Phasal strength in A'ingae classifying subordination*

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1 Introduction

This paper presents and analyzes data from A'ingae (or Cofán, ISO 639-3: con), an understudied and endangered Amazonian isolate. My central focus will be inflected verbs, subordinated with nominal classifiers, where the patterns of stress and glottalization in subordinate verbs are sensitive to the prior inflection present on the verb. This violates *bracket erasure*, an otherwise robust empirical generalization which states that phonological grammar cannot access morphological information from previous cycles (Kiparsky, 1982).

To account for the subordinator's sensitivity to the morphological structure of the inflected verb, I introduce a family of *phase-indexed faithfulness* constraints. Like McPherson & Heath (2016)'s phase faithfulness, it allows for modeling cases where previous phonological evaluation results in greater faithfulness. The addition of *indexation* keeps track of the previous phase's category, allowing for faithfulness specific to particular phases.

2 Language background

A'ingae (or Cofán, ISO 639-3: con) is an Amazonian isolate spoken in northeast Ecuador and southern Colombia. The language is endangered and highly under-resourced. The structure of an A'ingae syllable is (C)V(V)(ʔ); nuclei are maximally diphthongal, and the glottal stop is the only possible coda. (Alternatively, the glottal stop could be analyzed as a feature of the nucleus. I remain agnostic with respect to its structural position.) Generally, sequences of two vowels in A'ingae are tautosyllabic. VV diphthongal nuclei are the only heavy nuclei in the language. In presenting the data, I use the language's practical orthography, with one exception: the glottal stop is transcribed as *ʔ*, rather than an apostrophe (*'*). Two features of the A'ingae orthography are of note. First, *û* represents the high central vowel. Second, postvocalic *m* and *n* represent vowel nasality, and consonantal prenasalization if followed by a stop. Thus, postvocalic *m* and *n* are not codas. For a full exposition of the A'ingae writing system, see Fischer & Hengeveld (2023). A'ingae is a heavily agglutinating and exclusively suffixing language. Word order is largely free in matrix clauses, but subordinate clauses are strictly verb-final.

The evidence for phase-indexed faithfulness, which is the main focus of the paper, will come from the patterns of stress assignment and glottalization. A'ingae stress is contrastive (1).[1] The presence of glottalization is contrastive in roots (2a-b) and affixes (2c-d). The position of the glottalization is contrastive in morphologically complex forms (2e-f). Stress is marked with the acute accent (*´*) and **boldface**.

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[1] The following glossing abbreviations have been used: 1 = first person, 3 = third person, ACC = accusative, ACC2 = accusative 2, ANA = anaphoric, ANG = angular, CAUS = causative, DAT = dative, DIST = distal, DLM = delimited, DRN = diurnal, DS = different subject, FLAT = flat, FRST = frustrative, HRS = hirsute, IF = conditional, INF = infinitive, IPFV = imperfective, IRR = irrealis, LAT = lateral, LIN = linear, LRG = large, MANN = manner, N = nominalizer, NEG = negative, NN = negative noun, PASS = passive, PAUC = verbal paucal, PL = plural, PLC = place, PLS = plural subject, PRCL = preculminative, PRD = periodic, PROX = proximal, RCPR = reciprocal, RND = round, RPRT = reportative, SHRD = shard, SMFC = semelfactive, SS = same subject.

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(1) CONTRASTIVE STRESS (Dąbkowski, 2021)

a.	b.	c.	d.
***né**pi -ye*	*ne**pí** -ye*	*á**f**a -ye*	*a**fá** -ye*
disappear -INF	arrive -INF	speak -INF	speak -PASS

(2) CONTRASTIVE GLOTTALIZATION (Dąbkowski, 2023)

a.	b.	c.	d.	e.	f.
***chá**ndi*	***chá**ʔndi*	***tsá** =ma*	***tsá** -ʔma*	***sé**ʔje -pa*	***sé**je -ʔpa*
be clear	be cold	ANA =ACC	ANA -FRST	cure -SS	cure -N

All the uncited data were collected by the author between 2022 and 2023 with one 37-year-old male native A'ingae speaker from the community of Dureno, Sucumbíos, Ecuador.

3 The morphophonological patterns

First, I discuss the basics of A'ingae verbal morphology. A'ingae verbs can be inflected with many suffixes affecting stress and glottal stops. Dąbkowski (2023) describes the A'ingae verbal morphosyntax and morphophonology and provides analysis couched in Cophonologies by Phase (Sande et al., 2020). This section summarizes some relevant aspects of Dąbkowski (2023)'s findings, and takes them as a point of departure in order to focus on stress and glottalization in classifier subordination.

There are four phasal domains within an A'ingae verb: vP, AspP, TP, and CP (3). There is phonological, morphological, and syntactic evidence diagnosing each of the domains (Dąbkowski, 2023).

(3) AT MOST FOUR PHONOLOGICAL EVALUATIONS PER VERB (Dąbkowski, 2023)

[[[[***indi*** ***-án***]$_{v\text{P}}$ *-khu -ʔje -ngi*]$_{\text{AspP}}$ *-ʔfa -ya*]$_{\text{TP}}$ *-ʔni =nde*]$_{\text{CP}}$
be fermented -CAUS -RCPR -IPFV -PROX -PLS -IRR -IF.DS =RPRT

"allegedly$_{\text{RPRT}}$ if$_{\text{IF}}$ (they$_{\text{PLS}}$) will$_{\text{IRR}}$ come$_{\text{PROX}}$ to be$_{\text{IPFV}}$ fermenting$_{\text{CAUS}}$ among themselves$_{\text{RCPR}}$, (someone else$_{\text{DS}}$) ..."

