DEGLOTTALIZING CONTAMINATION IN A'INGAE HISTORICAL DERIVATIVES

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ABSTRACT I describe and analyze the phonological form and historical trajectory of nominal derivatives in A'ingae (ISO 639-3: con), an underdocumented Amazonian isolate (Dąbkowski, 2021a). Some words historically derived with otherwise preglottalized nominalizers have no glottalization today. I propose that these "exceptions" are reflexes of originally glottalized words, which underwent semantic shift and lost glottalization due to contamination from the plain (i. e. non-glottalized) majority. The paper thus documents a rare case where non-productive morphological patterns are the innovation, not retention.

1 INTRODUCTION

In this paper, I describe and analyze the phonological form and historical trajectory of nominal derivatives in A'ingae (ISO 639-3: con), an endangered Amazonian isolate (Dąbkowski, 2021a).

The key pattern I focus on is that some words that were historically derived with otherwise preglottalized nominalizers show no glottalization today.

I propose that these glottalless words are reflexes of originally glottalized words, which underwent semantic shift—in the course of which they were reanalyzed as monomorphemic—and then lost glottalization due to contamination from the plain (i. e. non-glottalized) majority.

The glottalized versions of the nominalizers appear in compositional, productively derived nouns. The glottalless versions appear in frozen derivatives. Since morphological irregularities are often the reflexes of previously productive phonological patterns (e. g. Bybee, 1985; Garrett, 2008; Kiparsky, 2012), this might lead us to think that the glottalized forms are more recent, and the glottalless ones are a retention. I will show that the opposite is true for A'ingae: The non-productive pattern of "exceptionally" glottalless derivatives is the innovative one.

The rest of the paper is structured as follows. Section 2 provides background on the language and its phonology. Section 3 describes the core patterns of glottalization and its loss in nominal derivatives. Section 4 presents the diachronic analysis. Section 5 considers and rejects an alternative directionality of change. Section 6 concludes.

2 BACKGROUND

A'ingae (or Cofán, ISO 639-3: con) is an Amazonian language isolate spoken by around 1,500 native speakers in the northeastern Ecuadorian province of Sucumbíos and the southern Colombian department of Putumayo (Dąbkowski, 2021a).

The A'ingae language is understudied and severely underresourced, with very little support outside of our traditional communities. It is relatively vital in Ecuador and severely endangered in Colombia. Despite the challenges, the A'ingae speakers' attitudes towards their language are exclusively positive and they welcome projects aimed at the preservation of their language and bolstering its status (Dąbkowski, 2021a).

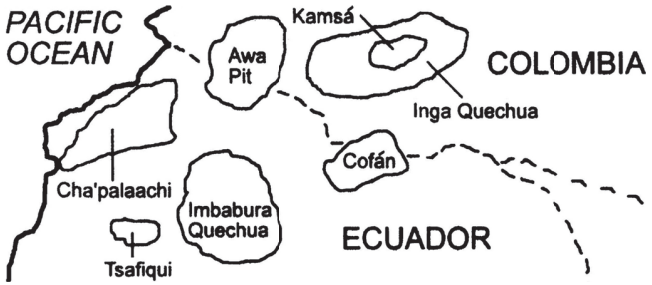

Figure 1: Some of the Indigenous territories (including Cofán) in Colombia and Ecuador (based on Curnow and Liddicoat, 1998)

A'ingae is a highly agglutinating, exclusively suffixing (and encliticizing), predominantly head-marking language, with a flexible, predominantly SOV word order. (But the present paper focuses exclusively on word-level patterns.)

The structure of A'ingae syllables is (C)V(V)(ʔ), i. e. onsets are optional, nuclei are maximally diphthongal, and the glottal stop is the only possible coda. VV diphthongal nuclei are the only heavy nuclei in the language; there are no long monophthongs.

In this paper, I adopt the language's practical orthography (see e. g. Dąbkowski, in prep. Fischer and Hengeveld, 2023; Hengeveld and Fischer, in prep. except for the glottal stop, represented with the International Phonetic Alphabet (IPA) *ʔ*. Postvocalic *n* and *m* indicate vowel nasality (and the prenasalization on the following voiced stop); they are not moraic. The high central vowel is written as *û*.

Previous phonetic and phonological work on the language includes Brandt's (2024) and Repetti-Ludlow et al.'s (2019) phonetic studies, Dąbkowski's (2024c) phonological description, Repetti-Ludlow's (2021) analysis on laryngeal co-occurrence restriction, Dąbkowski's (2023, 2024a) synchronic and diachronic perspectives on diphthongs, Bennett et al.'s (2024) and Sanker and AnderBois's (2024) work on nasality, Dąbkowski's (2021b, 2024b,d, t.a.) analyses of stress and glottalization, and Fischer and Hengeveld's (2023) grammar sketch.

All the data were collected by the author with three native speakers from the communities of Sinangoé and Dureno in Sucumbíos, Ecuador, and will be deposited in the California Language Archive (CLA) as Dąbkowski (2020). The scientific names of fauna, flora, and fungi have been drawn from Borman's (1976) dictionary.

3 DESCRIPTION

In this section, I briefly discuss the relevant aspects of the A'ingae phonology of glottalization and stress, and present the core data related to productive and historical nominalization.

