A'ingae nasality always floats

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1 Introduction

In this paper, I describe and analyze a new restriction on the distribution of nasality in the native roots of A'ingae (a. k. a. Cofán, ISO 639-3: `con`, an Amazonian isolate).

Specifically, in A'ingae, nasality always "starts" from the left edge and extends through the root (1a), or a part of the root (1b).

(1) N extending thru the root, a part of the root

a. N
/ *a j o r o* /
[*ã ɲ õ n õ*]
siren
(2025-12-29(1)_mll)

b. N
/ *o v a ʔ t o* /
[*õ m ã ʔ* ^{n}*d o*]
macaw
(2022-07-21(2)_sia)

(Of course, there are also fully oral words such as *reriʔk*^{h}*oe* 'a little' and *aɰat*^{h}*o* 'measure.' But since they do not demonstrate anything interesting about nasality, I will not focus on them in today's talk).

To account for this pattern of A'ingae nasality, I propose that:

(2) New proposal

a. *Nasality in A'ingae is always a feature of the morpheme and associates from the left, and*
b. *All segments are underlyingly either*
   i. *underspecified for orality/nasality,*
   ii. *specified as fully oral, or*
   iii. *specified as oral but with an underspecified stop closure.*

The interaction of (2a) and (2b) accounts for the A'ingae patterns, including two new generalizations (3).

(3) New generalizations
Within a native root,
  a. *a nasal (or prenasalized) segment is never preceded by oral sonorants/vowels,*
  b. *a prenasalized stop is always followed only by oral segments.*

The proposal has several theoretical and typological implications. First, it shows that the root is an important locus of phonological generalization.

Second, it involves a new type of interaction between suprasegmental and subsegmental structure, bearing out a novel prediction of theories which posit structure below the segment, such as Q-Theory (e. g. Garvin, Lapierre, and Inkelas, 2018; Inkelas and Shih, 2016, 2017).

And third, the purely suprasegmental nasality revealed by the analysis is characteristic of Amazonian languages, placing A'ingae more firmly in the Amazonian sprachbund.

In the rest of the talk, I will go over language background (§2), present the core patterns related to nasality (§3), lay out the new analysis (§4), discuss some exceptions and how to think about them (§5), hint at what extending the analysis to morphologically complex words may gain us (§6), and circle back to the main takeaways (§7).

2 LANGUAGE BACKGROUND

A'ingae (or Cofán, ISO 639-3: `con`) is an indigenous language isolate spoken by ca. 1,500 Cofán people. The Cofán people originated in the Eastern Andean Cordilleras, but in the 16th century, they migrated to the Amazon Basin (AnderBois et al., 2019; Lucitante, 2019).

A'ingae reflects the history of Cofán migration, as it includes both Andean retentions and Amazonian innovations (AnderBois et al., 2019).

Nowadays, the Cofán live in northeast Ecuador and southern Colombia. Some of their present-day territories are given in Figure 1 (from Curnow and Liddicoat, 1998) and circled in red.