Each of the four domains may undergo a separate phonological evaluation. The vP projection contains the verb root and the causative suffix *-ña*/*-an*/*-en* CAUS, if present. AspP (the aspectual projection) contains other voice suffixes, including the reciprocal *-khu* RCPR and the passive *-ye* PASS, the aspectual suffixes, including

(TP)		
	(ix)	FINITENESS: *-ye* INF
	(viii)	POLARITY: *-mbi* NEG
	(vii)	REALITY: *-ya* IRR
	(vi)	SUBJECT NUMBER: *-ʔfa* PLS
(AspP)		
	(v)	ASSOCIATED MOTION: *-ʔngi* PROX, *-ʔnga* DIST
	(iv)	ASPECT: *-ʔje* IPFV, *-ji* PRCL, *-kha* PAUC, *-ʔñakha* SMFC
	(iii)	PASSIVE: *-ye* PASS
	(ii)	RECIPROCAL: *-khu* RCPR
vP		
	(i)	CAUSATIVE: *-ña*/*-an*/*-en* CAUS
	(o)	VERBAL ROOT: $\surd$

Table 1: Morphophonological template of the A'ingae verb (partial, adapted from Dąbkowski 2023).

the imperfective *-ʔje* IPFV, the preculminative *-ji* PRCL, the paucal *-kha* PAUC, and the semelfactive *-ʔñakha* SMFC, and the associated motion suffixes: the proximal *-ʔngi* PROX and the distal *-ʔnga* DIST. The TP projection contains the plural subject *-ʔfa* PLS, the irrealis *-ya* IRR, the negative *-mbi* NEG, and the infinite *-ye* INF. Since the A'ingae clauses discussed in subsection 3.4 are subordinate TPs, the CP layer will be omitted in the upcoming discussion.

A part of the morphological template of the A'ingae verb is given in Table 1. The root is at the bottom; each successive morphological slot is higher up in the table, mimicking the orientation of a syntactic tree. The arcs represent phasal domains which may undergo spell-out, or phonological evaluation. Following Bošković (2016), Dąbkowski (2023) assumes that heads are spelled out together with their complements. I assume that vP always undergoes spell-out. AspP and TP undergo spell-out only if they introduce new phonologically overt material. In the template, the variable spell-out of the AspP and TP phases is represented with parentheses ( ).

3.1 *Verbal roots* In this section, I present a brief overview of the different morphophonological processes seen in the verbal domain. First, let's look at three classes of A'ingae roots: stressless, stressed, and glottalized (Dąbkowski, 2023). Stressless roots have no underlying stress. On the surface, stress is assigned to the penultimate syllable (4-5a-b). Stressed roots have underlying stress on the first syllable and it doesn't shift (4-5c-d). Glottalized roots have a glottal stop in the rime of the penultimate syllable, and all of them also have word-initial stress (4-5e-f). Since all glottalized roots are stressed, we see that the glottal stop triggers stress assignment.

(4)

Stressless roots		Stressed roots		Glottalized roots	
a. / *afe* /	b. / *atapa* /	c. / ***ká**ti* /	d. / ***á**fase* /	e. / (***í**ʔna*) /	f. / (***á**kheʔ*)*pa* /
[***á**fe*]	[*ata**pá***]	[***ká**ti*]	[***á**fase*]	[(***í**ʔna*)]	[(***á**kheʔ*)*pa*]
give	breed	cast	offend	cry	forget

(5)

... with a suffix	... with a suffix	... with a suffix	... with a suffix	... with a suffix	... with a suffix
a. / *afe -ji* /	b. / *atapa -ji* /	c. / ***ká**ti -ji* /	d. / ***á**fase -ji* /	e. / (***í**ʔna*) *-ji* /	f. / (***á**kheʔ*)*pa -ji* /
[***afé** -ji*]	[*atapa**pá** -ji*]	[***ká**ti -ji*]	[***á**fase -ji*]	[(***í**ʔna*) *-jin*]	[(***á**kheʔ*)*pa -ji*]
give -PRCL	breed -PRCL	cast -PRCL	offend -PRCL	cry -PRCL	forget -PRCL

Glottal stops (**brief summary**)**:** Dąbkowski (2023) proposes that (a) A'ingae footing is trochaic, (b) the glottal stop is a metrical feature and prefers to be located within a foot (and therefore creates metrical structure when possible), and (c) the glottal stop is preferentially right-aligned with its foot, but (d) diphthongs (heavy nuclei) are dispreferred in the right (weak) branch of a trochee, so when the glottalized syllable has a diphthong (or if it is word-initial), it receives stress instead. In other words, stress is assigned to the syllable which contains the second mora to the left of the glottal stop. The pattern is again restated in (6). In (4-5), metrical feet are delimited with parentheses ( ). In the examples to follow, metrical feet will only be shown if they are constructed due to the presence of a glottal stop.

(6) Metrical phonology of the glottal stop (Dąbkowski, 2023)
If the glottal stop is in the coda position of a heavy or a word-initial syllable:
stress the glottalized syllable;
otherwise:
stress the syllable preceding the glottalized one.

3.2 *Verbal suffixes* Now, I move on to briefly summarize the morphophonology of A'ingae verbal suffixes. Some of the suffixes can be categorized as recessive, preglottalized, and TP-level suffixes.

Recessive suffixes There are two recessive suffixes: the causative *-ña*/*-an*/*-en* CAUS and the preculminative *-ji* PRCL. The recessive suffixes retain the stress and glottalization of the base (7d-e). If the base is stressless, the surface form is assigned default penultimate stress (7a-c). Note that the *-an* and *-en* allomorphs of the causative CAUS form a diphthong with the preceding vowel. Thus, the surface stress in (7a) falls on the penult.

(7) Various bases with recessive suffixes (Dąbkowski, 2023)

a.	/ *panza -en* /	b.	/ *phi -ña -ji* /	c.	/ *atapa -ji* /	d.	/ (***á***k*he*ʔ)*pa -en* /	e.	/ ***á****fase -ji* /
	[***pá****.nza -en*]		[*phi -****ñá*** *-jin*]		[*ata****pá*** *-ji*]		[(***á***k*he*ʔ)*pa -en*]		[***á****fase -ji*]
	hunt -CAUS		sit -CAUS -PRCL		breed -PRCL		forget -CAUS		offend -PRCL

Preglottalized suffixes Preglottalized suffixes include the imperfective *-ʔje* IPFV, the semelfactive *-ʔñakha* SMFC, the proximal *-ʔngi* PROX, and the distal *-ʔnga* DIST. Preglottalized suffixes delete the stress and glottalization from the base (if any). Moreover, stress is assigned to the syllable which contains the second mora to the left of the glottal stop, in accordance with (6). If the last syllable of the base is light, i. e. a monophthong, stress is assigned one syllable to the left of the glottalized syllable (8a-b). Otherwise, i. e. the root ends in a diphthong, stress is assigned to the glottalized syllable itself (8c-d).