3.1 *Phonology of glottalization and stress*

A'ingae glottalization is contrastive in roots (1a-b) and, prominently, functional morphemes (1c-f).[1] Most of the language's glottal contrasts are a consequence of the latter. Stress (marked with the acute accent ´) is culminative and obligatory at the level of the phonological word.

(1) CONTRASTIVE GLOTTALIZATION (Dąbkowski, 2024d)

a.	b.	c.	d.	e.	f.
chándi	*chá?ndi*	*tsá =ma*	*tsá =?ma*	*séʔje -pa*	*séje -ʔpa*
be clear	be cold	ANA =ACC	ANA =FRST	cure -SS	cure -N

As seen above, the presence or absence of glottalization distinguishes between unrelated morphemes. E. g., the frustrative *=?ma* FRST is preglottalized (1d), while the accusative *=ma* ACC is plain (1c). Nonetheless, the preglottalization of certain derivational morphemes appears lexically specific. E. g., the subject nominalizer (to be discussed further in Section 3.2.2) is attested both with the glottal stop (*-?sû* SN) and without it (*-sû* SN), depending on the word.

This paper focuses on nominal roots and derived nouns. Since A'ingae glottalization is contrastive, nouns may (3) or may not (2) have a glottal stop. A majority of morphologically simple nouns are in the first category (i. e. do not have a glottal stop). Within the morphosyntactic contexts discussed in this paper,[2] glottalization—if present—always surfaces in the coda of the penult (3).

(2) PLAIN NOUNS

a.	b.	c.	d.	e.
píndu	*ántian*	*tsunsína*	*chanánge*	*saráru*
hawk	relative	ear	lowland paca	giant otter

(3) GLOTTALIZED NOUNS

a.	b.	c.	d.	e.
théʔthu	*úmaʔndu*	*bánsaʔmu*	*anáeʔma*	*kukiúʔchu*
tooth	macaw	balsam	hammock	mountain cocoa

Within the same morphosyntactic contexts, the assignment of A'ingae stress is phonologically predictable. Specifically, if there is no glottal stop, stress is assigned to the penultimate syllable (2). If a glottal stop is present and the glottalized syllable is heavy (i. e. a diphthong) (3d-e) or word-initial (3a), stress is assigned to the glottalized syllable. Otherwise, stress is assigned to the syllable that precedes it (3b-c). The stress assignment rule is restated in (4). For a detailed break-down and an Optimality Theoretic (McCarthy and Prince, 1993a,b; Prince and Smolensky, 1993) analysis of the A'ingae stress assignment patterns, see Dąbkowski (2024d).

(4) STRESS ASSIGNMENT RULE (based on Dąbkowski, 2024b,d, t.a.)

If there is a glottal stop:

if the glottalized syllable is heavy, i. e. a diphthong (3d-e), or word-initial (3a):

stress the glottalized syllable;

otherwise:

stress the syllable which precedes the glottalized syllable (3b-c);

otherwise:

stress the penultimate syllable of the word (2).

Put more simply, the predominant pattern is that when there is a glottal stop, stress appears two syllables to its left (3b-c), unless the glottalized syllable is a diphthong, in which case it is stressed itself (3d-e).

3.2 *Synchronic and diachronic nominalization*

A'ingae has a rich set of nominalizing derivational morphemes, including (but not limited to) the regular nominalizer *-?pa* N (6a), subject nominalizer *-?sû* SN (6b), and negative individual nominalizer *-mbi* NIN (5a), as well as a variety of classifying suffixes, which characterize the shape, size, or prominent dimension (be it spatial or temporal) of the referent, including the bounded space *-khû* BND (5b), periodic *-ite* PRD (5c), large *-jiun* LRG (5d), angular *-?khu* ANG (6c), bristly *-?si* BRS (6d), place *-?thi* PLC (7a), path *-?ki* PATH (7b), round *-?chu* RND (7c), lateral *-?fa* LAT (7d), and other classifiers.

The A'ingae nominalizing suffixes can derive nouns from both verbal (5a-b, 6) and nominal roots (5c-d, 7).

(5) PLAIN NOMINALIZERS ON VERBAL, AND NOMINAL ROOTS

a.	b.	c.	d.
athé -mbi	*katí -khû*	*umá -ite*	*tavá -jiun*
see -NIN	throw -BND	peach palm -PRD	cotton -LRG
"blind"	"trash can"	"Feb-Apr season"	"silk-cotton tree"

(6) GLOTTALIZED NOMINALIZERS ON VERBAL ROOTS

a.	b.	c.	d.
shejéchu -?pa	*pánza -?sû*	*akhûi -?khu*	*akhépa -?si*
fry -N	hunt -SN	lever -ANG	forget -BRS
"fried food"	"hunter"	"lever"	"forgetting plant"

(7) GLOTTALIZED NOMINALIZERS ON NOMINAL ROOTS

a.	b.	c.	d.
tsandié -?thi	*tsámpi -?ki*	*kháke -?chu*	*téta -?fa*
man -PLC	forest -PATH	leaf -RND	flower -LAT
"men's place"	"forest trail"	"leaf bundle"	"blooming vine"

In the examples above, I categorize the nominalizers as plain (5) or glottalized (6-7). Nonetheless, the presence of the glottal stop is to some degree lexically specific. The present paper focuses on investigating the nature of this variation.

