Asymmetric infixation
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I. Overview

- A majority of infixes are left-edge oriented. Why?

Survey of infixes from Yu (2003: 282-300)

	Fixed segment	Reduplicative	Overall
Left edge	40 (71%)	25 (52%)	63%
Right edge	4 (7%)	10 (21%)	13%
Prominence-oriented	12 (21%)	13 (27%)	24%
Total	56	48	

- Previous work describes this distribution in terms of psycholinguistic prominence (e.g. Yu 2007)

<u>Problem #1. Right-edge bias with ALIGNMENT</u>
- Other morphophonological patterns have a right-edge bias (e.g. stress, affixation). Why are infixes different?

<u>Problem #2. Positional faith</u>
- Elsewhere in phonology, positional faith protects **left edges** (Beckman 1998), **stressed syllables** (Steriade 1994), and **monosyllables** (Becker et al. 2012). This predicts that infixes avoid these positions. They don't.

My analysis:
- Infix placement occurs via a **mixture** of **subcategorization** and **phonotactic-driven placement**
- Subcategorization constraints place the infix near a leftmost or prominent vowel, but this is underspecified
- The infix's position within that interval is determined by phonotactics

II. Typological Survey

- An initial observation: right-edge infixes tend to occur in languages with rightmost metrical prominences
  - Is this always the case? (Yes.)
- Left-edge infixes are different – appears to be no relationship between infix site and metrical prominence
  - e.g. Temiar, right-edge prominence, left-edge infix
    /<ən>+ɡoˈlap/ → [ɡ<ən>oˈlap] 'carrying on shoulder' (Benjamin 1976: 175)

- The survey: 43 languages from 16 language families (3 isolates), totaling 55 infixes
- 40 of these infixes could be analyzed as prominence-oriented (The remaining 15 were all left-edge.)

Landing site	# of infixes		
⟨infix⟩CV́C	8	20.0%	*prefix to stressed syllable*
C⟨infix⟩V́C	0	0%	*prefix to stressed vowel*
CV́C⟨infix⟩	5	12.5%	*suffix to stressed syllable*
CV́⟨infix⟩C	22	55.0%	*suffix to stressed vowel*
⟨infix⟩CV́CV / ⟨infix⟩CVCV́	5	12.5%	*prefix to stressed foot*
total	40		

- Broken down further, we see a strong correlation between infix shape and landing site

	C	V	CV, VC, CVC	CVCV foot	
#C⟨infix⟩V	1	1	2	0	*prefix to left vowel*
#CVC⟨infix⟩	0	1	4	0	*suffix to left syllable*
#CV⟨infix⟩C	3	1	2	0	*suffix to left vowel*
⟨infix⟩CV́	0	3	5	(4)	*prefix to stressed syllable*
CV́C⟨infix⟩	0	1	4	0	*suffix to stressed syllable*
CV́⟨infix⟩C	15	1	6	0	*suffix to stressed vowel*
⟨infix⟩CV́CV / ⟨infix⟩CVCV́	0	0	0	5	*prefix to foot*
totals	19	8	23	5	

Generalizations:
1. Infixes that appear to target right edges can only occur in languages with right-edge metrical prominences
2. Infixes can target the leftmost or most prominent constituent, but not rightmost ones
3. Within a single language, infixes tend to target similar landing sites
4. Vowel-bearing infixes can land farther from their pivot than consonantal infixes
5. Infix landing sites show some sensitivity to phonological well-formedness

- Generalizations #1-#4 are novel, #5 has been claimed before

III. Analysis

- Infixes are placed via ANCHOR-based subcategorization frames:

(1) **ANCHOR(*Infix*, Left/Prom):** For <*infix*> in the input, assign a violation if no segment of <*infix*> **overlaps** with vowel V_y in the output, where V_x is the [leftmost/most prominent] vowel in the input and $V_x CorrV_y$.

- Following Nelson (2003), I assume ANCHOR cannot target right edges (only leftmost/prominent positions)
- To satisfy this constraint, the infix must overlap with the subcategorized vowel gesture

Figure 1. Possible landing sites of ⟨l⟩ in /baˈdupi/ that satisfy ANCHOR(⟨l⟩,PROM)

Examples:
bad⟨l⟩úpi CVC⟨C⟩VCi ✓
badú⟨l⟩pi CVCV⟨C⟩Ci ✓
*ba⟨l⟩dúpi *CV⟨C⟩CVCi ✗

/l+baˈdupi/	ANCHOR(⟨l⟩, PROM)	IO-CONTIG
a. l-baˈdupi	*!	
b. b⟨l⟩aˈdupi	*!	*
c. ba⟨l⟩ˈdupi	*!	*
d. badˈ⟨l⟩upi		*
e. baˈdu⟨l⟩.pi		*
f. baˈdup.⟨l⟩i	*!	*
g. baˈdupi-l	*!	

- What constitutes overlap? I assume vowels overlap with vowels in adjacent syllables, but that consonants must be in the same syllable to overlap.
- The position of the infix within this interval is underspecified
  - Phonotactics determine the infix's position relative to consonants

Example: Koasati plural infixation
- Two allomorphs: <s> and <ho>. Both are prominence-oriented infixes.
  - Pitch accent likes to dock on the penult, and cannot be shifted
- <s> and <ho> have different templatic shapes, and so ANCHOR will place them in different positions
- Result: <s> occurs after the vowel, <ho> before accented syllable

/ho+okčáyyan/	PENULT-PROM	SWP
☞a. ok-ho-čáyyan		
b. okčáy-ho-yan	*!	
/s+imanókan/	PENULT-PROM	SWP
☞a. ima.nó-s..kan		
b. iman-.s-ó.kan		*!

IV. Discussion & Conclusions

- Previous work falls into two main approaches: P≫M and M≫P
  - **P≫M** approaches: infixes are failed prefixes and suffixes that appear inside the stem to optimize phonotactic well-formedness (McCarthy & Prince 1993b; Horwood 2002; Wolf 2008)
  - **M≫P** approaches: infixation is accomplished via parochial subcategorization frames (McCarthy & Prince 1993a; Yu 2002, 2007; see arguments for non-optimization in Kalin 2022)

- <u>My analysis is a hybrid of these</u>: the landing site is M≫P, but the placement relative to consonants is phonotactically driven
- This makes a number of testable predictions that are different from both types of precedents

Prediction #1. Consonant-only infixes should have a narrower set of landing sites than vowel-bearing infixes
- Why: ANCHOR requires overlap, and consonants must be in the same syllable to overlap with a vowel

Prediction #2. Languages often only have one ANCHOR site for infixes (This could mean that ANCHOR is parametrically set for all infixes in a language, not for individual allomorphs.)

Selected references. Becker, M, L. E. Clemens, and A. Nevins (2012). Generalization of French and Portuguese plural alternations and initial syllable protection. Beckman, J. (1998). Positional Faithfulness. Kalin, L. (2022). Infixes really are (underlyingly) prefixes/suffixes: Evidence from allomorphy on the fine timing of infixation. McCarthy, J. and A. Prince. (1993a). Generalized Alignment. McCarthy, J. and A, Prince (1993b). Prosodic morphology: constraint interaction and satisfaction. Nelson, L. (2003). Asymmetric Anchoring. Steriade, D. (1994) Positional neutralization and the expression of contrast. Wolf,, M. (2008). Optimal Interleaving. Yu, A. (2007). A natural history of infixation.