(8) Various bases with preglottalized suffixes (Dąbkowski, 2023)

a.	/ ***á****fase -ʔñakha* /	b.	/ (***sé***ʔ*je*) *-ʔngi* /	c.	/ *fûndûi -ʔnga* /	d.	/ (***á***k*he*ʔ)*pa -en -ʔje* /
	[*a*(***fá****se -ʔ*)*ñakha*]		[(***sé****je -ʔ*)*ngi*]		[*fû*(***ndúi*** *-ʔnga*)]		[*akhe*(***pá*** *-****en*** *-ʔjen*)]
	offend -SMFC		cure -PROX		sweep -DIST		forget -CAUS -IPFV

TP suffixes Finally, TP suffixes include the plural subject *-ʔfa* PLS, the irrealis *-ya* IRR, the negative *-mbi* NEG, and the infinitival *-ye* INF. Stress assignment at the TP level is sensitive to the right edge of AspP, the previous projection. AspP contains the root as well as all of the vP and AspP suffixes, if present. In the examples below, AspP is delimited with square brackets [ ]. If AspP is stressless (9), e. g. because it has a stressless root and only recessive suffixes, stress is assigned to the last syllable of AspP.

(9) Stressless bases with TP suffixes (Dąbkowski 2023; author's data)

a.	/ [*atapa*] *-ʔfa* /	b.	/ [*phi -ji*] *-ya -mbi* /	c.	/ [*afe -ji*] *-ʔfa -ya -mbi* /
	[*ata****pá*** *-ʔfa*]		[*phi -****jí*** *-ya -mbi*]		[*afe -****jí*** *-ʔfa -ya -mbi*]
	breed -PLS		give -PRCL -IRR -NEG		give -PRCL -PLS -IRR -NEG

Note that although the plural subject suffix *-ʔfa* PLS begins with a glottal stop and therefore can be called "preglottalized," it is unlike the AspP preglottalized suffixes in that it does not assign stress two morae to its left. In other words, while in AspP the presence of the initial glottal stop has an effect on stress assignment, within the TP domain preglottalization does not interact with stress at all.

If, on the other hand, AspP is stressed (and glottalized), stress and glottalization are preserved; stress is not reassigned to the last syllable of AspP. AspP may be stressed for one of two reasons: either it contains a stressed (and glottalized) root (10), or stress has been assigned by a preglottalized AspP suffix (11). In either case, the AspP domain has stress by the time of TP affixation and its stress is retained.

(10) Stressed bases (with stressed roots) and TP suffixes (Dąbkowski, 2023)

a.	/ [***ká****ti*] *-ya -mbi* /	b.	/ [(***á***k*he*ʔ)*pa -ji*] *-ye* /	c.	/ [(***sé***ʔ*je*) *-ji*] *-ʔfa -ye* /
	[***ká****ti -ya -mbi*]		[(***á***k*he*ʔ)*pa -ji -ye*]		[(***sé***ʔ*je*) *-ji -ʔfa -ye*]
	cast -IRR -NEG		forget -PRCL -INF		cure -PRCL -PLS -INF

(11) Stressed bases (with preglottalized AspP suffixes) and TP suffixes (Dąbkowski, 2023)

a.	/ [(***sé***ʔ*je*) *-ʔñakha*] *-mbi* /	b.	/ [(***á***k*he*ʔ)*pa -ʔnga*] *-ye* /	c.	/ [***á****fase -ʔje*] *-ya -mbi* /
	[(***sé****je -ʔ*)*ñakha -mbi*]		[*a*(***khé****pa -ʔ*)*nga -ye*]		[*a*(***fá****se -ʔ*)*je -ya -mbi*]
	cure -SMFC -NEG		forget -DIST -INF		offend -IPFV -IRR -NEG

In short, at TP spell-out, stress is assigned to the right edge of AspP, unless AspP had underlying stress (in which case stress is preserved) or there are no TP suffixes (in which case stress is penultimate). The algorithm which captures the stress assignment patterns in TP is given in (12).

(12) TP stress assignment
If the base of TP suffixation (i. e. the AspP domain) is stressed (and glottalized):
preserve input stress (and glottalization);
otherwise:
stress the syllable to the left of the first TP affix (i. e. the last syllable of AspP).

In summary, A'ingae suffixes can be grouped into three morphophonological classes: recessive, preglottalized, and TP suffixes. Recessive suffixes preserve preexisting stress (and glottal stops) if present; they don't assign stress by themselves. Preglottalized suffixes delete preexisting stress and glottalization, and assign stress to the syllable which contains the second to the left of the glottal stops—in accordance with (6). TP suffixes preserve stress (and glottal stops) if present; otherwise, they assign stress to the immediate left of the first TP suffix.

3.3 *Nouns and nominal classifiers* Now, I move on to nouns and nominal classifiers. Stress patterns in A'ingae nouns are similar to those of verbs. A'ingae nouns can be classified as plain or glottalized. Plain (i. e. not glottalized) nouns have penultimate stress (13). In glottalized nouns, the rime of the penult has a glottal stop. If the glottalized noun is disyllabic, stress is assigned to the glottalized syllable (14a). If the glottalized noun is trisyllabic, stress is assigned to the syllable which contains the second mora to the left of the glottal stop (14b-e).[2] Thus, glottalized nouns show the same stress pattern as glottalized verbal roots (4-5e-f) and verbs with preglottalized suffixes (8).

(13) PLAIN NOUNS

a.	b.	c.	d.	e.
***pí**ndu*	***kú**se*	*tsun**sí**na*	*cha**ná**nge*	*an**jám**pa*
hawk	night	ear	lowland paca	blood

(14) GLOTTALIZED NOUNS

a.	b.	c.	d.	e.
(***thé**ʔthu*)	(***ú**maʔ*)*ndu*	(***bán**saʔ*)*mu*	*a*(***náe**ʔma*)	*ku*(***kiú**ʔchu*)
tooth	macaw	balsam	hammock	mountain cocoa

A'ingae has a rich set of classifying suffixes, which characterize the shape, size, or prominent dimension (be it spatial or temporal) of the referent. This set includes, but is not limited to, the delimited space *-khû* DLM (15a), flat *-je* FLAT (15b), periodic *-ite* PRD (15c), large *-jiun* LRG (15d), angular *-ʔkhu* ANG (16a), lateral *-ʔfa* LAT (16b), shard *-fiʔndi* SHRD (16c), hirsute *-ʔsi* HRS (16d), place *-ʔthi* PLC (17a), linear *-ʔki* LIN (17b), round *-ʔchu* RND (17c), and diurnal *-ʔki* DRN (17d) classifiers. The A'ingae classifying suffixes are nominalizers that derive nouns from both verbal (15a-b, 16) and nominal roots (15c-d, 17). The semantics of the derived noun is often not fully predictable.

