$: Assign a violation * if a derivative does not correspond with its **remote** base.[2]

- For multiply suffixed words, their relative ranking determines which potential base the derivative actually stands in correspondence with. (Higher ranked constraints can potentially override this preference; see below.)

[1] Stanton & Steriade (2014) take remote bases to be any lexically related form with higher frequency.
[2] Stanton (2015) defines it here as "a * if the stem of a complex form doesn't correspond with the stem in isolation".

(16) **Base selection**

a. **Correspondence with local base:** CORRB$_L$ ≫ CORRB$_R$

INPUT: /ROOT-AFX$_1$-AFX$_2$/ BASE$_L$: [ROOT-AFX$_1$] BASE$_R$: [ROOT]		CORRB$_L$	CORRB$_R$
a.	☞ [ROOT-AFX$_1$]$_L$-AFX$_2$		*
b.	[ROOT]$_R$-AFX$_1$-AFX$_2$	*!	

b. **Correspondence with remote base:** CORRB$_R$ ≫ CORRB$_L$

INPUT: /ROOT-AFX$_1$-AFX$_2$/ BASE$_L$: [ROOT-AFX$_1$] BASE$_R$: [ROOT]		CORRB$_R$	CORRB$_L$
a.	[ROOT-AFX$_1$]$_L$-AFX$_2$	*!	
b.	☞ [ROOT]$_R$-AFX$_1$-AFX$_2$		*

- The difference in correspondence does not have any surface ramifications in and of itself. However, when BD-faithfulness constraints outrank markedness constraints, the choice of which base to select will have different results.

5.1.1 QI L→R with foot-free constraints

- Stanton (2014) finds 23 Australian languages with QI L→R + no final stress.

(17) **Stress in monomorphemic forms in Warlpiri**

a.	σ́σ	wáti	'man'	(Nash 1980:102)
b.	σ́σσ	wátiya	'tree'	(Nash 1980:102)
c.	σ́σσ̀σ	mánangkàrra	'spinifex plain'	(Nash 1980:102)
d.	σ́σσ̀σσ	wíjipìtirli	'hospital'	(Berry 1998:37)

- We'll need 5 stress constraints (+ *LAPSE, which is included for completeness, but it does no work):

(18)
a. **STRESSL:** Assign a violation * if the initial syllable is unstressed.
b. **NONFINALITY:** Assign one violation * if the final syllable is stressed.
c. ***CLASH:** Assign one violation * for each sequence of two adjacent stressed syllables.
d. **LAPSE@END:** Assign one violation * for each sequence of two unstressed syllables not at the right edge.
e. ***EXTENDEDLAPSE:** Assign one violation * for each sequence of three unstressed syllables.
f. ***LAPSE:** Assign one violation * for each sequence of two unstressed syllables.

(19) **Stress in 5 syllable monomorphemic words**

/σσσσσ/		STRESSL	NONFIN	*CLASH	LAPSE@END	*EXTLAPSE	*LAPSE
a.	☞ σ́σσ́σσ						*
b.	σσ́σσ́σ	*!					
c.	σ́σσ́σσ́		*!				
d.	σ́σ́σσ́σ			*!			
e.	σ́σσσ́σ				*!		*
f.	σ́σσσσ				*!*	**	***

- While all QI L→R languages have the same stress pattern in monomorphemic words, they diverge in complex words.

→ The divergence can be explained in terms of which base the language selects.

5.1.2 Local base languages: Diyari

- In Diyari, in all complex forms:
  - Monosyllabic suffixes are stressless (20a–c), but
  - Polysyllabic suffixes are stressed like stems (20b–c)

(20) **Diyari stress** (Stanton 2015:56; see Austin 1981, Poser 1989, Berry 1998, Alderete 2009)

a.	$\acute{\sigma}\sigma$-σ-σ	máda-la-nthu	'hill-CHARAC-PROP'
b.	$\acute{\sigma}\sigma\sigma$-$\sigma$-$\grave{\sigma}\sigma$	púluru-ni-màta	'mud-LOC-IDENT'
c.	$\acute{\sigma}\sigma\sigma$-$\grave{\sigma}\sigma$-$\grave{\sigma}\sigma$-$\sigma$	yákalka-yìrpa-màli-rna	'ask-BEN-RECIP-PART'

→ **The way to explain this:** Diyari is always faithful to the local base.

