

Infixes as infixes: A response to Laura Kalin

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Abstract

Kalin (2020b), building on Kalin (2019, 2020a) and Kalin & Rolle (2020) has defended a strong model of the architecture of word-formation concerning infixation and suppletion, in relation to linearization and phonology. Among others this model makes the following two claims. First that the conditions for selecting an allomorph over another and the conditions for selecting its position if it is an infix, are separate and irreconcilable. And second that allomorph sets share an edge orientation: left-edge infix allomorphs only alternate with prefixes and right-edge infix allomorphs only with suffixes. I will argue that the first point is unsupported by the typological data covered by Kalin & Rolle and that the latter is directly falsified by the agreement affixes of Sáliba, a language of Colombia.

1 Introduction

The study of non-concatenative phenomena and their interaction with phonological processes has long been a fruitful area of research for the study of morphology and phonology and the development of precise formal models of word-formation, phonological representation, and derivational order. The interactions among types of non-concatenative phenomena are particularly interesting and offers the possibility to more precisely establish the details of the formal process of word-formation. The present paper is about the interaction of infixation and suppletive allomorphy as a response to Kalin (2019, 2020a,b) and Kalin & Rolle (2020). Kalin developed a precise derivational model of infixation and suppletion that makes specific predictions.

The model of word-formation specified in Kalin (2020b, p.39) is copied in (1).

- (1) Derivational timing
 - a. Build the abstract morphosyntactic structure and linearly concatenate it
 - b. Go to the most embedded unexponed morpheme, and apply a cycle of morphology and morphophonology:
 - (i.) Exponent choice (**suppletive allomorphy**)
 - (ii.) Linear displacement (**for infixal exponents**)
 - (iii.) Prosodification & restricted phonology (non-suppl. “restricted” allo.)
(Repeat (i)-(iii) until there are no more unexponed morphemes in domain)
 - c. Apply surface phonology (**non-suppletive surface allomorphy**)

This model makes several precise claims and predictions. First, the separation of exponent choice from linear displacement means that each exponent must be specified for two things: its condition on insertion (COIN) and its condition on position (COP). Kalin & Rolle (2020) support this separation on the basis of forms in which the choice of allomorph and the choice of their locations seem to be specified differently.

Second, the linearization step in (a) followed by a step of linear displacement (b.ii) makes a claim about the edge-orientation of infixes. It has long been noted in the literature, at least as far back as Ultan (1975), that the position of infixes with regard to the stem on which it attaches is either defined relative to a prominent unit (such as a stressed vowel, syllable, or foot) or relative to the beginning or end of the stem. The latter two are respectively known as left-edge and right-edge infixes. The model claims that all infixes are underlyingly prefixes or suffixes which are subsequently displaced, explaining their edge-orientation. It posits a step in the derivation where the infix is in some real sense positioned before or after the stem. This idea is not itself novel and is in line with what Yu (2003) has called *Displacement Theory*. This is also within the larger family of the *concatenative ideal* of Bye & Svenonius (2010) and Svenonius (2012) according to which all morphology is underlyingly concatenative and all deviations arise from later processes. According to these views left-edge infixes, those whose position seems to be defined with regard to the left edge of the stem it attaches to, would be underlying prefixes, while right-edge infixes are underlying suffixes. Kalin’s novel addition to this debate is to investigate the interaction of infixation and suppletion. There are languages where suppletive exponents of the same morpheme differ in that one is a prefix or suffix and the other is an infix, so linear displacement must be specified for each specific exponent, not for a whole morpheme. But since exponent choice (b.i) takes place between linearization in (a) and linear displacement (b.ii), this model predicts that sets of allomorphs should share a linear orientation: being all prefixes or left-edge affixes, or all suffixes and right-edge affixes (prosodically-anchored affixes which can alternate with everything). This therefore makes the categorical prediction that the following should be impossible:

- (i) one suppletive allomorph of a morpheme is a prefix and the other is a

right-edge infix (or vice versa, with a suffix and left-edge infix), (ii) one suppletive allomorph of a morpheme is a left-edge infix and the other is a right-edge infix, (iii) a left-edge infix has as its conditioning environment (for suppletive allomorph choice) a phonological or prosodic trigger at the right edge of the stem (or vice versa), or (iv) an infix has as its conditioning environment (for suppletive allomorph choice) a phonological or prosodic trigger in the infix’s surface/infixed position. (Kalin, 2020b, p.35)

The schemas in (2) illustrate each of the scenarios which are predicted to be impossible. In (i) and (ii) the crucial fact is the suppletive alternation between an x and a y from opposing ends. In (iii) and (iv) the crucial fact is the conditioning of the suppletion by a segment (in *italic*) that is not on the same edge as the orientation of the infix, being either at the opposite edge (iii) or at the infixation point (iv).