(15) PLAIN CLASSIFIERS ON VERBAL ROOTS AND ON NOMINAL ROOTS

a.	b.	c.	d.
/ ***ká**ti -khû* /	/ (***bán**saʔ*)*mu -je* /	/ (***ú**ʔma*) *-ite* /	/ (***tá**ʔva*) *-jiun* /
[*kat**í** -khû*]	[*bansa**mú** -je*]	[*u**má** -**i**te*]	[*ta**vá** -jiun*]
throw -DLM	balsam tree -FLAT	peach palm -PRD	cotton -LRG
"trash can"	"balsam leaf"	"Feb-Apr season"	"silk-cotton tree"

(16) GLOTTALIZED CLASSIFIERS ON VERBAL ROOTS

a.	b.	c.	d.
/ *akhûi -ʔkhu* /	/ ***á**fase -ʔfa* /	/ (***fí**ʔthi*) *-fiʔndi* /	/ (***á**kheʔ*)*pa -ʔsi* /
[*a*(***khú**i -ʔkhu*)]	[*a*(***fá**se -ʔ*)*fa*]	[*fi*(***thí** -fiʔ*)*ndi*]	[*a*(***khé**pa -ʔ*)*si*]
lever -ANG	criticize -LAT	kill -SHRD	forget -HRS
"lever"	"critical paragraph"	"knife"	"forgetting plant"

(17) GLOTTALIZED CLASSIFIERS ON NOMINAL ROOTS

a.	b.	c.	d.
/ ***tsá**ndie -ʔthi* /	/ ***tsám**pi -ʔki* /	/ (***tsú́**ʔtha*) *-ʔchu* /	/ (***ú**maʔ*)*ndu -ʔki* /
[*tsa*(***ndié** -ʔthi*)]	[(***tsám**pi -ʔ*)*ki*]	[(***tsú́**tha -ʔ*)*chu*]	[*u*(***má**ndu -ʔ*)*ki*]
man -PLC	forest -LIN	bone -RND	macaw -DRN
"men's place"	"forest trail"	"knee"	"macaw day"

When attaching to roots, the classifying suffixes delete the stress and glottalization of the base. If the classifier does not have a glottal stop, stress is assigned to the penultimate syllable of the word (15). If the classifier has a glottal stop, stress is assigned to the syllable which contains the second mora to the left of the glottal stop. This means that the glottalized syllable is stressed if heavy (16-17a); otherwise, the syllable to its left receives stress (16-17b-d). The algorithm which captures the stress assignment patterns of the classifying suffixes is given in (18).

[2] One exception is *ten**khén**ʔchu* 'fly,' where the glottalized syllable is stressed despite being light.

(18) ClassifierStress, or: Clσ́
1. *Delete base stress and glottalization.*
2. *If the classifying suffix has a glottal stop:*
   follow (6), i. e. stress the syllable with the second mora to the left of the glottal stop;
   otherwise:
   stress the penultimate syllable of the word.

In section 4, the ClassifierStress algorithm will be deployed as a constraint violated by non-adherence to the classifier stress pattern, ranked with respect to indexed faithfulness constraints. ClassifierStress is obviously not an atomic constraint, but rather a descriptive gloss over the outcome of an interaction of several constraints regulating the relationship between stress, glottal stops, deletion facts, stress assignment, and foot structure. For an analysis of the components of the ClassifierStress algorithm, see Dąbkowski 2023.

3.4 *Classifier subordination* In this section, I present the core data of the paper which pertain to stress and glottal stops in inflected verbs subordinated with the classifying suffixes. A'ingae many subordinators are realized as suffixes on the main verb of the subordinate clause. A'ingae subordinate clauses are strictly verb-final, e. g. (19). The subordinating suffix is underlined. The subordinate clauses are given in brackets [ ]. The subordinator forms one phonological word with the inflected verb, given in double brackets ⟦ ⟧.

(19) Clausal subordination
[*dûshú=ndekhû tíse máma=me* ⟦ *rúnda -ʔje -ʔfa -ya*] *-ʔni =tsû* ⟧ *avûjátshi-ya*
child=PL (s)he mom=ACC2 wait -IPFV -PLS -IRR -IF.DS =3 happy-IRR
"If the children will be waiting for their mom, she will be happy."

Crucially, some of the classifiers introduced in subsection 3.3 can function as clausal subordinators. The classifiers that can do so productively include, among others, the periodic *-ite* PRD and the place *-ʔthi* PLC classifiers. In its productive subordinating role, the periodic classifier *-ite* PRD introduces temporal adjuncts (20a). The place classifier *-ʔthi* PLC introduces locative expressions (20b). In the translations, the semantic contribution of the classifier is underlined.

(20) Classifiers as clausal subordinators:
a. periodic (*-ite* PRD) subordination
[*dûshú=ndekhû tíse máma=me* ⟦ *rúnda -ʔje -ʔfa -ya*] *-ite =tsû* ⟧ *avûjátshi-ya*
child=PL (s)he mom=ACC2 wait -IPFV -PLS -IRR -PRD =3 happy-IRR
"When the children will be waiting for their mom, she will be happy."
b. place (*-ʔthi* PLC) subordination
jayí=ngi [*dûshú=ndekhû tíse máma=me* ⟦ *rúnda -ʔje -ʔfa -ya*] *-ʔthi =nga* ⟧
going=1 child=PL (s)he mom=ACC2 wait -IPFV -PLS -IRR -PLC =DAT
"I'm going to the place where the children will be waiting for their mom."

3.4.1 *Periodic subordination* Now, I discussed the central patterns of stress and glottalization in verbs subordinated with classifying suffixes. First, consider cases when the periodic classifier *-ite* PRD subordinates a clause whose main verb is a bare (21a-c, 22a,c, 23a-c) or causativized (21d, 22b,d, 23d) root. Since the causative *-ña*/*-an*/*-en* CAUS is the only *v*P-internal suffix, this class can be identified as *ite*-subordinations of verbs with *v*P inflection. In these cases, the output forms are predicted by the ClassifierStress algorithm (18). This is to say, input stress and glottalization (if present) are disregarded and the surface form gets penultimate stress (21-23).