THE KEY PATTERN: There are some apparent derivatives whose meaning does not straightforwardly follow from the meaning of their parts (i. e. it is non-compositional). A subset of those "derivatives" lacks glottalization, even if the nominalizer is otherwise preglottalized in its compositional uses.

1 The following glossing abbreviations have been used: 1 = first person, 3 = third person, ACC = accusative, ANA = anaphora, ANG = angular, ATTR = attributive, BND = bounded, BRS = bristly, DIST = distal, FLAT = flat, FRST = frustrative, IDSL = indefinite of selection, INS = instrumental, IPFV = imperfective, IRR = irrealis, LAT = lateral, LOC = locative, LRG = large, N = nominalizer, NIN = negative individual nominalizer, PATH = path, PLA = pluractional, PLC = place, PLS = plural subject, PRD = periodic, RND = round, SG = singular, SN = subject nominalizer, SS = same subject, VPR = viperous.

2 A'ingae stress and glottalization are subject to complex interactions and morphophonological condoning (Dąbkowski, 2021b, 2024b,d, t.a.). The present proposal investigates the domain of (derived) nouns, within which the presence or absence of glottalization can be lexically conditioned—i. e. unpredictable; in a way not discussed in Dąbkowski's (2021b, 2024b,d, t.a.) previous work—but the position of glottalization and stress (given the presence or absence of glottalization) are largely predictable (with a few exceptions).

In the rest of the section, I illustrate this key pattern with a few nominalizing suffixes. (A more thorough survey will not be possible due to space limits.)

3.2.1 *The bounded space nominalizer -khû* BND

First, for purposes of completeness, I discuss a plain (i. e. non-glottalized) nominalizer: the bounded space classifier *-khû* BND (8). The bounded space classifier *-khû* BND derives nouns that designate various types of delimited or otherwise conceptually bounded spaces, including concave or hollowed-out tools (8a), sections or parts of larger or unbounded entities (8b-8d), and fenced, restricted, or otherwise finite areas, including plantation types (8f-8h).

(8) BOUNDED SPACE CLASSIFIER *-KHÛ* BND

a.	*shejechupá -khû*	fried food -BND	"frying pan"
b.	*ethí -khû*	house -BND	"room"
c.	*tsáu -khû*	house -BND	"henhouse"
d.	*singé -khû*	fire -BND	"match"
e.	*apichú -khû*	small pot -BND	"pants"
f.	*ambá -khû*	yucca -BND	"yucca plantation"
g.	*khûmbá -khû*	tobacco -BND	"tobacco plantation"
h.	*kafé -khû*	coffee -BND	"coffee plantation"
i.	*má -khû*	IDSL -BND	"which room"

Regardless of the specific use, words with the plain (i. e. non-glottalized) bounded space classifier *-khû* BND are never glottalized (8).

The same pattern holds of other plain nominalizers,[3] such as the negative individual nominalizer *-mbi* NIN, periodic classifier *-ite* PRD, or viperous classifier *-si* VPR (which derives nouns denoting dangerous, stinging, biting, and/or snake-like animals).

3.2.2 *The subject nominalizer -ʔsû* SN

Now, let's have a look at a nominalizer which illustrates the core pattern: the (typically) preglottalized subject nominalizer *-ʔsû* SN.[4] I will group the observed uses of nominalizers as either semantically transparent (9) or semantically opaque (10).

In its transparent uses, this nominalizer derives subject nouns from the corresponding verbs productively, e. g. "to hunt" → "a hunter" (9a). In this use, *-ʔsû* SN always appears with a glottal stop (9).

(9) SEMANTICALLY TRANSPARENT PRODUCTIVE DERIVATIVES WITH *-ʔsû* SN

a.	*pánza -ʔsû*	hunt -SN	"hunter"
b.	*pûshe -ʔsû*	marry woman -SN	"woman-marrier"
c.	*ínjan -ʔsû*	want -SN	"wanter"
d.	*atesián -ʔsû*	teach -SN	"teacher," "professor"
e.	*bûthu -ʔsû*	run -SN	"runner"
f.	*jéña -ʔsû*	drive -SN	"chauffeur"

In addition, there are words apparently derived with the same suffix that do not denote subject nouns. Words in this group are not as semantically transparent. For example, *anáenʔsû* means "sleepy," not (only) "one who makes sleep" (10a). The presence of a glottal stop in the semantically opaque category is unpredictable. Depending on the lexical item, we see either *-ʔsû* SN (10a-10e) or *-sû* SN (10f-10j).

(10) SEMANTICALLY OPAQUE LEXICALLY STORED ITEMS WITH *-(ʔ)sû* SN

a.	*anáen -ʔsû*	make sleep -SN	"be sleepy"
b.	*ajié -ʔsû*[5]	make vomit -SN	"be nauseous"
c.	*tûkhukhuén -ʔsû*	have hiccups -SN	"hiccup"
d.	*pûtsa -ʔsû*	be possessed -SN	"aggressive"
e.	*akhûi -ʔsû*	row -SN	"stroke"
f.	*faengá -sû*	level off -SN	"friend"
g.	*pûshé -sû*	marry woman -SN	"woman"
h.	*inján -sû*	want -SN	"cautious," "gruff"
i.	*jú -sû*	DIST -SN	"yonder"
j.	*fáe -sû*	one -SN	"other"

Some of the opaque derivatives form doublets with the transparent ones. For example, *pûshe* "to marry a woman" can be a productive base for the subject noun *pûsheʔsû* "one who marries a woman" (9b); cf. *pushésû* "a woman" (10g). Similarly, *ínʔjan* "to want" can give rise to *ínjanʔsû* "a wanter" (9c), contrasting with *injánsû* "cautious" (10h).