(2) Impossible patterns according to Kalin (2020b)

(i) $\mathbf{x-CVCVCVCV} \sim \mathbf{CVCVCV-y-CV}$, or
 $\mathbf{CVCVCVCV-x} \sim \mathbf{CV-y-CVCVCV}$

(ii) $\mathbf{CV-x-CVCVCV} \sim \mathbf{CVCVCV-y-CV}$

(iii) $\mathbf{CV-x-CVCVCA} \sim \mathbf{CV-y-CVCVCE}$, or
 $\mathbf{PVCVCV-x-CV} \sim \mathbf{BVCVCV-y-CV}$

(iv) $\mathbf{CV-x-PVCVCV} \sim \mathbf{CV-y-BVCVCV}$

Kalin conducted a typological survey and found no counterexample to this prediction. The main goal of this article is to argue against these two claims. First I will argue that the separation of COINs from COPs is unneeded with rich enough subcategorization frames. Then I will present the facts of Sáliba animate agreement affixes, a language that was not included in Kalin’s survey of suppletive infixes, which counter-exemplifies Kalin’s predictions (ii) and (iii). I will then discuss the diachronic reasons why Kalin’s generalization is so strongly supported despite not being a computational limit on the grammar by appealing to the diachrony of infixes to argue, in line with Yu (2003, 2007), that the typology of infixes is largely caused by diachrony.

Finally, I will discuss the broader conceptual issues of models positing phenomena-specific machinery in their explanation. I will advocate instead for an approach to morphology that does not appeal to phenomena-specific machinery.

2 Subcategorization in one step

Subcategorization frames have been employed to do affix placement and suppletion (see Paster (2009, §1) for a history of the notion). Consider the Atayal Animate Actor

Focus infix *-m-*.

(3) Atayal Animate Actor Focus (from Yu 2007, p.75)

root	AAF	gloss
qul	q m ul	‘snatch’
kat	k m at	‘bite’
hɲuʔ	h m ɲuʔ	‘soack’

The entire idiosyncratic behavior of this affix can be captured with two things: an underlying form /m/ and a subcategorization frame placing this infix after the initial consonant. Nothing else is needed. There is no need for the affix to also be underlyingly linearized as a prefix or a suffix.

(4) /m/: #C_

Suppletion can be similarly captured by giving each exponent a frame for its environment. Consider the well-known suppletion in the Korean nominative suffix, where *-i* is used after consonants and *-ka* after vowels.

(5) Korean nominative allomorphy (Nevins, 2011, p.7)

mom	-i	‘body’
k ^h o	-ka	‘nose’

This can be captured in the form of two subcategorization frames requiring the exponents to be placed, respectively, after a consonant and after a vowel, both before the end of a word.

(6) a. /i/: C_#
b. /ka/: V_#

And although this is not often highlighted in the literature, a mechanism powerful enough to place an affix inside a word is most likely powerful enough to place it on its edge. If an infix can be put after the first segment it seems natural that it can be put before it. Subcategorization can dispense entirely with a separate linearization step among morphemes. A prefix like the English *pre-* could for instance be specified to be placed immediately after the beginning of a word. Morpheme order and suppletive allomorphy are fully unified into a single mechanism.

(7) /p.i/: #-

Kalin & Rolle (2020) argue that this is incorrect and these phenomena must be broken into individual steps. Their argument is twofold. First they claim that sometimes the same subcategorization frame in different languages behaves inconsistently, sometimes as a COIN and sometimes as a COP. Second they claim that in some languages the conditions on insertion differ from the conditions on position in ways that require

two separate subcategorization frames. They illustrate the first point by comparing Chamorro and Tzeltal which they claim use the same frame in two different ways (Kalin & Rolle, 2020, p.2).

- (8) Chamorro: Actor Focus /um/: $_V$
 a. V-initial stem: um-espanglo ‘look for crabs’
 b. C-initial stem: tr<um>isti ‘become sad’
- (9) Tzeltal: 3.poss /y/: $_V$
 a. V-initial stem: y-ahwal ‘his ruler’
 b. C-initial stem: *m<y>ul ‘his sin’ (cf. s-mul)

In Chamorro, the frame is meant to define a position, and if that position is at different locations in the word the position of the affix will vary with it, thus serving as a COP. In contrast in Tzeltal, the frame is meant to define the environment in which to use this particular exponent, thus serving as a COIN. Obviously an accurate theory of subcategorization should not contain such ambiguities, and thus this state of affair is undesirable. They propose to divide the two types of frames of COINs and COPs.