(21) Stressless verbs with *v*P inflection + periodic subordinator *-ite* PRD

a.	b.	c.	d.
/ *pasa -ite* /	/ *kachai -ite* /	/ *uphathû -ite* /	/ *uphathû-an -ite* /
[*pasá -ite*]	[*kachái -te*]	[*uphathû́ -ite*]	[*uphathi-án -te*]
pass -PRD	meet -PRD	pick -PRD	pick-CAUS -PRD

(22) Stressed verbs with *v*P inflection + periodic subordinator *-ite* PRD

a.	b.	c.	d.
/ ***á**na -ite* /	/ ***á**na-en -ite* /	/ ***á**fase -ite* /	/ ***kú**ndase-an -ite* /
[*aná -ite*]	[*aná-en -te*]	[*afasé -ite*]	[*kundasi-án -te*]
sleep -PRD	sleep-CAUS -PRD	offend -PRD	tell-CAUS -PRD

(23) GLOTTALIZED VERBS WITH *v*P INFLECTION + PERIODIC SUBORDINATOR *-ITE* PRD

a.	/ (*ɪʔndû*) *-ite* /	b.	/ (***á***ʔ*mbian*) *-ite* /	c.	/ (***án***sa*ʔ*)*nge -ite* /	d.	/ (***á***fu*ʔ*)*puen -ite* /
	[***ɪndû*** *-**ite***]		[***ambián*** *-te*]		[*ansa**ngé*** *-**ite***]		[*afu**puén*** *-te*]
	brew -PRD		have -PRD		be shy -PRD		lie -PRD

When the periodic classifier *-ite* PRD subordinates a clause whose main verb carries structurally high inflectional morphemes, including aspectual and associated motion AspP suffixes or TP suffixes, the stress and glottalization assigned in the course of the verbal inflection are preserved (24). This is to say, the stress and glottalization are determined by verbal inflectional morphemes according to the rules discussed in subsection 3.2; they are not overridden by the periodic subordinator *-ite* PRD.

(24) VERBS WITH HIGH ASPP, TP INFLECTION + PERIODIC SUBORDINATOR *-ITE* PRD

a.	/ *fetha -ʔje* /	b.	/ ***á****fase -ʔnga* /	c.	/ (***ɪ***ʔ*ndian*) *-ʔfa* /	d.	/ *atesû -ya* /
	/ [(***é****tha -ʔ*)*je*] *-ite* /		/ [*a*(***á****se -ʔ*)*nga*] *-ite* /		/ [(***ɪ***ʔ*ndian*) *-ʔfa*] *-ite* /		/ [*ates**ű*** *-ya*] *-ite* /
	[(***é****tha -ʔ*)*je* *-ite*]		[*a*(***á****se -ʔ*)*nga* *-ite*]		[(***ɪ***ʔ*ndian*) *-ʔfa* *-ite*]		[*ates**ű*** *-ya* *-ite*]
	open -IPFV -PRD		offend -DIST -PRD		brew.CAUS -PLS -PRD		learn -IRR -PRD

e.	/ (***á****kheʔ*)*pa -mbi* /	f.	/ (***rú****ʔnda*) *-ʔje -ʔfa* /	g.	/ *panza -ʔfa ya* /		
	/ [(***á****kheʔ*)*pa -mbi*] *-ite* /		/ [(***rú****nda -ʔ*)*je -ʔfa*] *-ite* /		/ [*pa**nzá*** *-ʔfa ya*] *-ite* /		
	[(***á****kheʔ*)*pa -mbi* *-te*]		[(***rú****nda -ʔ*)*je -ʔfa* *-ite*]		[*pa**nzá*** *-ʔfa ya* *-ite*]		
	forget -NEG -PRD		wait -IPFV -PLS -PRD		hunt -PLS -IRR -PRD		

Thus, we see that the patterns of stress and glottalization in *ite*-subordinations are sensitive to the morphological structure of the base, violating Kiparsky (1982)'s *bracket erasure*, which states that this structure should be invisible to later phonological operations.

3.4.2 *Place subordination* Now, I discuss the patterns with the place classifier *-ʔthi* PLC. When the place classifier *-ʔthi* PLC subordinates a *v*P-inflected verb, input stress and glottalization are deleted. Then stress is assigned to the syllable which contains the second mora to the left of the glottal stop (25-27).

(25) STRESSLESS VERBS WITH *v*P INFLECTION + PLACE SUBORDINATOR *-ʔTHI* PLC

a.	/ *pasa -ʔthi* /	b.	/ *kachai -ʔthi* /	c.	/ *uphathû -ʔthi* /	d.	/ *uphathû-an -ʔthi* /
	[(***pá****sa -ʔ*)*thi*]		[*ka*(***chái*** *-ʔthi*)]		[*u*(***phá****thû -ʔ*)*thi*]		[*upha*(***thi-án*** *-ʔthi*)]
	pass -PLC		meet -PLC		pick -PLC		pick-CAUS -PLC

(26) STRESSED VERBS WITH *v*P INFLECTION + PLACE SUBORDINATOR *-ʔTHI* PLC

a.	/ ***á****na -ʔthi* /	b.	/ ***á****na-en -ʔthi* /	c.	/ ***á****fase -ʔthi* /	d.	/ ***kú****ndase-an -ʔthi* /
	[(***á****na -ʔ*)*thi*]		[*a*(***ná-en*** *-ʔthi*)]		[*a*(***fá****se -ʔ*)*thi*]		[*kunda*(***si-án*** *-ʔthi*)]
	sleep -PLC		sleep-CAUS -PLC		offend -PLC		tell-CAUS -PLC

(27) GLOTTALIZED VERBS WITH *v*P INFLECTION + PLACE SUBORDINATOR *-ʔTHI* PLC

a.	/ (***ɪ***ʔ*ndû*) *-ʔthi* /	b.	/ (***á***ʔ*mbian*) *-ʔthi* /	c.	/ (***án***sa*ʔ*)*nge -ʔthi* /	d.	/ (***á***fu*ʔ*)*puen -ʔthi* /
	[(***ɪ****ndû -ʔ*)*thi*]		[*a*(***mbián*** *-ʔthi*)]		[*an*(***sá****nge -ʔ*)*thi*]		[*afu*(***puén*** *-ʔthi*)]
	brew -PLC		have -PLC		be shy -PLC		lie -PLC

Finally, when the place classifier *-ʔthi* PLC subordinates a clause whose main verb is inflected for other AspP or TP categories, the stress and glottalization assigned in the course of the verbal inflection are preserved (28). This pattern repeats the one seen in *ite*-subordinations (24).