3.2.3 *The round nominalizer -ʔchu* RND

The round nominalizer *-ʔchu* RND (11-12) derives nouns for objects that are small and/or round, and is often seen in the names of plants (or fungi) or their parts, esp. fruit (11c-11f, 12e-12i). (But it can also be used as a more general nominalizer; 11f-11g.)

3 Three potentially exceptional glottalized words seemingly derived with the otherwise plain flat classifier *-(ʔ)je* FLAT are discussed in Section A.

4 In its productive usage, the formative *-ʔsû* appears in (at least) two different contexts: on verbs (9) and non-verbal categories, such as DPs (ia), PPs (ib), and adverbs (ic).

(i) THE ATTRIBUTIVE *-ʔsû* ATTR (based on Fischer and Hengeveld, 2023, p. 89)

a.	b.	c.
náʔen=ʔsû kukúya	*tsámpi=ni=ʔsû tsáʔu*	*tayúpi=ʔsû áʔi*
river=ATTR devil	forest=LOC=ATTR house	long ago=ATTR person
"river devil"	"forest house"	"people from the past"

There are semantic, morphosyntactic, and phonological reasons (Dąbkowski, in prep.) to treat these two different uses of *-ʔsû* as two homophonous morphemes: the subject nominalizer *-ʔsû* SN (9) and the attributive *-ʔsû* ATTR (i). Since it is not clear which of the two morphemes is reflected in the semantically opaque derives (or even if two distinct morphemes should be reconstructed at the relevant stage), I gloss all the examples in (10) with *-ʔsû* SN. The account proposed in Section 4 does not depend on the homophony or polysemy of *-ʔsû* SN/ATTR.

5 In other contexts, the (historical) base appears as *aʔjian* 'make vomit,' not ˣ*ajie*. While the deletion of the base's glottal stop is phonologically predictable (Dąbkowski, 2024b,d, t.a.), the denasalization and vowel quality change seen on the diphthong are not. This suggests that non-analytically listed former derivatives may also undergo sporadic changes (in addition to losing the nominalizer's glottalization).

The round/small classifier *-ʔchu* RND patterns in the same way as *-ʔsû* SN (9-10). In its semantically transparent uses, the classifier always appears with the glottal stop, *-ʔchu* RND (11).

(11) SEMANTICALLY TRANSPARENT PRODUCTIVE DERIVATIVES WITH *-ʔchu* RND

a.	*kíni -ʔchu*	tree -RND	"cane," "(rotten) tree trunk"
b.	*kháya -ʔchu*	swim -RND	"raft," "floating animal/object"
c.	*náen -ʔchu*	river -RND	"river fruit," "river water cupped in leaves"
d.	*bûthu -ʔchu*	run -RND	"round footprint," "fruit for running"
e.	*tsunsína -ʔchu*	ear -RND	"eardrum," "mushroom/moss for earaches"
f.	*ansánge -ʔchu*	be shy -RND	"shame," "bullying," "fruit that makes shy"
g.	*akhépa -ʔchu*	forget -RND	"tar that is burned to forget"
h.	*kháke -ʔchu*	leaf -RND	"rolled-up ball of leaves"
i.	*ápi -ʔchu*	clay pot -RND	"small clay pot"
j.	*atséfa -ʔchu*	tail -RND	"rolled up tip of a tail"

A hallmark of the productive derivatives is that they may denote entities whose existence is only hypothetical (11c-11g), and that one word may be compatible with multiple translations (11a-11f).

I propose that the core semantics of the productive derivatives consists only of the topology specified by the classifier and the meaning of the base. As such, when asked for a free translation, different speakers (or even the same speaker) may build on it in different ways.

E. g., I hypothesize that the core meaning of *náenʔchu* can be approximated as "a small and/or round thing associated with a river." This single meaning is compatible with different free translations, such as "river fruit" or "river water cupped in leaves" (11c).

In addition, there are many words with *-(ʔ)chu* RND, which are more semantically opaque (12). The presence of a glottal stop in the opaque category is unpredictable; we see either *-ʔchu* RND (12a-12e) or *-chu* RND (12f-12j) on a word-by-word basis.