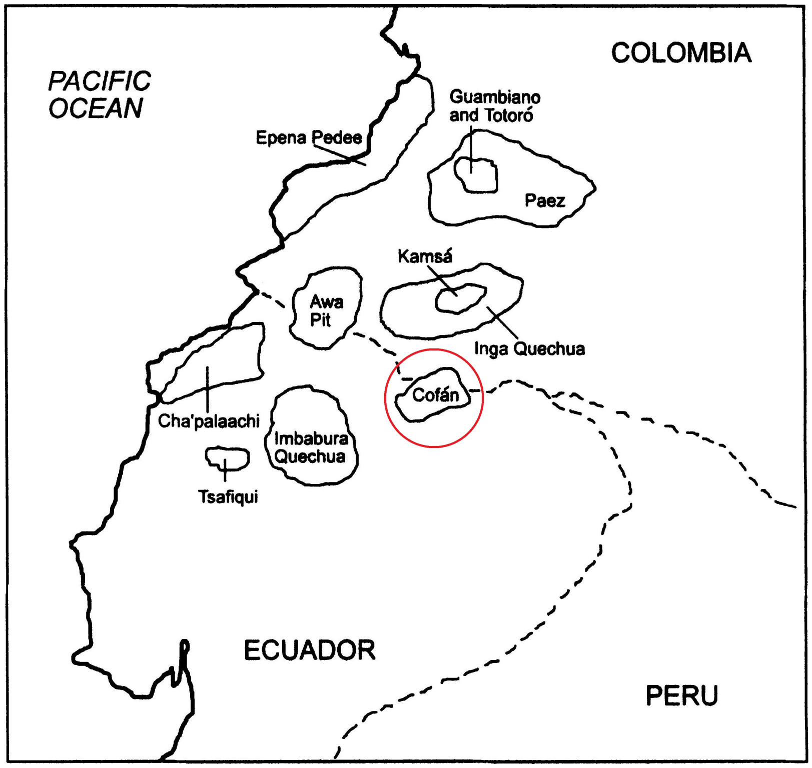

Figure 1: Indigenous languages of southern Colombia and northern Ecuador

The A'ingae is a predominantly verb-final, exclusively suffixing language.Most of the A'ingae suffixes have the form -(ʔ)CV (although my focus in this talk will be predominantly on lexical roots).

A'ingae syllable structure is (C)V(V)(ʔ)—where onsets are optional, nuclei are maximally diphthongal, and glottal stops are the only possible coda (Borman, 1962; Dąbkowski, 2024a; Fischer and Hengeveld, 2023; Repetti-Ludlow, 2021).[1]

Previous descriptions and analyses of the language (e. g. Dąbkowski, 2024a, 2025a,c; Repetti-Ludlow et al., 2019), including accounts of specifically nasality and nasal spreading (e. g. Bennett et al., t.a. Sanker, 2025; Sanker and AnderBois, 2024), propose an inventory of 27 phonemic consonants, including series of plain stops, aspirated

1 A'ingae has contrastive metrical stress, conditioned by phonological and morphological factors (Dąbkowski, 2021, 2024b, 2025b,c, in prep.). Since the A'ingae stress operates independently and does not interact with nasality, I do not transcribe or discuss it here.

PLAIN STOPS	*p*	*t*	*ts*	*tʃ*	*k*	*ʔ*
ASPIRATED STOPS	p^h	t^h	ts^h	*tʃ*^{h}	k^h	
PRENASAL STOPS	($^m b$)	($^n d$)	($^n dz$)	(^{n}*dʒ*)	(^{ŋ}*g*)	
FRICATIVES	*f*		*s*	*ʃ*		*h*
ORAL SONORANTS	*ʋ*	*ɾ*		*j*	*ɰ*	
NASAL SONORANTS	(*m*)	(*n*)		(*ɲ*)		

Table 1: A'ingae consonants (drawing on Dąbkowski, 2023, 2024a; Fischer and Hengeveld, 2023; Repetti-Ludlow et al., 2019)

i, (*ĩ*)	*ɨ*, (*ɨ̃*)	*o*, (*õ*)
e, (*ẽ*)	*a*, (*ã*)	
ie, (*ĩẽ*)	*ɨi*, (*ɨ̃ĩ*)	*io*, (*ĩõ*)
ei, (*ẽĩ*)	*oe*, (*õẽ*)	*oi*, (*õĩ*)
ia, (*ĩã*)	*ae*, (*ãẽ*)	*oa*, (*õã*)
ai, (*ãĩ*)		*ao*, (*ãõ*)

Table 2: A'ingae vowels (drawing on Dąbkowski, 2023, 2024a; Fischer and Hengeveld, 2023; Repetti-Ludlow et al., 2019)

stops, prenasalized stops, fricatives, oral sonorants, and nasal stops, five simple vowels, their five nasal counterparts, 11 diphthongs, and their nasal counterparts. The inventories of A'ingae consonants and vowels (as assumed in the previous analyses) are given in Table 1 and Table 2, respectively.

The phonology and phonetics of nasality in A'ingae is complex and has received several treatments in the previous literature.

In general, all previous accounts (e. g. Bennett et al., t.a. Dąbkowski, 2024a; Sanker, 2025; Sanker and AnderBois, 2024) recognize robust progressive (i. e. rightward) and limited regressive (i. e. leftward) spreading of nasality in A'ingae.

Importantly for today's talk, Sanker and AnderBois's (2024) reconstruction of the historical trajectory of A'ingae nasality provides many of the descriptive generalizations that my analysis will build on.

Sanker (2025) pursues a synchronic autosegmental analysis of A'ingae progressive nasalization, but assumes that some segments are underlyingly specified as nasal.[2]

The analysis I will present today is different from previous accounts in that I propose that all A'ingae phonemes are underlyingly oral or unspecified for nasality. This is to say, *all* the nasal and prenasalized segments are allophonic (i. e. derived). In the tables above, those allophones are given in parentheses ( ). (Additionally, I focus on the native roots of the language.)