(28) VERBS WITH HIGH ASPP, TP INFLECTION + PLACE SUBORDINATOR *-ʔTHI* PLC

a.	/ *fetha -ʔje* /	b.	/ ***á****fase -ʔnga* /	c.	/ (***ɪ***ʔ*ndian*) *-ʔfa* /	d.	/ *atesû -ya* /
	/ [(***é****tha -ʔ*)*je*] *-ʔthi* /		/ [*a*(***á****se -ʔ*)*nga*] *-ʔthi* /		/ [(***ɪ***ʔ*ndian*) *-ʔfa*] *-ʔthi* /		/ [*ates**ű*** *-ya*] *-ʔthi* /
	[(***é****tha -ʔ*)*je* *-ʔthi*]		[*a*(***á****se -ʔ*)*nga* *-ʔthi*]		[(***ɪ***ʔ*ndian*) *-ʔfa* *-ʔthi*]		[*ates**ű*** *-ya* *-ʔthi*]
	open -IPFV -PLC		offend -DIST -PLC		brew.CAUS -PLS -PLC		learn -IRR -PLC

e.	/ (***á****kheʔ*)*pa -mbi* /	f.	/ (***rú****ʔnda*) *-ʔje -ʔfa* /	g.	/ *panza -ʔfa ya* /		
	/ [(***á****kheʔ*)*pa -mbi*] *-ʔthi -a* /		/ [(***rú****nda -ʔ*)*je -ʔfa*] *-ʔthi* /		/ [*pa**nzá*** *-ʔfa ya*] *-ʔthi* /		
	[(***á****kheʔ*)*pa -mbi* *-ʔthi -a*]		[(***rú****nda -ʔ*)*je -ʔfa* *-ʔthi*]		[*pa**nzá*** *-ʔfa ya* *-ʔthi*]		
	forget -NEG -PLC -NN		wait -IPFV -PLS -PLC		hunt -PLS -IRR -PLC		

As such, the periodic classifier *-ite* PRD and the place classifier *-ʔthi* PLC pattern alike in that when AspP or TP inflection is present, the stress and glottalization are preserved. If no AspP/TP morphology is present, stress and glottal stops are deleted. The stress is then reassigned according to the ClassifierStress algorithm. The summary of the data is given in (29).

(29) Summary of classifier subordination patterns
If AspP or TP morphology is present:
preserve stress and glottalization;
otherwise, follow the ClassifierStress algorithm (18), i. e.:
1. *delete base stress and glottalization; and*
2. *if the classifying suffix has a glottal stop:*
follow (6), i. e. stress the syllable with the second mora to the left of the glottal stop;
otherwise:
stress the penultimate syllable of the word.

4 Analysis

To account for the A'ingae facts, I introduce phase-indexed faithfulness constraints, sensitive to the syntactic category of previously spelled-out material. Faithfulness to the output of AspP or TP spell-out is regulated by $\textsc{Maximality}_{\text{XP}}$ (30). The functional phases AspP and TP can be conceptualized as "strong." Faithfulness to the output of nP or vP spell-out is regulated by $\textsc{Maximality}_{x\text{P}}$ (31). The constraint names capitalize on a preexisting typographic convention, which uses uppercase and lowercase letters to distinguish functional projection heads (X) from lexical categorizing heads (x). The categorizing phases nP and vP can be conceptualized as "weak." The retention of base stress and glottalization only when AspP/TP morphology is present is modeled by ranking ClassifierStress below $\textsc{Maximality}_{\text{XP}}$ but above $\textsc{Maximality}_{x\text{P}}$ (32).

(30) $\textsc{Maximality}_{\text{XP}}$, or: M_{XP}
For every glottal stop and stress which had undergone AspP or TP spell-out in the input, there is a corresponding glottal stop and stress in the output.

(31) $\textsc{Maximality}_{x\text{P}}$, or: $\text{M}_{x\text{P}}$
For every glottal stop and stress which had undergone nP or vP spell-out in the input, there is a corresponding glottal stop and stress in the output.

(32) Sensitivity to base morphology as phase indexation
$\textsc{Maximality}_{\text{XP}} \gg \textsc{ClassifierStress} \gg \textsc{Maximality}_{x\text{P}}$

First, let's have a look at forms with *-ite* PRD. I assume that when at least one AspP (33a) or TP (33b) suffix is present, the corresponding phase undergoes spell-out. The high-ranking $\textsc{Maximality}_{\text{XP}}$ ensures faithfulness to the glottal stops and stress spelled out in those phases. As such, the input glottal stops and stress in (33) are preserved.

(33) a.	$[a(\textbf{\textit{fáse-ʔ}})nga]_{\text{AspP}}$ *-ite*:	M_{XP}	Clσ́	$\text{M}_{x\text{P}}$
☞ i.	*a(**fáse**ʔ)ngaite* (24b)		*	
ii.	*afase**ngái**te*	*!		
	[offend-DIST]$_{\text{AspP}}$ -PRD			

b.	$[ate\textbf{\textit{sú}}]_{\text{TP}}$ *-ite*:	M_{XP}	Clσ́	$\text{M}_{x\text{P}}$
☞ i.	*ate**sú**yaite* (24c)		*	
ii.	*atesû**yái**te*	*!		
	[learn-IRR]$_{\text{TP}}$ -PRD			

I assume that nP (34a) and vP (34b) always undergo spell-out. I. e., those phases are spelled out regardless of whether they introduce any overt functional morphology. Nevertheless, nP/vP faithfulness ranks below ClassifierStress. As a consequence, ClassifierStress overrides input stress and glottalization and assigns stress to the penultimate syllable of the word (34).

(34) a. $[(\textbf{\textit{ú}}\textit{ʔma})]_{n\text{P}}$ *-ite*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	(***ú***ʔ*mai*)*te*	∗!	
☞ ii.	***u*mái***te* (15c)		∗

[peach palm]$_{n\text{P}}$ -PRD

b. $[\textbf{\textit{á}}\textit{fase}]_{v\text{P}}$ *-ite*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	***á***fase*ite*	∗!	
☞ ii.	*afas****éi****te* (22c)		∗

[offend]$_{v\text{P}}$ -PRD

The causative *-ña*/*-an*/*-en* CAUS is the only verbalizing suffix in A'ingae. Following Dąbkowski (2023), I assume that *-ña*/*-an*/*-en* CAUS is a head of vP. Since faithfulness to the vP spell-out ranks below CLASSIFIERSTRESS, the input stress (and glottal stop) are again overridden (35).