(12) SEMANTICALLY OPAQUE LEXICALLY STORED ITEMS WITH *-(ʔ)chu* RND

a.	*dûsû -ʔchu*	conceive -RND	"egg"
b.	*tsûtha -ʔchu*	bone -RND	"knee" (not just any "small/round bone")
c.	*sûmbi -ʔchu*	stupid -RND	"wart"
d.	*kanukhué -ʔchu*	? -RND	"chonduro (medicinal herb for treating fever)"
e.	*kukiú -ʔchu*	? -RND	"mountain cocoa (*Herrania sp.*)"
f.	*tetá -chu*	flower -RND	"fruit" (not just any "small/round flower")
g.	*bumbú -chu*	pambil -RND	"pambil (*Iriartea sp.*) fruit"
h.	*tûinfá -chu*	chambira -RND	"chambira (*Astrocarum*) fruit"
i.	*añunú -chu*	siren -RND	"handicraft beads"
j.	*sevá -chu*	bean -RND	"kidney" (not just any "round bean")

A hallmark of the opaque derivatives is that their meanings are more specific than (or very different from) the semantics of the sum of their parts. For example, *tsûthaʔchu* is specifically "a knee," not just any small round bone (12b). The meaning of *sûmbiʔchu* is "a wart," very distantly related to *sûmbi* "stupid" (12c). Again, the word for "handicraft beads" (*añunúchu*) appears to be derived from the word for "a siren" (*añúnu*) (12i).

Additionally, there are some words that appear to be historically derived from bases that are no longer attested (12d-12e). This is consistent with the claim that the opaque derivatives are lexically stored.

3.2.4 *The angular nominalizer -ʔkhu* ANG

The angular classifier *-ʔkhu* ANG (13-14) derives nouns denoting objects of various angular, pointy, or irregular shapes, including man-made objects, animals, plants, and sticks.

Again, the same pattern repeats—in its productive uses, the angular *-ʔkhu* ANG always appears with the glottal stop (13a-13l). The derivatives may denote novel concepts and be given fanciful free translations.

(13) SEMANTICALLY TRANSPARENT PRODUCTIVE DERIVATIVES WITH *-ʔkhu* ANG

a.	*théthu -ʔkhu*	tooth -ANG	"tree shell for soothing toothaches"
b.	*akhépa -ʔkhu*	forget -ANG	"plant that soothes psychological discomfort"
c.	*dûsû -ʔkhu*	conceive -ANG	"vine that helps conceive very quickly"
d.	*kháya -ʔkhu*	swim -ANG	"stick for crossing a river (by swimming)"
e.	*téta -ʔkhu*	flower -ANG	"tree harvested for flower germination"
f.	*ansánge -ʔkhu*	be shy -ANG	"cane/vine/stick that causes embarrassment"
g.	*bûthu -ʔkhu*	run -ANG	"stick/lever for running/jumping higher"
h.	*tsákhû -ʔkhu*	water -ANG	"high water-content guadua"
i.	*náen -ʔkhu*	river -ANG	"tree that gives the power to control a river"
j.	*tsûtha -ʔkhu*	bone -ANG	"plant medicine that alleviates bone pain"
k.	*chhára -ʔkhu*	bright -ANG	"stick with a lot of light reflection"
l.	*shávu -ʔkhu*	canoe -ANG	"unique tree for canoe-making"

In the non-transparent uses, where the nominalizer appears on words with specific meanings that cannot be reduced to the combination of the base and the suffix, the presence of the glottal stop is lexically specific; depending on the word, we get either *-ʔkhu* ANG (14a-14f) or *-khu* ANG (14g-14l).

(14) SEMANTICALLY OPAQUE LEXICALLY STORED ITEMS WITH *-(ʔ)khu* ANG

a.	*án -ʔkhu*	eat -ANG	"hook"
b.	*ángi -ʔkhu*	? -ANG	"flu"
c.	*chû -ʔkhu*	unripe - ANG	"nude"
d.	*avûja -ʔkhu*	rejoice -ANG	"cross (stick of adoration)"
e.	*bathi -thián -ʔkhu*	release -PLA -ANG	"arrow"

f.	*dishá -sha -ʔkhu*	hatch -PLA -ANG	“chóchapa (stinging ant)”
g.	*fathú -khu*	? -ANG	“rock”
h.	*zenzé -khu*	motley -ANG	“pintadillo (striped catfish)”
i.	*kitsû́i -khu*	pinch -ANG	“nail”
j.	*sinsin -thú -khu*	louse -? -ANG	“comb”
k.	*aná -khu*	sleep -ANG	“chonta palm (*Socraetea sp.*)”
l.	*ufí -khu*	sift -ANG	“sieve”

3.2.5 *The lateral nominalizer -ʔfa* LAT

Finally, let’s consider the lateral classifier *-ʔfa* LAT. The classifier *-ʔfa* LAT (15-16) derives nouns that designate the sides of an object, objects with a prominent lateral dimension, and generally elongated things, including strings, lines, and vines.

As before, in its transparent productive uses, which may receive a variety of free translations that build on the meaning of the base and the core meaning of the classifier, the lateral *-ʔfa* LAT always appears with the glottal stop (15a-15l).

(15) SEMANTICALLY TRANSPARENT PRODUCTIVE DERIVATIVES WITH *-ʔfa* LAT

a.	*afáse -ʔfa*	criticize -LAT	“critical paragraph,” “string for criticizing”
b.	*kháya -ʔfa*	swim -LAT	“rope to hold on to in a torrential river”
c.	*khuthákhu -ʔfa*	mountain -LAT	“side of a mountain,” “rock,” “summit”
d.	*nujánkhu -ʔfa*	thorn -LAT	“mountain full of thorns,” “vine full of thorns”
e.	*sankhúpa -ʔfa*	wing -LAT	“the «arm» of a wing,” “long plumage”
f.	*kháke -ʔfa*	leaf -LAT	“belts for leaves,” “long algae-like leaf”
g.	*kíni -ʔfa*	tree -LAT	“tree root,” “very thin tree”
h.	*séje -ʔfa*	cure -LAT	“medicinal vine,” “medical apprenticeship”
i.	*kánjin -ʔfa*	track -LAT	“mountain range,” “observatory,” “vine”
j.	*tevaén -ʔfa*	write -LAT	“pencil,” “tree where you can write”
k.	*téta -ʔfa*	flower -LAT	“flowery mountain range,” “blooming vine”
l.	*tsákhû -ʔfa*	water -LAT	“water hose,” “vine with water”

In the non-productive uses, the presence of the glottal stop is not predictable. In some words, the classifier appears with the glottal stop, *-ʔfa* LAT (16a-16f), and in others—without it, *-fa* LAT (16g-16l).