However Kalin & Rolle (2020) do not address a simpler alternative: these might be the wrong frames for Chamorro and Tzeltal. These two affixes have different behaviors, so we should give them different frames, such as (10). The Chamorro affix seeks to precede the first vowel, wherever it is, while the Tzeltal affix seeks to be placed between the start of a word and a vowel, which will not be an existing environment in the case of C-initial words, triggering the elsewhere case.

- (10) Chamorro: Actor Focus /um/: $_V_1$
 (11) Tzeltal: 3.poss /y/: $\#_V$

This captures the entire behavior of these affixes without having to complicate the architecture of the grammar with separate linearization, insertion, and linear displacement steps.

The second line of argument involves languages in which the condition on insertion and the condition on position seem to differ enough that they cannot be captured in a single frame. Consider the nominalizer in Nakanai which varies both in position and in exponent based on the form of the stem. One description of the facts, and the one used in Kalin’s account, is that bisyllabic stems take the infix *-il-* before the stressed vowel; elsewhere (= on polysyllabic stems, as Nakanai does not have monosyllables)

the suffix *-la* is used.

(12) Nakanai nominalizing affix

pého ‘die’
p-**il**-ého ‘death’
vi-kúe ‘fight(v.)’
vikúe-**la** ‘fight(n.)’

(13) Nakanai nominalizer according to Kalin (2020b)

- a. /il/:
COIN: bisyllabic stems
COP: before the stressed vowel
- b. /la/:
COIN: elsewhere
COP: \emptyset

The details of this descriptive account are important. First it is crucial for Kalin that the position of this infix be described as preceding the stressed vowel, i.e. in terms of prominence. One could equally well describe it as preceding the first vowel, i.e. in left-edge terms, but this would make it a counterexample to the prediction that a left-edge infix cannot alternate with a suffix.

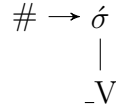
Another detail is the use of bisyllabicity in the COIN. This is the reason stated for splitting COIN and COP, as the two conditions are different: at least intuitively bisyllabicity and preceding the stressed vowel look too dissimilar to be conflated into a single frame, suggesting that we need a separate COIN and COP. I would like to suggest that Kalin simply chose the wrong generalization for Nakanai.

Nakanai stress is obligatorily penultimate and there are no monosyllables. This entails that bisyllabic stems are all and only the stress-initial words. We could therefore just as well capture the COIN by forgoing the syllable count and instead focusing on their stress-initiality. Now this can be integrated into a single subcategorization frame with the positioning: /il/ occurs immediately before a word-initial stressed vowel. Such a position will exist only in bisyllables. There are many ways in which this could be stated schematically depending on background assumptions on phonological representation, but (14) would do to make the point: /il/ must go before a vowel associated with a stress-bearing syllable the immediately follows the beginning of the stem. When such an environment does not exist, i.e. in all words of three or

more syllables, the elsewhere case will be triggered.

(14) One-frame version of the Nakanai nominalizer *-il-*

a. /il/:

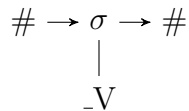


This is a complicated environment, but it does the job of unifying the COIN and the COP into a single subcategorization frame. Any theory of subcategorization that can place the infix before an initial stressed vowel will account for the selection and placement of Nakanai *-il-*. This is therefore not an argument that COINs and COPs must be separated.

The same goes for many of Kalin’s other examples. Consider the formation of the instrumental nominalizer in Nancowry, descriptively, Nancowry monosyllables take an infix *-an-*, $k\langle an \rangle ap$ ‘tooth’ < kap , and longer stems take an infix *-in-* replacing the first vowel, $t\langle in \rangle ko?$ ‘to prod’ < $tiko?$, which Kalin argues arises from placing the infix after the first vowel with a vowel deletion of the stem vowel in hiatus: $/ti\langle in \rangle ko?/ \rightarrow [tinko?]$. Again the argument relies on the need to separate the COIN, monosyllabicity, from the COP, after the first consonant, and again an alternative generalization is possible. First, given that Nancowry phonotactics disallows onset clusters (Kalin, 2020a, p.2), the position after the first consonant in Kalin’s COP can be restated as before the first vowel. With this in mind we can borrow the strategy employed above for Nakanai to target initial syllables but on both sides: The infix *-an-* is placed before a vowel associated with a syllables which *both* immediately follows the beginning and immediately precedes the end of the word, respectively.

(15) One-frame of Nancowry instrumental nominalizer *-an-*

a. /an/:



I conclude that there is no empirical reason that forces separation of COINs and COPs. The arguments in Kalin & Rolle (2020) rely on arbitrarily restricting frames or they pick the wrong generalization to build the frame around. I see no reason to abandon the simpler subcategorization model handling both conditions, though the contrast of Tzeltal and Chamorro does suggest that we must be careful when crafting our subcategorization frames to not introduce ambiguity into the model.