(35) a. $[\textbf{\textit{kú}}\textit{ndasi-an}]_{v\text{P}}$ *-ite*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	***kú****ndasiante*	∗!	
☞ ii.	*kunda****sián****te* (22d)		∗

[tell-CAUS]$_{v\text{P}}$ -PRD

b. $[(\textbf{\textit{á}}\textit{fuʔ})\textit{puen}]_{v\text{P}}$ *-ite*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	(***á***fuʔ)*puente*	∗!	
☞ ii.	*afu****pué****nte* (23d)		∗

[lie]$_{v\text{P}}$ -PRD

Note that in (34-35), AspP and TP do not undergo spell-out because there are no overt AspP/TP suffixes. This is not to say that the AspP and TP projections are absent from syntactic structure. Rather, the claim is that they do not undergo phonological evaluation, as a consequence of which the override of input stress and glottalization does not incur violations of $\text{MAXIMALITY}_{\text{XP}}$. The assumed syntactic structure for each subordinate verb is the same; the structures for (33a), (33b), (34b), and (35a) are given in (36a), (36b), (36c), and (36d), respectively. What differs among the derivations is how many phonological evaluations there are and when. vP is always spelled out; AspP and TP are spelled out only if they introduce new overt morphology. Instances of spell-out (phonological evaluation) are represented with arcs (⁀).

(36) ASPP AND TP SPELL-OUT DEPENDENT ON THE PRESENCE OF OVERT MORPHOLOGY

a. / [[[***á***fase]$_{v\text{P}}$ -ʔnga]$_{\text{AspP}}$ -∅]$_{\text{TP}}$ -ite / (offend, -DIST, -PRD)

b. / [[[atesû]$_{v\text{P}}$ -∅]$_{\text{AspP}}$ -ya]$_{\text{TP}}$ -ite / (learn, -IRR, -PRD)

c. / [[[***á***fase]$_{v\text{P}}$ -∅]$_{\text{AspP}}$ -∅]$_{\text{TP}}$ -ite / (offend, -PRD)

d. / [[[***kú***ndase -an]$_{v\text{P}}$ -∅]$_{\text{AspP}}$ -∅]$_{\text{TP}}$ -ite / (tell, -CAUS, -PRD)

When a stressless root is subordinated, we get a "trivial" case: Stress is assigned by CLASSIFIERSTRESS; and since the base is stressless and neither AspP nor TP spell-out has taken place, neither MAXIMALITY constraint incurs any violations (37).

(37) $[\textit{uphathû}]_{v\text{P}}$ *-ite*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	*uphathûite*	∗!	
☞ ii.	*upha****thú****ite* (21c)		
iii.	*u****phá****thûite*	∗!	

[pick]$_{v\text{P}}$ -PRD

Now, let's look at the place subordinator *-ʔthi* PLC. If no AspP/TP morphology is present, stress is assigned to the glottalized syllable if heavy (38a), and to the syllable preceding it otherwise (38b). This follows directly from the CLASSIFIERSTRESS (18).

(38) a. $[\textit{uphathi-an}]_{v\text{P}}$ *-ʔthi*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	*uphathianʔthi*	∗!	
☞ ii.	*upha*(***thián***ʔ*thi*) (25d.i)		

[pick-CAUS]$_{v\text{P}}$ -PLC

b. $[(\textbf{\textit{án}}\textit{saʔ})\textit{nge}]_{v\text{P}}$ *-ʔthi*: $\text{M}_{\text{XP}} \rangle\rangle$ Clσ́ $\rangle\rangle$ $\text{M}_{x\text{P}}$

i.	(***án***saʔ)*ngeʔthi*	∗!	
☞ ii.	*an*(***sán***geʔ)*thi* (27c.i)		∗

[be shy]$_{v\text{P}}$ -PLC

Finally, when AspP or TP suffixes are present, AspP/TP undergoes spell-out. The high ranking of $\text{MAXIMALITY}_{\text{XP}}$ prevents CLASSIFIERSTRESS from overriding stress and glottalization, so base stress (and

glottalization) always surface faithfully in and *ʔthi*-subordination (39). In this sense, *ʔthi*-subordinations behave in the same way as *ite*-subordinations.

(39)	[*panzá-ʔfa-ya*]$_{TP}$ *-ʔthi*:	M_{XP} ⟩⟩	Clσ́ ⟩⟩	M_{xP}
☞ i.	*panzáʔfayaʔthi* (28g)		∗	
ii.	*panza(fáyaʔ)thi*	∗!		
	[hunt-PLS-IRR]$_{TP}$ -PLC			

In sum, the ranking of ClassifierStress below Maximality$_{XP}$ but above Maximality$_{xP}$ derives the fact that forms without AspP/TP suffixes receive ClassifierStress while forms with overt AspP/TP morphology surface faithfully.

5 Alternative analyses

In this section, Now, I consider and reject two attempts at a simpler analysis. First, one might consider a homophony analysis, where classifiers are homophonous between their low-attaching (VceP) versions (which override preexisting stress and ʔ) and high-attaching (TP) versions (which preserve stress and ʔ). However, this analysis predicts that there should be structural differences between forms where stress and glottalization are deleted and preserved. The prediction appears to be false, since both can e. g. host TP-level adverbs (40).

(40) TP adverbs licit regardless of overt morphology

a. *jayí=ngi* [*dûshú=ndekhû tíse máma=me tú́ʔi* ⟦ *rúnda -ʔje -ʔfa -ya*] *-ʔthi =nga* ⟧
going=1 child=PL (s)he mom=ACC2 tomorrow wait -IPFV -PLS -IRR -PLC =DAT
"I'm going to the place where the children will be waiting for their mom tomorrow."

b. *jayí=ngi* [*dûshú=ndekhû tíse máma=me tayúpi* ⟦ *rúnda*] *-ʔthi =nga* ⟧
going=1 child=PL (s)he mom=ACC2 long ago wait -PLC =DAT
"I'm going to the place where the children waited for their mom a long time ago."

Alternatively, to do away with xP/XP-indexation, one could try denying the categorizing heads' phasal status. The analysis presented in section 4 indexes phonological constraints to syntactic category labels in order to distinguish between low-faithfulness phases (nP, vP) and high-faithfulness phases (AspP, TP). An alternative to phase-indexation could deny the phasal status of (nP and) vP (41). This would allow for dispensing with the mechanism of phase-indexation. Instead, the facts of exceptional faithfulness to AspP and TP spell-out would follow from regular phase faithfulness (McPherson & Heath, 2016).