(16) SEMANTICALLY OPAQUE LEXICALLY STORED ITEMS WITH *-(ʔ)fa* LAT

a.	*shú -ʔfa*	vagina -LAT	“penis”
b.	*áya -ʔfa*	spirit -LAT	“mouth”
c.	*ú -ʔfa*	? -LAT	“vine,” “string”
d.	*átse -ʔfa*	hummingbird -LAT	“tail”
e.	*kánkhe -ʔfa*	village -LAT	“year”
f.	*tsáin -ʔfa*	? -LAT	“root”
g.	*khá -fa*	else -LAT	“other side”
h.	*inzá -fa*	bitter -LAT	“vine for tying down houses”
i.	*pû́i -fa*	both -LAT	“on both sides”
j.	*kuejé -fa*	sun -LAT	“sun ray”
k.	*tû́in -fa*	? -LAT	“chambira (*Astrocarum*)”
l.	*ûtû́ -fa*	rib -LAT	“shore”

THE MAIN GENERALIZATION: Compositional nominalizations (i. e. those whose meanings are transparent and which may be given different free translations) which were derived with preglottalized suffixes always show glottalization (9, 11, 13, 15).

Non-compositional derivatives (with specific meanings often only remotely related to the meanings of the nominalizer and/or the base) may be plain or glottalized on a word-by-word basis (10, 12, 14, 16).

4 ANALYSIS

I propose that the nominalizers referred to as glottalized in (6-7) and discussed throughout Section 3 were originally glottalized in all words.

Now, all of the exceptionally plain nouns are semantically opaque. This means that at a certain point, their meanings underwent a semantic shift.[6] (In many cases, the shift seems to involve narrowing.) After the shift, the speakers have stopped relating the word to its former constituent parts; rather, the word has now been reanalyzed as monomorphemic.

Most of the A’ingae morphologically simple nouns do not have glottal stops (2). At the same time, the presence of glottalization suggests morphological composition (3). Consequently, the association between phonological form and morphological structure puts pressure on the newly lexicalized nouns to level with the non-glottalized majority. The proposed trajectory is exemplified in (17).

(17) PROPOSED TRAJECTORY IN A’INGAE

	OLDER	NEWER	
a.	**ínjanʔsû →*	*injánsû*	“cautious,” “gruff”
b.	**añúnuʔchu →*	*añunúchu*	“handicraft beads”
c.	**zénzeʔkhu →*	*zenzékhu*	“pintadillo (striped catfish)”
d.	**ínzaʔfa →*	*inzáfa*	“vine for tying down houses”

This A’ingae development can be analogized to a similar trajectory in English where words with less frequent accentual patterns tend to regularize to antepenultimate stress over time (18).

6 Alternatively, the meanings of the derivatives may be older, with the productive uses of a nominalizer having the newer meaning. What matters for the proposal is that in either case, the semantics of the productive derivations and the memorized words diverge.

(18) Prosodic contamination in English (Bauer, 1994, pp. 96–103; Minkova, 2017, p. 74)

	older	newer
a.	*nómenclature* →	*noménclature*
b.	*molybdénum* →	*molýbdenum*
c.	*sonórous* →	*sónorous*
d.	*fórmidable* →	*formídable*

4.1 *Phonetic support*

Moreover, the A'ingae contamination is further aided by contexts where phonetic cues indicating the presence of glottalization are reduced.

For example, the A'ingae glottal stops can be realized as creakiness and are not always reflected in rapid speech (Repetti-Ludlow et al., 2019). Additionally, prase-final creakiness (Repetti-Ludlow et al., 2019) can further obscure the presence of phonemic glottalization. As such, we may expect that hypocorrection also contributes to the loss of glottalization in words reanalyzed as monomorphemic.

Recall that there is a close link between glottalization and stress. In words without glottalization, stress is assigned to the penult (2; 19a). In words with a glottal stop, stress is often assigned to the syllable that precedes the glottalized one (3; 19b). As such, stress can then be used as a cue to the presence of underlying glottalization even if the realization of the glottal stop is weakened, possibly to the point of complete deletion (19c).