All data comes from my original fieldwork, ALDP's (in prep.) and Borman's (1976) dictionaries, and ALDP's (2018) database.

3 DATA

Now, I will move on to the main facts related to the distribution of nasality in A'ingae roots (building on generalizations formulated in Dąbkowski, 2024a; Sanker and AnderBois, 2024).

3.1 *Left-edge anchoring* First, each root contains at most one nasal span, which always starts from the left edge of the root. (The nasal span then extends through the entire root, or is stopped at a certain point, subject to conditions described below.)

3.2 *Vowels and sonorants* Second, while spreading, nasality /~/ always nasalizes vowels, turning them into nasal vowels (*a e i o ɨ* → *ã ẽ ĩ õ ɨ̃*), and sonorants, turning them into nasal stops (*ʋ ɾ j* → *m n ɲ*) (4).[3]

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2 In a recent paper, Bennett et al. (t.a.) propose that vowels before nasal and prenasalized stops are unspecified for nasalization (i).

(i) CONTEXTUAL UNDERSPECIFICATION (Bennett et al., t.a. p. 24)
V, Ṽ ⟶ [∅NASAL] / _ C[+NASAL]

This is inconsistent with the present analysis, which follows the earlier descriptions (e. g. Dąbkowski, 2024a; Fischer and Hengeveld, 2023; Repetti-Ludlow et al., 2019; Sanker and AnderBois, 2024) in assuming that pre-nasal vowels are nasal. I speculate that the contextual neutralization of the V–Ṽ contrast observed by Bennett et al. (t.a.) takes place at a later stage, in the course of phonetic implementation.

3 The following abbreviations have been used: 1 = first person, ASSC = associative, B. = Bolivian, BRS = bristly, C = consonant, CAUS = causative, DFFS = diffused, DS = different subject, HAVR = owner (haver), IMP = imperative, INF = infinitive, K. = Kichwa, LAT = lateral, N = nasal, O = oral, PRD = periodic, PROH = prohibitive, RED =

(4) Vowels and sonorants nasalize

a. */ ∼ja /* [*ɲã*] 1SG (2023-08-25(1)_jpc)
b. */ ∼ɾaɾi /* [*nãnĩ*] finish (2025-12-29(1)_mll)
c. */ ∼vava /* [*mãmã*] mom (2023-08-23(1)_sxq)

3.3 *Glottals and fricatives* Third, glottals (*ʔ h*)[4] and fricatives (*f s ʃ*) are transparent to nasal spreading, i. e. nasality /∼/ always "skips over" them and nasalizes the following vowels and sonorants (5) (Sanker and AnderBois, 2024).

(5) Glottals are fricatives are skipped over by nasality

a. */ ∼iʔha /* [*ĩʔhã*] want (2023-12-11(2)_rgq)
b. */ ∼sasa /* [*sãsã*] liver (2025-12-29(1)_mll)
c. */ ∼faha /* [*fãhã*] dolphin (2025-12-29(1)_mll)

3.4 *Aspirated stops* Fourth, when nasality /∼/ encounters an aspirated stop (or affricate) (*pʰ tʰ tsʰ tʃʰ kʰ*), one of two outcomes is contrastively observed (Sanker and AnderBois, 2024). First, some aspirated stops are "permeable" to nasality /∼/ (like glottals and fricatives), so the vowels and sonorants following the stop undergo nasalization (6).

(6) Some aspirated stops are transparent to nasality

a. */ ∼okʰa /* [*õkʰã*] envelop (2023-12-13(1)_sia)
b. */ ∼tʰɨtʰa /* [*tʰɨ̃tʰã*] lack flavor (2023-12-08(1)_jxm)
c. */ ∼haʔtʃʰi /* [*hãʔtʃʰĩ*] flat (nose) (2023-12-08(1)_jxm)

Second, some aspirated stops block the spreading of nasality (7).

(7) Some aspirated stops block nasal spreading

a. */ ∼apʰi /* [*ãpʰi*] fall (2023-12-13(1)_sia)
b. */ ∼atʰe /* [*ãtʰe*] stop (2023-12-13(1)_sia)
c. */ ∼ʃiʔpʰi /* [*ʃĩʔpʰi*] younger sister (2024-01-04(1)_jxm)

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reduplicant, RPRT = reportative, SG = singular, SS = same subject, TERM = terminative, V = vowel.