(41) AspP and TP as only phasal projections

a. / [[[*áfase*]$_{vP}$ *-ʔnga*]$_{AspP}$ *-∅*]$_{TP}$ *-ite* /
offend -DIST -PRD

b. / [[[*atesû*]$_{vP}$ *-∅*]$_{AspP}$ *-ya*]$_{TP}$ *-ite* /
learn -IRR -PRD

c. / [[[*áfase*]$_{vP}$ *-∅*]$_{AspP}$ *-∅*]$_{TP}$ *-ite* /
offend -PRD

d. / [[[*kúndase -an*]$_{vP}$ *-∅*]$_{AspP}$ *-∅*]$_{TP}$ *-ite* /
tell -CAUS -PRD

This account is not adopted because it makes incorrect predictions about forms with multiple preglottalized suffixes introduced in the same phase. This is because it incorrectly predicts no phase boundaries between adjacent classifiers. In A'ingae, when two glottal stops are introduced by suffixes in the same phase, stress is assigned with respect to the first one (Dąbkowski, 2023). For example, the imperfective suffix *-ʔje* IPFV can be followed by either of the two associated motion suffixes: the proximal *-ʔngi* PROX or the distal *-ʔnga* DIST (42). In this configuration, stress is assigned to the syllable which contains the second mora to the left of *-ʔje* IPFV.[3] The glottal stop of the associated motion suffix is deleted.

[3] When two suffixes that modify the base of affixation are simultaneously present, the rightmost suffix typically overrides the phonological effects triggered by earlier suffixes (i. e. the last suffix has the final word). This generalization is widely recognized in the literature and predicted by a variety of frameworks (Alderete, 1999; Rolle, 2018; Inkelas & Zoll, 2007). The A'ingae pattern contradicts this generalization since stress is assigned with respect to *-ʔje* IPFV, the first preglottalized suffix. For an account, see Dąbkowski (2023).

(42) TWO PREGLOTTALIZED SUFFIXES WITHIN ONE PHASE (Dąbkowski, 2023)

a.	b.	c.
/ *atapa -ʔje -ʔngi* /	/ ***á**fase -ʔje -ʔnga* /	/ (***á**khe*ʔ*)pa -ʔje -ʔnga* /
[*a*(***tá**pa -*ʔ*)je -ngi*]	[*a*(***fá**se -*ʔ*)je -nga*]	[*a*(***khé**pa -*ʔ*)je -nga*]
breed -IPFV -PROX	offend -IPFV -DIST	forget -IPFV -DIST

However, when the glottal stops are introduced in consecutive phases, the later glottal stop overrides the stress assigned by the previous glottal stop. In words with multiple nominalizing classifiers, stress is cyclically overridden (43). By definition, nominalizers are n heads. Hence, n (and v) are phasal.

(43) PREGLOTTALIZED SUFFIXES IN TWO DIFFERENT PHASES

/ ***khú**ʔpa -ʔthi* /
/ [***khú**paʔthi*]$_{n\text{P}}$ *-ʔkhu* /
[*khu**pá**thiʔkhu*]$_{n\text{P}}$
excrete -PLC -ANG
"lower back"

6 Discussion and conclusions

In this paper, I presented and accounted for the morphophonological patterns seen in verbs subordinated with two classifying suffixes: the periodic *-ite* PRDand the place *-ʔthi* PLC. The main pattern of note was that the stress of the surface forms depends on the morphological structure of the base of affixation. If the verbal base contains TP or stress-assigning AspP inflection, the stress of the base is preserved. Otherwise, the stress and glottalization of the base are overridden by the classifier. My account captured the pattern by building on McPherson & Heath (2016)'s *phase faithfulness* and distinguishing between faithfulness to *functional* or "strong" Asp/TP phases and *categorizing* or "weak" nP/vP phases.

In A'ingae, the spell-out of higher projections (AsP, TP) blocks stress assignment, but the spell-out of lower projections (vP, nP) does not. I capture the pattern by proposing that faithfulness to the former (MAXIMALITY$_{\text{XP}}$) ranks above stress reassignment (CLASSIFIERSTRESS) but faithfulness to the latter (MAXIMALITY$_{x\text{P}}$) ranks below it (44a). Assuming that Optimality Theoretic constraints may be ranked differently on a language-by-language basis, one predicts the opposite ranking may obtain (44b). Since prosodic strength generally increases as one goes up the syntactic tree, a language that complies with (44b) is highly unexpected.

(44) PREDICTIONS OF FACTORIAL TYPOLOGY (PARTIAL):

a. ATTESTED: A'INGAE
MAXIMALITY$_{\text{XP}}$ ⟩⟩ CLASSIFIERSTRESS ⟩⟩ MAXIMALITY$_{x\text{P}}$

b. UNATTESTED AND UNEXPECTED
*MAXIMALITY$_{x\text{P}}$ ⟩⟩ CLASSIFIERSTRESS ⟩⟩ MAXIMALITY$_{\text{XP}}$

To address this challenge, one may speculate that the ranking of phase-indexed faithfulness follows from a universal hierarchy of syntactic projections, whereby faithfulness to higher projections must always outrank faithfulness to lower projections (45). Other proposals which posit similar mechanisms include formalizations of the sonority hierarchy, weight hierarchy (Ryan, 2019), McCarthy & Prince (1995)'s root-affix faithfulness metacondition (root FAITHFULNESS ⟩⟩ affix FAITHFULNESS), and Zukoff (2023)'s Mirror Alignment Principle, mapping head-internal c-command relations onto a fixed ranking of ALIGNMENT constraints.

(45) UNIVERSAL MAPPINGS (HYPOTHESIZED): PROJECTION HIERARCHY → FAITHFULNESS RANKING

a. IN THE VERBAL DOMAIN

$$\begin{array}{ccccccccc} \text{C} & \succ & \text{T} & \succ & \dots & \succ & v \\ \downarrow & & \downarrow & & & & \downarrow \\ \text{FAITH}_{\text{CP}} & \gg & \text{FAITH}_{\text{TP}} & \gg & \dots & \gg & \text{FAITH}_{v\text{P}} \end{array}$$

b. IN THE NOMINAL DOMAIN

$$\begin{array}{ccccccccc} \text{K} & \succ & \text{D} & \succ & \dots & \succ & n \\ \downarrow & & \downarrow & & & & \downarrow \\ \text{FAITH}_{\text{KP}} & \gg & \text{FAITH}_{\text{DP}} & \gg & \dots & \gg & \text{FAITH}_{n\text{P}} \end{array}$$

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