(19) Stress as a cue for glottalization

	speaker's target	speaker's production	hearer's interpretation
a.	[σˈσσ] ⇝ (*no underlying ʔ*)	⟦σˈσσ⟧ ⇝ (*no ʔ produced*)	[σˈσσ] (*no ʔ inferred*)
b.	[ˈσσʔσ] ⇝ (*underlying ʔ*)	⟦ˈσσʔσ⟧ ⇝ (*ʔ produced*)	[ˈσσʔσ] (*ʔ registered*)
c.	[ˈσσʔσ] ⇝ (*underlying ʔ*)	⟦ˈσσσ⟧ ⇝ (*no ʔ produced*)	[ˈσσʔσ] (*ʔ inferred based on stress*)

Stress is phonetically reflected in longer duration and a higher F0 (Repetti-Ludlow et al., 2019). Nonetheless, the cues for word-level stress can be phonetically obscured in connected speech.

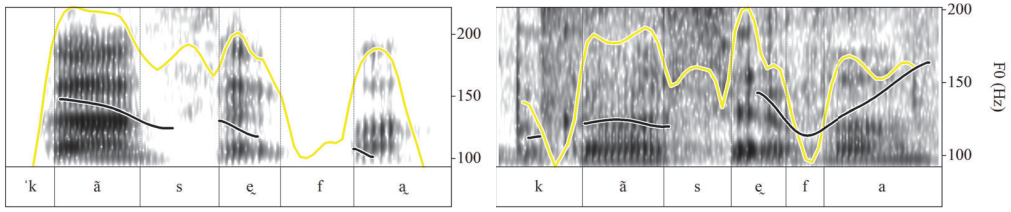

Figure 2: A careful (left) and a rapid (right) realization of *kánse-ʔfa* 'live-pls'

E. g., compare a careful realization of *kánse-ʔfa* 'live-pls' (on the left), where the first syllable has the highest pitch, greatest intensity, and longest duration, with a natural realization of the same word (on the right), where the phonetic cues for stress are much less unambiguous (Figure 2).

4.2 *Example trajectory*

As an illustration, consider the example of *añunúchu* "handicraft beads" (12i). According to the proposed trajectory, the word started as **añúnuʔchu* (lit. "siren fruit"), derived productively by suffixing *añúnu* 'siren' with *-ʔchu* rnd. At a certain point, the word came to denote a type of "handicraft beads;" speakers memorized it as one unit, no longer relating it to either *añúnu* 'siren' or *-ʔchu* rnd.

The noun **añúnuʔchu* had various phonetic implementations, including ones where the position of stress is not easily recoverable, and where the glottal stop is obscured by phrase-final creak *⟦añunu̯ʔchu̯⟧ or unrealized *⟦añunuchu⟧.

Now, when a listener hypocorrects weak glottalization and/or understated stress, they may interpret the word as plain (i. e. non-glottalized) and paroxytone, arriving at the present-day *añunúchu* "handicraft beads."

Note that stress and glottalization are tightly linked. According to the rule in (4), **añúnuʔchu* and *añunúchu* are both well-formed, but the hypothetical ˣ*añunúʔchu* and ˣ*añúnuchu* are not.[7] As a consequence, a reinterpretation of either phonetic cue (stress or glottalization) forces the reinterpretation of the other.

4.3 *Captured facts*

The proposed trajectory derives two important aspects of the data set. First, the presence of glottal stops in the semantically opaque category is unpredictable, because the variation is not a result of a regular sound change. Rather, it is a consequence of lexically-specific prosodic contamination, which may or may not take place after the derived noun loses a transparent semantic connection with its component parts.

Second, the productively formed words are always glottalized (if derived with a preglottalized nominalizer). For example, even though *kháke?chu* "rolled-up ball of leaves" (11h) may be realized as *⟦khakẹ̯ʔchu̯⟧, *⟦khakechu⟧, etc., it is not a lexically stored entry. As a consequence, every time the word *kháke?chu* is processed or produced, it is actively computed as *kháke* 'leaf' suffixed with *-ʔchu* rnd. Simply put, *kháke?chu* remains glottalized because it synchronically contains the glottalized morpheme *-ʔchu* rnd.

5 Rejected alternative

The opposite trajectory hypothesis (where plain forms show archaic retentions, e. g. **-sû*, **-chu*, ... > *-ʔsû*, *-ʔchu*, ...) could say that glottal stops were, at a certain point, inserted before certain nominalizers. Under this proposal, the opaque plain derivatives are the conservative ones.

7 However, there are rare exceptions, e. g. *tenkhénʔchu* "common fly."

However, this alternative chronology faces two major problems. First, there is no obvious phonetic motivation for glottal stop insertion. Even if phonetically ambiguous contexts were taken as a precondition for hypercorrection, there is no evidence that (a large number of) morphologically simple nouns were ever glottalized in the language. As such, innovative glottalization would be unlikely to arise due to contamination from other glottalized nouns.

Second, this alternative pathway does not explain why only certain certain suffixes underwent glottalization. Even within the set of nominal classifiers, glottalized suffixes (6-7) contrast with plain ones, such as the bounded space *-khû* BND, periodic *-ite* PRD, or large *-jiun* LRG. The hypothetical insertion of glottalization would not be predictably conditioned by any morphosyntactic or semantic factors. As such, I consider the alternative hypothesis to be untenable.

6 DISCUSSION

In conclusion, I have argued that the exceptionally glottalless derivatives in A'ingae are a result of morphological contamination. Once a derived word becomes memorized as monomorphemic, it may lose its glottalization due to the pressure for it to conform to a general pattern—which is that morphologically simple nouns lack glottal stops.