3 Variable position affixes in Sáliba

In this section we will explore a direct counterexample to predictions (ii) and (iii) of Kalin (2020b, p.35) by providing an example of a morpheme for which one allomorph is a left-edge infix and another allomorph is a right-edge suffix and an example of a right-edge infix whose conditioning is on the left side of the stem.

Sáliba is a language spoken in the Eastern plains of Colombia, and part of the language family known as Sáliban or Sáliba-Piaroa. This section follows the analysis of Sáliba by Morse & Frank (1997).

The only relevant fact of phonology that is needed antecedently to this discussion is that when a vowel hiatus occurs at a morpheme boundary, the first vowel is deleted (p.36). Other relevant phonological facts will be mentioned as they arise.

The aspect of Sáliba grammar that is pertinent to this discussion is the set of animate subject agreement affixes. Sáliba verbs carry affixes cross-referencing their subject. The position of these affixes is phonologically determined by the shape of the stem. For ease of discussion I will refer to these three conditions as verb classes (following the terminology used by Rosés Labrada (2015) for the related language Mako) and will refer to the affixes in each position by the class in which they go, but I emphasize that everything is determined by phonological shape and no extra-phonological verb classes need to be posited. The positional conditioning as stated in Morse & Frank (1997) goes as in (16)¹.

- (16)
- Class I: if a stem begins with V-, the affix is prefixed.
e.g. *h-íxa?da?ma-?g-á* 3PL-arrive-FUT-IND (p.42)
 - Class II: if a stem begins with CVV-, the affix is infix after the first vowel.
e.g. *bé-h-e?e-te?-o* guard-3PL-guard-CLASSIFIER-PURPOSE (p.47)
 - Class III: if the stem has three syllables or more and ends in two vowels, the affix is infix between the last two vowels.
e.g. *kelé-h-a-?g-á?a* make-3PL-make-REFL-NOMIN (p.88)

Furthermore there is suppletion for singular participant affixes. The 1SG appears as [d] in Class II and [tʃ] elsewhere. The crucial alternation for our discussion will be

¹All the examples in this section are from Morse & Frank (1997) unless stated otherwise. Glosses are translated from Spanish for readability which may be introduce some semantic errors that should not pertain to the formal aspect of affix position discussed here. Infix roots are glossed on each discontinuous part in keeping with Morse & Frank. The anonymous (1790) manuscript *Arte de la lengua sáliva* will be referenced as ALS. COMP=complement F=feminine, FUT=future, IND=indicative, INTERR=interrogative M=male, NEG=negative, NOMIN=nominalizer, PL=plural, REFL=reflexive, REIT=reiterative, SG=singular,

between (b) and (c)².

- (17) a. *tf-itf-á-xa* 1SG-deliver-IND-3F.COMP (51)
 b. *φe-d-ada-ʔg-á* sweep-1SG-sweep-FUT-IND (83)
 c. *mapu-tf-á* work-1SG-IND (98) (< /mapua/ ‘work’)

The 2SG appears as [g] in Class III and [k^w] otherwise. Again the alternation between (b) and (c) is the crucial one.

- (18) a. *k^w-itf-á-ʔri* 2SG-deliver-INTERR-3SG.COMP (87)
 b. *gu-k^w-áʔ-a* walk-2SG-walk-INTERR (97)
 c. *koko-g-á-di-g-á* load-2SG-load-NEG-FUT-IND (12)

A final allomorphy worth noting is in the 3F, which appears as [h] in Class I and [x] otherwise, but this is allophonic as [x] does not begin phonological words (p.35). The 3M is unmarked. The 2P is formed by adding a suffix on the 2SG form with the same suppletion and position pattern. The full set of affixes is given in (19).

- (19) Sáliba subject markers

subject	#_V Class I	#CV_V Class II	#CVCV...V_V% Class III
1sg	tf	d	tf
2sg	k ^w	k ^w	g
3m	-	-	-
3f	h	x	x
1p	t	t	t
2p	k ^w ...-ʔdo	k ^w ...-ʔdo	g...-ʔdo
3p	h	h	h

It should be clear that if the facts of Sáliba are as stated above then this is a problem for Kalin’s model. In both the first singular and in the second person we have a left-edge infix in Class II alternating suppletively with a right-edge infix in Class III, contradicting the predictions of her model, according to which all suppletive allomorphs should share an orientation: all left-edge or prefixal or all right-edge or suffixal. Given that this is a counter-argument to an otherwise strong generalization I will address some possible doubts about this analysis.