4 Following previous descriptions (e. g. Repetti-Ludlow et al., 2019), I assume that *h* is "skipped over" by nasality. However, the nasal *h̃* is possible, and common in Amazonia. The analysis to be presented in Section 4 can accommodate both [*h*] and [*h̃*].

There is no variation for a given lexical item; i. e. some stops in some words are transparent to nasalization, but others are blockers.

3.5 *Unaspirated stops* Fifth and last, unaspirated stops (*p t ts tʃ k*) also show one of two behaviors (Sanker and AnderBois, 2024). First, like aspirated stops, some unaspirated stops are transparent to nasality /∼/; the vowels and sonorants that follow them get nasalized (8).

(8) Some plain stops are transparent to nasality

	a.	b.	c.
	/ ∼*atʃa* /	/ ∼*tseta* /	/ ∼*sepe* /
	[*ãtʃã*]	[*tsẽtã*]	[*sẽpẽ*]
	mosquito	warp	stinging bee sp.
	(2023-12-11(2)_rgq)	(2025-12-29(1)_mll)	(2023-12-27(1)_jxm)

Second, other unaspirated stops undergo prenasalization and voicing (*p t ts tʃ k* → ^{m}*b* ^{n}*d* ^{n}*dz* ^{n}*dʒ* ^{ŋ}*g*) and block nasal spreading (9). (The aspirated stops never prenasalize, so this is a new behavior we haven't seen before.)

(9) Some plain stops prenasalize and block nasal spreading

	a.	b.	c.
	/ ∼*itsɨ* /	/ ∼*ate* /	/ ∼*ovaʔto* /
	[*ĩ*^{n}*dzɨ*]	[*ã*^{n}*de*]	[*õmãʔ*^{n}*do*]
	green	land	macaw
	(2023-12-04(1)_sia)	(2023-12-11(2)_rgq)	(2022-07-21(2)_sia)

A summary of the generalizations discussed so far is given in Table 3.

	interaction with nasality
vowels:	*a, e, i, o, ɨ* ⟶ *ã, ẽ, ĩ, õ, ɨ̃* / ∼ _ (undergo nasalization)
sonorants:	*ʋ, ɾ, j* ⟶ *m, n, ɲ* / ∼ _ (undergo nasalization)
glottals:	X ⟶ X̃ / ∼ *ʔ, h* _ (transparent to nasality)
fricatives:	X ⟶ X̃ / ∼ *f, s, ʃ* _ (transparent to nasality)
aspirates *type 1*:	X ⟶ X̃ / ∼ p^h, t^h, ts^h, $tʃ^h$, k^h _ (transparent to nasality)
aspirates *type 2*:	X ⟶ X / ∼ p^h, t^h, ts^h, $tʃ^h$, k^h _ (block nasality)
plain stops *type 1*:	X ⟶ X̃ / ∼ *p, t, ts, tʃ, k* _ (transparent to nasality)
plain stops *type 3*:	*p, t, ts, tʃ, k* ⟶ ^{m}*b*, ^{n}*d*, ^{n}*dz*, ^{n}*dʒ*, ^{ŋ}*g* / ∼ _ (prenasalize and block)

Table 3: Summary of natural class–nasality interactions (building on Sanker and AnderBois, 2024), initial version

4 NEW PROPOSAL

To account for these patterns, I propose that the A'ingae nasalization is a floating feature (N) associated with a root that always docks from the left edge.

Vowels, sonorants, glottals, and fricatives are all underlying underspecified for orality/nasality. N skips over glottals and fricatives, and docks to vowels and sonorants, nasalizing them (10).[5]

(10) N DOCKS TO VS/SONORANTS; SKIPS OVER GLOTTALS/FRICATIVES

a. N
/ *s i o ʔ ʋ a* /
[*s ĩ õ ʔ m ã*]
navel
(2025-12-29(1)_mll)

b. N
/ *ɾ o h a* /
[*n õ h ã*]
thorn
(2024-08-20(1)_mll)

Now, as for stops, to account for their different behaviors, I adopt the representations of Q-Theory, where each segment (Q) consists of 3 subsegments (q^1 q^2 q^3) (e. g. Garvin, Lapierre, and Inkelas, 2018; Inkelas and Shih, 2016, 2017; Schwarz et al., 2019). In the case of stops, these three subsegments can be seen as corresponding to a closure (q^1), hold (q^2), and release (q^3).