Morphological exceptions are usually vestiges of previously productive patterns (e. g. Bybee, 1985; Garrett, 2008; Kiparsky, 2012). I demonstrate that, however, the A'ingae exceptionally plain derivatives are innovative and do not conform to this generalization.

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A APPARENT COUNTEREVIDENCE: THE FLAT NOMINALIZER *-JE* FLAT

Finally, I discuss some apparent counterexamples to the proposed trajectory involving the flat classifier *-je* FLAT. The flat classifier *-je* FLAT (20-21) derives nouns that designate flat objects, including paper, and names of different types of leaves.

In its transparent productive uses, which can be given novel free translations, the nominalizer is never preglottalized, *-je* FLAT (20a-20i).

(20) SEMANTICALLY TRANSPARENT PRODUCTIVE DERIVATIVES WITH *-JE* FLAT

a.	*kundá -je*	let know -FLAT	"(written) notice"
b.	*fûndűi -je*	sweep -FLAT	"fan," "sth thin for sweeping or winnowing"
c.	*faengáen -jen*[8]	level -FLAT	"flat thing for leveling"
d.	*maphan -jen*	wash clothes -FLAT	"washboard"
e.	*tsûtsű -je*	trample -FLAT	"leaves that are used to make you agile"
f.	*giyáen -jen*	clear -FLAT	"toilet paper," "sheet for cleansing the body"
g.	*pikhú -je*	cover -FLAT	"cover," "leaf for covering"
h.	*informá -jen*	inform -FLAT	"(written) notice"
i.	*kundasé -je*	tell -FLAT	"story (written on paper)"

In a majority of lexicalized uses (mostly names for specific plant species and leaves), the nominalizer also appears without the glottal stop, *-je* FLAT (21a-21f). However, there are three words, where the nominalizer appears to have a glottal stop, *-ʔje* FLAT (21g-21i).

(21) SEMANTICALLY OPAQUE LEXICALLY STORED ITEMS WITH *-(ʔ)JE* FLAT

a.	*sapú -je*	toad -FLAT	"conambo palm leaf"
b.	*siyafá -je*	? -FLAT	"broadleaf plantain"
c.	*tsatsafá -je*	? -FLAT	"palm variety"
d.	*chhaufá -je*	? -FLAT	"cane variety (leaves used for tea)"
e.	*sin -khá -je*	black -? -FLAT	"century plant (*Agave americana*)"
f.	*kufá -je*	? -FLAT	"macaw leaf (*Geonoma macrostachys*)"
g.	*teváen -ʔjen*	write -FLAT	"notebook," "book," "paper"
h.	*undíkhû -ʔje*	don -FLAT	"garment," "cushma"
i.	*zű-ʔje*	hide -FLAT	"chewing plant for tooth care"

8 After nasal vowels, the flat classifier surfaces as *-(ʔ)jen* FLAT. This process of regular progressive nasalization (Dąbkowski, 2024c; Sanker and AnderBois, 2024) does not interact with glottalization and is orthogonal to the question of glottal stop retention.

The account outlined in Section 4 proposes that derivatives formed with preglottalized suffixes may lose glottalization after lexicalization. It does not predict that words formed with plain (i. e. non-glottal) nominalizers (such as *-je* FLAT) would gain glottalization. As such, the three words which appear to have a preglottalized *-ʔje* FLAT seen in (21g-21i) appear puzzling. I suggest two speculative explanations of their trajectory.

A.1 *Possibility 1: Contamination twice*

The first possibility is that the flat nominalizer should be reconstructed as preglottalized **-ʔje* FLAT. Over time, most of the nouns derived with **-ʔje* FLAT lost glottalization via the mechanism described in Section 4. Eventually, the preponderance of glottalless lexicalized forms influenced the form of the productive morpheme, yielding the contemporary plain *-je* FLAT.

A.2 *Possibility 2: Imperfective origin of -ʔje*

Alternatively, it is possible that the three nouns (21g-21i) show a reflex not of the flat classifier *-je* FLAT, but rather of the imperfective verbal suffix *-ʔje* IPFV.

There are two facts that speak in favor of this reconstruction. First, the morphological bases of the three derivatives in (21g-21i) are all verbs. The imperfective suffix *-ʔje* IPFV can attach only to verbs (Dąbkowski, in prep. 2024d)—unlike nominalizing classifiers, which can attach to both nouns and verbs (5-7).

Second, while the imperfective *-ʔje* IPFV does not by itself generally yield deverbal nominalizations, there are bridging contexts that allow for the reanalysis of an imperfective verb as a noun. For example, the instrumental case marker *=iʔkhû* INS can attach to both verbs (22a) and nouns (22b).

(22) CONTEXT FOR A POTENTIAL REANALYSIS

a. INSTRUMENTAL *-IʔKHÛ* INS ATTACHED TO AN IMPREFECTIVE VERB
tíse teváen-ʔje-inʔkhû =ngi semá-ña
3SG write-IPFV-INS =1 work-IRR
"I will work while he is still writing." (2024-12-24(1)_jxm)

b. INSTRUMENTAL *=IʔKHÛ* INS ATTACHED TO A HOMOPHONOUS NOUN
tíse teváenʔje=inʔkhû =ngi semá-ña
3SG notebook=INS =1 work-IRR
"I will work with his notebook." (2024-12-24(1)_jxm)