²Class III requires some clarification. The vowel-deletion mentioned above causes this infixation to be opaque whenever it is followed by a vowel-initial suffix as in (17-c). The root lost its final vowel to the hiatus rule, leaving no second part of the root for the affix to be infixated in. Following Morse & Frank (1997) and in keeping with Kalin’s own model, I think opaque infixation is the best analysis of this data: the Class III affix is inserted prior to the final vowel, which then deletes, stranding the affix in a surface-suffixal position. Thankfully, nothing hinges on this. Kalin’s prediction (ii) claims that a left-edge infix like Class II should not be able to alternate with a suffix, so even if Class III turns out to be suffixal this is still a counterargument to the model.

3.1 On the conditioning of Class III

Class III, according to Morse & Frank (1997), is conditioned by words beginning in CVCV- and ending in -VV. Appealing to both trisyllabicity and to two final vowels seems redundant. Any form that would fail to fall in Classes I or II would have to start in CVC-, and for such a form to end in two vowels it would have to be minimally CVCVV and thus trisyllabic. However given that there are trisyllabic roots in Classes I and II suggests that trisyllabicity is not enough at least without some extrinsic ordering on the three Classes.

We could wonder why Class III is not simply stated as the elsewhere case. This may have to do with invariable verbs. There are a number of non-conjugating stems (p.46, ALS p.18-19) which do not take subject agreement and yet can still carry object agreement suffixes. This set may be phonologically-conditioned if it is the set of stems that fails to meet the conditions for any of the classes above. Those would be the stems in CVC- that do not end in -VV. Both Morse & Frank (1997) and ALS single out the form for ‘teach’ *dʒek-ʔd-* (morphologically the causative of ‘learn’) as not taking subject agreement and this stem also does not fall in any of the classes above. However there is too little evidence to propose a strong generalization and Morse & Frank (1997) do not mention anything of the sort, nor do they explicitly mention any other invariable verb. The list in ALS (p.18-19) is longer, but it is not used in context and it cannot reliably serve to identify the underlying form of these verbs.

Thankfully this too is not a problem either way. This is still a right-edge conditioned allomorph alternating with a left-edge one.

3.2 Class III is on the right-edge

A tempting analysis of Class III in keeping with the predictions of Kalin would be to propose that Class III is in fact left-edge. This would make the entire set of allomorphs prefixes or left-edge infixes. Since most CVCV- roots are /CVCVV/ one could attempt to generalize the position of Class III affixes in left-edge terms, after the second vowel or after the first foot, thus coincidentally putting the affix close to the right side despite its position being defined according to the left. There are however two strands of evidence in favor of the right-edge analysis of Class III. First, there is one longer regular conjugated root in Morse & Frank (1997) which argues against this possibility (20).

(20) *huwama-h-á-ʔdo* finish-3PL-IND-? (p.109)

The second strand of evidence is adjectives. All Sáliba adjectives are formed with either a class suffix or a nominalizing suffix and a gender/number (p.40). Adjectives thus formed can serve as predicates and require a conjugation affix like any verb. These longer CVCV- forms all put the agreement morpheme toward the end of the

form, as expected by the right-edge analysis if the entire adjective is the stem at the moment of insertion, thus arguing in favor of the right alignment of Class III forms.

- (21) a. *nóko-b-e-tf-ǎ́* tall-NOMIN-M-1SG-IND (p.41)
 b. *sódi-ʔdu-t-ǎ́* sick-PL-1PL-IND (p.41)
 c. *ǃápu-xu-x-ǎ́* weak-F-3F-IND (p.35)

Estrada Ramírez (2014) lists another long form, unglossed but relevant to us as it apparently contains an agreement affix and is translated with a subject (22-a). Although also unglossed, Morse & Frank (1997) list *tfēbatu* as the first person possessive plural of ‘wife’. Note that the possessive affixes are identical, or at least homophonous, to the subject agreements we have covered. They rarely appear other than as prefixes and it is impossible to prove their synchronic identity with the set of subject agreement affixes, hence my leaving them out of the discussion so far. This therefore appears to be a possessed noun meaning ‘my wives’ used as a predicate (which is attested independently for another kinship term *tf-áyo-x-ǎ́* 1SG.POSS-sister_in_law-3F-IND (p.41)). I propose the parse in (22-b) for this form, which again positions the subject agreement morpheme as right-edge.

- (22) a. *chēbada-ha* ‘they marry’ (Estrada Ramírez, 2014, p.161)
 b. *tf-ēbata-h-ǎ́* 1SG.POSS-spouse-1PL-IND

Therefore there seems to be sufficient evidence to support the position that that Class III affixes are truly right-edge.