- In forms where there is a single 1σ suffix, the CORR constraints are not at stake, because the local base and remote base are one in the same. But these forms show that:
  1. A single 1σ suffix can't bear stress due to NONFINALITY
  2. You can't fix lapses (extended or non-final) by placing a stress on an unstressed syllable of the base, due to IDENT[stress]-BD

(21) **2σ root + 1σ suffix**

INPUT: /$\sigma\sigma$-σ/ BASE$_L$: [$\acute{\sigma}\sigma$] BASE$_R$: [$\acute{\sigma}\sigma$]	CORRB$_L$	CORRB$_R$	NONFIN	IDENT[stress]-BD	*LAPSE
a. ☞ [$\acute{\sigma}\sigma$]$_{L/R}$-σ					*
b. [$\acute{\sigma}\acute{\sigma}$]$_{L/R}$-$\sigma$				*!	
c. [$\acute{\sigma}\sigma$]$_{L/R}$-$\acute{\sigma}$			*!		

(22) **3σ root + 1σ suffix**

INPUT: /$\sigma\sigma\sigma$-σ/ BASE$_L$: [$\acute{\sigma}\sigma\sigma$] BASE$_R$: [$\acute{\sigma}\sigma\sigma$]	C-B$_L$	C-B$_R$	NONFIN	ID[str]-BD	LAPSE@END	*EXTLAPSE
a. ☞ [$\acute{\sigma}\sigma\sigma$]$_{L/R}$-$\sigma$					*	*
b. [$\acute{\sigma}\sigma\acute{\sigma}$]$_{L/R}$-$\sigma$				*!		
c. [$\acute{\sigma}\sigma\sigma$]$_{L/R}$-$\acute{\sigma}$			*!		*	

- Once we get to a form with two 1σ suffixes, though, the CORR constraints become crucial.
  - If you had the option of corresponding with the remote base, you could get a perfect stress pattern w/o violating IDENT[stress]-BD, because you could stress the first 1σ suffix.
  - The fact that you can't do this means (under this approach) that CORRB$_L$ ≫ CORRB$_R$, i.e. you have no choice but to correspond with the local base.

(23) **2σ root + 1σ suffix + 1σ suffix**

INPUT: /$\sigma\sigma$-σ-σ/ BASE$_L$: [$\acute{\sigma}\sigma$-σ] BASE$_R$: [$\acute{\sigma}\sigma$]	CORRB$_L$	CORRB$_R$	LAPSE@END	*EXTLAPSE
a. ☞ [$\acute{\sigma}\sigma$-σ]$_L$-σ		*	*	*
b. [$\acute{\sigma}\sigma$]$_R$-$\acute{\sigma}$-σ	*!			

- This sort of case doesn't disambiguate between approaches, because Stratal OT will always show "correspondence with the local base".

5.1.3 Remote base languages: Dyirbal

- On the other hand, stress in Dyirbal complex forms requires something different: stems of complex forms are faithful to the stress of their isolation forms, subject to the influence of some M constraints.

(24) **Dyirbal complex forms** (Stanton 2015:56; Dixon 1972, Berry 1998)

a.	$\acute{\sigma}\sigma\grave{\sigma}$-$\sigma$	búrgurùm-bu	'jumping ant-ERG'	(cf. búrgu**rum**)
b.	$\acute{\sigma}\sigma\sigma$-$\grave{\sigma}$-$\sigma\sigma$	mándalay-mbàl-mbila	'play-COM-LEST'	
c.	$\acute{\sigma}\sigma\sigma$-$\grave{\sigma}$-$\sigma$-$\sigma$	bánagay-mbà-rri-ɲu	'return-COM-REFL-P/P'	

- Dyirbal differs from Diyari in two ways:

- First (and not what we care about): *ExtendedLapse ≫ Ident[stress]-BD

(25) **3σ root + 1σ suffix**

INPUT: /σσσ-σ/ BASE$_L$: [σ́σσ] BASE$_R$: [σ́σσ]	C-B$_R$	C-B$_L$	NonFin	*ExtLapse	Id[str]-BD	Lapse@End
a. [σ́σσ]$_{L/R}$-σ				*!		*
b. ☞ [σ́σσ́]$_{L/R}$-σ					*	
c. [σ́σσ]$_{L/R}$-σ́			*!			*

- Second (what we care about): CorrB$_R$ ≫ CorrB$_L$

(26) **3σ root + 1σ suffix + 2σ suffix**

INPUT: /σσσ-σ-σσ/ BASE$_L$: [σ́σσ́-σ] BASE$_R$: [σ́σσ]	CorrB$_R$	CorrB$_L$	Id[str]-BD	Lapse@End	*Lapse
a. ☞ [σ́σσ]$_R$-σ́-σσ		*		*	**
b. [σ́σσ́]$_R$-σ-σ́σ		*	*!		
c. [σ́σσ́-σ]$_L$-σ́σ	*!				

- You could have gotten a perfect stress pattern with perfect BD-identity if only you were allowed to correspond with the local base (candidate c).
- But BD-faithfulness still plays a role, ruling out the perfect stress pattern with imperfect BD-identity (candidate b).

→ Therefore, we need correspondence to the remote base to be possible, and (in order to get the difference with Diyari) to be grammatically controlled, i.e. something like these distinct Corr constraints.

5.2 Markedness-conditioned base selection in English

- So far, the Corr constraints have not really interacted with the other constraints, so we could imagine the choice between local vs. remote base being determined through some other sort of mechanism.
- However, once we look at English, we see that we actually do get interactions ("split-base effects") that require base selection to be done via violable constraints.

- If correspondence is established via constraint, we predict the following type of ranking to be possible:

(27) $\mathbb{F}_{\text{BD}} \gg \mathbb{M}_1 \gg \text{CorrB}_{\text{X}} \gg \text{CorrB}_{\text{Y}} \gg \mathbb{M}_2$

- What does this ranking generate?
  - In the general case (i.e. if faithfulness to B_{X} and B_{Y} fares the same w.r.t. $\mathbb{M}_1$), you correspond with and be faithful to B_{X}, even if it means violating $\mathbb{M}_2$.
  - Just in case faithfulness to B_{Y} satisfies $\mathbb{M}_1$ but faithfulness to B_{X} does not, you correspond with B_{Y}.
  - *Corollary*: B_{Y} must exist in order to satisfy $\mathbb{M}_1$ if faithfulness to B_{X} would violate $\mathbb{M}_1$.

⇒ **Summary:** You can pick the "wrong" base if it does better on markedness.
↪ Stress in complex words in English sometimes works like this (Stanton & Steriade 2014, Stanton 2015).

- In long simplex words, English normally stresses the first syllable not the second, e.g. *Mèditerránean* not **Medìterránean*: hence, StressL ≫ *Lapse.

(28) **Initial stress by default in *Mediterranean***

INPUT: /*Mediterranean*/ BASE$_{\text{L}}$: none BASE$_{\text{R}}$: none			CorrB$_{\text{L}}$	CorrB$_{\text{R}}$	StressL	*Lapse
a.	☞	*Mèditerránean* (200100)				**
b.		*Medìterránean* (020100)			*!	*

- When a complex word has the right type of base with the right type of stress pattern, this preference can be reversed.
  - Specifically, if a local base has [#01...], e.g. *orìginálity* ≻ **òriginálity* because of *oríginal*

(29) **Stress in *origin* and its derivatives**

i.	*órigin*	[ɔ́rədʒɪn]	(100)	
ii.	*oríginal*	[ərídʒən-əl]	(010-0)	
iii.	*orìginálity*	[ərìdʒən-ǽl-ɪɾi]	(020-1-00)	cf. *Mèditerránean* (200100)

- This shows us that CorrB$_{\text{L}}$ ≫ CorrB$_{\text{R}}$, because **òriginálity* could have been faithful to **òrigin*.

(30) **Non-initial stress in *originality* due to CorrB$_{\text{L}}$**

INPUT: /*origin-al-ity*/ BASE$_{\text{L}}$: [ərídʒən-əl] (010-0) BASE$_{\text{R}}$: [ɔ́rədʒɪn] (100)			CorrB$_{\text{L}}$	CorrB$_{\text{R}}$	StressL	*Lapse
a.		*òriginálity* [ɔ̀rədʒɪn]$_{\text{R}}$-ǽl-ɪɾi ([200]-1-00)	*!			**
b.	☞	*orìginálity* [ərìdʒən-ǽl]$_{\text{L}}$-ɪɾi ([020-1]-00)		*	*	*

⋆ The preference for correspondence to the local base over the remote base can be overridden by markedness pressures.
  - Namely, if correspondence + faithfulness to the local base would cause a clash but correspondence + faithfulness to the remote base wouldn't, you correspond with the remote base.
  - e.g. *apòstolícity* (**àpostòlícity*) is faithful to remote base *apóstle* rather than local base *àpostólic* to avoid a clash.

(31) **Stress in *apostle* and its derivatives**

a.	*apóstle*	[əpásl̩]	(010)
b.	*àpostólic*	[æ̀pəstál-ɪk]	(201-0)
c.	*apòstolícity*	[əpàs(t)əl-ís-ɪɾi]	(020-1-00)

- We can derive this with the ranking *Clash ≫ CorrB$_L$:

(32) **Clash-driven correspondence with (and faithfulness to) remote base in *apòstolícity***

INPUT: /*apostle-ic-ity*/ BASE$_L$: [æ̀pəstál-ɪk] (201-0) BASE$_R$: [əpásl̩] (010)	*Clash	C-B$_L$	C-B$_R$	StressL	*Lapse
a. ☞ *apòstolícity* [əpàs(t)əl]$_R$-ís-ɪɾi ([020]-1-00)		*		*	*
b. *àpostòlícity* [æ̀pəstàl-ís]$_L$-ɪɾi ([202-1]-00)	*!		*		*

- But this only works when there is actually a remote base whose stress pattern can help avoid a clash.
  - Stress (position) doesn't alternate in *álcohòl* vs. *àlcohólic*, so no way to avoid the clash when you add *-ity*.

(33) **Stress in *alcohol* and its derivatives**

a.	*álcohòl*	[ǽlkəhàl]	(102)
b.	*àlcohólic*	[æ̀lkəhál-ɪk]	(201-0)
c.	*àlcohòlícity*	[æ̀lkəhàl-ís-ɪɾi]	(202-1-00)

(34) **Clash can't be avoided in *alcoholicity* due to BD faithfulness**

INPUT: /*alcolhol-ic-ity*/ BASE$_L$: [æ̀lkəhál-ɪk] (201-0) BASE$_R$: [ǽlkəhàl] (102)	Id[stress]-BD	*Clash	C-B$_L$	C-B$_R$	*Lapse
a. *àlcohòlícity* [æ̀lkəhàl]$_R$-ís-ɪɾi ([202]-1-00)		*	*!		*
b. ☞ *àlcohòlícity* [æ̀lkəhàl-ís]$_L$-ɪɾi ([202-1]-00)		*		*	*
c. *àlcoholícity* [æ̀lkəhəl-ís]$_L$-ɪɾi ([200-1]-00)	*!			*	**

∗ Something further needs to be said about what's going on with the alternation on *-ic-* suffix (Stanton & Steriade 2014).

5.3 Summary

- The distinctions among the Australian languages show that we need at least a parametric difference across languages in whether you correspond to the local base or the remote base.
- The differences in stress patterns within English that depend on what types of bases you have available to you shows that this parameterization must also be available within a single language.

→ These can both be achieved if correspondence is established via the grammar by ranked, violable constraints.

⋆ Standard versions of Stratal OT are ill-equipped to deal with these sorts of issues.

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