3.3 Class II really is infixal

Conversely one could be tempted to offer a right-edge analysis of Class II affixes. Many stems in this class have the form CVV, which makes their alignment ambiguous as in (23), but there are multiple longer ones that clarify that the orientation is to the left (24).

- (23) a. *hĩ-x-as-ǎ́* fly-3F-fly-IND (p.44)
 b. *gú-h-a* walk-3PL-walk (p.90)
- (24) a. *hó-h-eʔm-ǎ́* finish-3PL-finish-IND (p.43)
 b. *hi-d-eʔah-ǎ́* meet-1SG-meet-IND (p.44)
 c. *ke-h-adam-á-di* arrive-3PL-arrive-INTERR-NEG (p.53)
 d. *bá-h-iba-ʔma-ʔná-ʔri* chase-3PL-chase-REIT-T-3PL.COMP (p.86)
 e. *be-h-eʔe-di-ǎ́* guard-3PL-guard-NEG-IND (p.102)

Despite such data supporting that Class II is left-edge and infixal, I must address a conflicting analysis due to Estrada Ramírez (1996, 2014) and Rosés Labrada (2015, 2016, 2018). These authors posit only two classes of affixes in Sáliba: a prefix set and

a suffix set (in keeping with the analyses of the related Sáliban languages Mako and Piaroa).

It must be noted however that this analysis is only made possible to these authors via copious use of unglossed post-agreement suffixes such that every example analyzed as a verb with an infix by Morse & Frank (1997) is, for these authors, a shorter verb with an obligatory unidentified or meaningless suffix. Consider the following examples and glosses which unless stated otherwise are cited in Rosés Labrada (2015) and attributed to Estrada Ramírez (1996):

- (25) a. *mapu-x-a-di-a* work-3F-?-NEG-REAL (p.73)
 b. *sa-h-e-a* go_out-3M-?-REAL (p.441)
 c. *hi-ɲ-a-hã-gi* see-1SG-?-?-2SG (p.442)
 d. *hĩ-x-ada-ma* arrive-1SG-?-? (Ramírez, 2010, p.109)

The form (25-c) with [ɲ] is unexpected. Estrada Ramírez found it as a subject marker and not Morse & Frank. ALS (p.15) corroborates the presence of a nasal infix in some first persons in 18th century, such as (in the Spanish-based spelling of ALS) *nonada*, ‘I grab’, alternating with second person *nocuada*, third person *nojada*, etc. This is only one of several phonological discrepancies between Estrada Ramírez and Morse & Frank, suggesting a possible dialect difference between the informants of Estrada Ramírez and Morse & Frank, as proposed by Rosés Labrada (2015, 2016). It could be the case that this is all there is to it for the morphological discrepancies too.

However I would like to push for more skepticism against these analyses with unglossed suffixes. Unglossed suffixes are also ubiquitous in Labrada’s analysis of Mako. In Mako Labrada further defends the position that the conditioning environment for the position of person agreement is on the right: suffixed if the root ends in a vowel and prefixed if it ends in a consonant. In this context unglossed suffixes also conveniently allow the affix to go where it must go. Consider the following Mako verb:

- (26) *la-t-eb-obe* exit-1SG-?-TAME (Rosés Labrada, 2015, p.175)

This analysis is unsatisfying and serves seemingly no other purpose than to put the alleged suffix in its location between two halves needed together to mean ‘exit’. The form is artificially made to end in a vowel by the morpheme boundary. The /eb/ part is obligatory, appearing in every other form of the verb cited in Labrada’s dissertation as well as in the citation form (Rosés Labrada, 2015, p.176); it is only (un)glossed separately as a way to make the infix analyzable as a suffix.

Irrespective of the Mako facts, it is important to note that at least for Sáliba the analysis seems implausible. The post-agreement suffixes one would have to posit are very numerous as the sample in (23), (24) and all examples prior may attest. There is little hope that upon closer analysis these may all fall in line and reveal a heretofore unknown grammatical contribution.

I therefore reject the suffixing analysis of Class II affixes. But I would like to note

that if this analytic strategy of reanalyzing infixes as obligatorily-cooccurring bi-morphemic sequences is allowed, then that is a much bigger blow to Kalin’s project than the analysis of Morse & Frank (1997). If infixes, even those with otherwise a strong phonological generalization on their location, can be reanalyzed as peripheral via morpheme cuts, the very notion of an infix seems unneeded in morphological theory. What then is the point of typological generalizations on them?

If Morse & Frank are right, Sáliba is one counterexample to a strong generalization. If Estrada Ramírez and Labrada are right, generalizations about infixes are meaningless as there is little to no reason to believe infixes exist at all.

3.4 Sáliba summary

Kalin’s model makes a number of explicit predictions. First a left-edge suffix cannot suppletively alternate with a right-edge infix. The Sáliba first singular and the second singular both directly contradict this prediction since the left oriented infixes [d] and [k^w] alternate with right-edge infixes [tʃ] and [g] respectively. Second, a right-edged infix cannot have a phonological trigger for suppletion at the left edge of a stem. The Sáliba second person contradicts this prediction since the suppletive allomorph [g] is triggered by a CVCV environment on the left edge, but is on the right-edge.

Sáliba also disproves some other generalizations that have been proposed about infixes. Moravcsik (2000) claimed that “If an infix has an alternative position outside the word, that external position is always at the edge of the word to which the infix position is referenced.” (p.547). This is essentially the same claim as Kalin’s for non-suppletive forms. This is disproved by all Sáliba forms where Class I and Class III are identical, i.e. all first and third person forms, which have a right-edge infix in Class III alternating with a prefix in Class I.

4 Diachrony and infix orientation

I take Sáliba as a convincing counterargument to the strong architectural prediction of the model of Kalin (2020b), namely that there cannot exist right-edge infixes alternating suppletively with a left-edge infix or a prefix. But one question that we should ask is: if there is no strong restriction on infixation forcing infixal exponents to share an orientation with their suppletive allomorphs, then why is Kalin’s generalization so strong?

I would like to suggest that this entirely boils down to another wider generalization: in predominantly prefixing languages, infixes tend to be on the left-edge, whereas in predominantly suffixing languages, infixes tend to be right-edge (Ullian 1975, cited in Kießling 2003, p.110). With this generalization on the table, it readily follows that if an infix is to suppletively alternate with a prefix or suffix, that prefix or suffix is very likely to be of the same orientation as the infix.

This is evident for most of the examples in Kalin's list of case studies. Most of the languages from which her examples of suppletive infixes come from are also exclusively prefixal or suffixal. It is not very surprising to then find that the infixes in these languages do not alternate with opposite-side peripheral allomorphs when there are no opposite-side peripheral affixes in the language at all. Thus, while the data is compelling, it does not suggest the interpretation Kalin has attributed to it, but a much stronger one. It is not that left-edge infixal exponents only alternate with prefixal allomorphs and right-edge ones with suffixal ones; rather left-edge infixal exponents almost only occur in exclusively prefixing languages and right-edge ones in exclusively suffixing ones. This generalization has exceptions, including of course Sáliba above in which the prefixal Class I affixes are the only prefixes in the language, but I suspect this stronger generalization is more explanatory of the actual facts of Kalin's survey.

This generalization finds a good explanation in diachrony. As argued by Yu (2003, 2007), infixes overwhelmingly originate from peripheral affixes, through processes such as (a) metathesis, where phonological change causes segments to swap places in such a way that a short peripheral affix finds itself inside a root, (b) entrapment, where an outer affix is reanalyzed as part of a root leaving an inner affix caught inside, and (c) reduplication mutation, where the inner copy of a reduplication loses its synchronic identity with the outer one and is reanalyzed. Entrapment in particular requires a rich morphology with multiple affixes on the same side and enough of them that some of the outer ones are rare and thus prone to reanalysis as part of a root.

A second aspect of diachrony that is relevant is the relative instability of infixes (Ultan 1975, cited in Kießling 2003, p.110, Moravcsik 2000, p.549). Infixes are very likely to be reduced to prefixes or suffixes, or to undergo rapid semantic decay leading to their being lexicalized/fossilized into the root they attached to. It appears that infixes are difficult to learn. One aspect of this difficulty is in the creation of discontinuous morphemes, which have been shown to be difficult to learn (Gomez 2002, Newport & Aslin 2004). Suppletion also poses a learning problem, as it requires the discovery of a relationship of identity between unrelated phonological forms, and it reduces the predictability of the paradigm cells from each other in the sense of Bonami & Beniamine (2016). There is a diachronic tendency for suppletive forms to disappear as learners regularize paradigms. Suppletion between exponents in different positions such as an infix and a peripheral affix is bound to compound the difficulty. Is it not possible then that suppletion between exponents not only in different positions but remote from each other's position in the stem is a step too far, a learning situation that, if it is to develop, is so complicated as to offer little-to-no hope of being learned as such by future generations?

Surely it is not completely unlearnable, as demonstrated by Sáliba. Notably this complex scenario occurs in Sáliba with first and second person agreement affixes which likely abound in the input, and additionally the other persons are non-suppletive and thus offer a consistent infixation paradigm to compare to. These factors, I suspect,

play a vital role in the diachronic stability of this pattern (see Blevins (2014, §9.5)). But I propose that this is a very unlikely state of affair: unlikely to develop and unlikely to be preserved, short of an extraordinary alignment of unusual circumstances.

In sum, I conclude that Kalin’s typological generalization is not caused by an architectural restriction on possible infixation patterns as she proposes, but boils down to diachrony: suppletive allomorphy between an edge-oriented infix and an opposite-side peripheral affix is very unlikely to arise and very likely to be lost. It is rare due to factors external to the narrow grammar, in line with the claim of Yu (2007) and his thesis that “typological tendencies of language may be traced back to its origins and the mechanisms of language transmission” (p. v).

5 Toward a Generic Morphology

I have addressed some analytical and empirical problems with the model of Kalin (2020b) and Kalin & Rolle (2020), because such problems are the clearest arguments one can bring against a theory. But I would like to step back and question the model on a more conceptual level.

In Linguistics, as in science in general, there is a healthy conflict between proponents of models that are simple and elegant, and defenders of empirical coverage ready to complicate a theory to prevent under-generation. The former may be willing to set some data points aside for the sake of forming a sleek theory, while the former will refuse to do so. But there is an obvious danger in complicating the theory not to include attested data points, but to exclude unattested ones: this strategy is bound to overfit the data. We are witnessing it here since the model of Kalin (2020b) is unable to handle languages like Sáliba. There are enough biases affecting languages that we should expect many possible languages to be very rare or unattested.

We should also be suspect of the invocation of infixation- and suppletion-specific steps in this highly articulated model. Consider the question: why are infixation and suppletion cognitively possible in Language? In the subcategorization model, the answer is simple: there exists only one way for affixes to be incorporated into roots, subcategorization frames. These frames are generic, they are not designed for any linguistic phenomenon; it just so happens that infixation and suppletion emerge from them as logical possibilities. We get infixation and suppletion for free from the combinatorics. They are the natural consequences of this natural way to put an affix onto a stem.

But what is the answer for Kalin? The answer is that the mind contains universal, highly specialized algorithmic steps designed with phenomena-specific operations, including two of them that respectively allow for suppletion and infixation. Infixation and suppletion are possible in Language because they are primitives, because in the mind there is a suppletion machine and an infixation machine. This type of explanation is deeply unsatisfying. It is a strange story that the mind would evolve machinery

for what are, in this model, deviations from the concatenative norm and from a regular suppletion-free language. A purely regular and concatenative language would have been possible without step (b) in (1) —explicitly permitting exponent choice, linear displacement, and restricted phonology— which would have been entirely sufficient to handle language. We are to believe that these steps arose in the human mind for no reason, as needless complications on a concatenative and regular model, or teleologically evolved to give the non-concatenative language patterns we see. The question of how the mental structures underlying Language come about may not be at the forefront of all linguistic research, but it cannot be entirely dismissed.

A generic morphology is possible, a morphology where the existing phenomena of word-formation derive as logical consequences from a simple unrestricted system, without phenomenon-specific mental machinery. Infixation and suppletion are not alone. Reduplication can be achieved with floating prosodic material (Marantz 1982, Paschen 2018) or with a generalization of the notion of precedence (Raimy, 2000)), word classes can be attributed to floating material in the underlying forms (Pagliano 2003, ch.11, Barillot & Ségéral 2005, Faust et al. 2018), and multiple phenomena can be handled as parallel structures in a bare-bone phonological representation (Papillon, 2020). For every phenomenon of word-formation, there exists one or more theories that derives it from the simple representational possibilities of the phonology and of how affixes attach onto stems. A morphology consisting of nothing more than a one-to-one mapping of syntactic terminals onto subcategorized phonological forms is all that appears to be needed. There should be an immense burden of proof on anyone arguing for more complexity and more phenomena-specificity in the system.

6 Conclusion

In this paper I argued against the model of infixation and suppletion of Kalin (2020b) and Kalin & Rolle (2020). I have argued that the patterns of suppletion and infixation where COINs and COPs seem to require different treatments can be reanalyzed with a unique more richly specified subcategorization frame. I also argued that the facts of Sáliba counterexemplify two of the predictions of Kalin’s model, displaying opposite-orientation infixes suppletively alternating with each others. I sought to explain the typological tendency observed by Kalin in terms of a more general typology of infixes, as well as the diachrony of infixes and their difficulty for acquisition. These factors taken together sufficiently explain why Kalin found such a strong generalization despite it not being a correct restriction of the linguistic system.

Finally I opposed the theoretical appeal of a highly-articulated model of morphology where every phenomenon has its own piece of dedicated machinery, tacked onto an otherwise concatenative and regular model. Such a model lacks explanatory force and it is poorly motivated in light of generic, non-specific alternatives for every morphological phenomenon.

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