Q-Theory is useful for modeling internally-complex segments, such as affricates, e. g. $ts = (t^1\ t^2\ s^3)$, and prenasalized stops, $^{m}b = (m^1\ b^2\ b^3)$ (e. g. Garvin, Lapierre, and Inkelas, 2018; Lapierre, 2021).

Additionally, I will assume that both orality and nasality are privative features, and represent them with N and O, respectively. In the phonetic implementation, segments linked to N are realized as nasal. Unlinked segments and segments linked to O are both realized as oral.

I propose that the three different behaviors of stops are due to their different underlying representations. The "permeable" stops (both plain and aspirated) are—like the glottals and fricatives—underlyingly unspecified for orality and nasality. As such, they are similarly "skipped over" and the vowels which follow them undergo nasalization (11).

5 In Optimality Theory (e. g. McCarthy and Prince, 1993; Prince and Smolensky, 1993), this difference between vowels and sonorants, on one hand, and glottals and fricatives, on the other hand, can be formalized e. g. in the framework of Agreement-by-Projection (Rose and Walker, 2004).

(11) UNDERLYINGLY UNSPECIFIED STOPS ARE PERMEABLE

a.
N
/ (*p p p*) *ɨ* (*t s* *ʰ*) *a* /
[(*p p p*) *ɨ̃* (*t s* *ʰ*) *ã*]
= *pɨ̃tsʰã*
duck
(2023-12-13(1)_sia)

b.
N
/ *a* (*t t ʃ*) *a* /
[*ã* (*t t ʃ*) *ã*]
= *ãtʃã*
mosquito
(2023-12-11(2)_rgq)

(For ease of exposition, only the stops are shown as broken up into three subsegments, but it should be assumed that all segments are made up of Q-Theoretic subsegments. So all the vowels, sonorants, glottals, and fricatives discussed previously are made up of three q's unspecified for nasality/orality.)

Now, the second stop behavior we have seen is that some stops block nasal spreading. I propose that these stops are specified as underlying oral (O). Since association lines cannot cross (Goldsmith, 1976), pre-associated O blocks N from associating to subsequent segments (12).

(12) UNDERLYINGLY ORAL STOPS ARE BLOCKERS

a.
N O
/ *a* (*p p* *ʰ*) *i* /
[*ã* (*p p* *ʰ*) *i*]
= *ãpʰi*
fall
(2023-12-13(1)_sia)

b.
N O
/ *s i* (*t t* *ʰ*) *ɨ* /
[*s ĩ* (*t t* *ʰ*) *ɨ*]
= *sĩtʰɨ*
bite
(2025-12-29(1)_mll)

Finally, a third group of (oral) stops undergoes prenasalization and blocks nasal spreading. I propose that these stops have underspecified q^1 (closure), but underlyingly oral q^2 (hold) and q^3 (release) (13).

(13) UNDERLYINGLY PARTIALLY ORAL STOPS UNDERGO PRENASALIZATION

a.
N O
/ *o v a ʔ* (*t t t*) *o* /
[*õ m ã ʔ* (*ⁿ d d*) *o*]
= *õmãʔⁿdo*
macaw
(2022-07-21(2)_sia)

b.
N O
/ (*t t s*) *i j a* /
[(*ⁿ d z*) *i j a*]
= *ⁿdzija*
calm down
(2024-02-12(1)_sia)

In these cases, N associates with the first subsegment, resulting in a prenasalized stop. Since the other two subsegments are prespecified as oral, further nasal spreading is blocked (but q^2 and q^3 voice to maintain uniform voicing throughout the whole segment).

In an interim summary, I have proposed that in A'ingae, all segments are either underlyingly oral or unspecified for nasality. Nasality is a feature of a root that always docks from the left.

When nasality spreads, segments underlyingly unspecified for nasality either undergo nasalization (this applies to vowels and sonorants) (14a) or get skipped over (glottals, fricatives, some stops) (14b).

(14) INTERACTIONS BETWEEN UNSPECIFIED SEGMENTS AND NASALITY
a. VOWELS, SONORANTS b. GLOTTALS, FRICATIVES, STOPS

Segments specified as fully oral block the spreading of nasality (15a). Finally, segments whose first subsegment (q) is unspecified but whose other two subsegments are linked to orality (O), have nasality (N) linked only to the first subsegment. This results in them prenasalizing and also blocking nasality from spreading further (15b).

(15) INTERACTIONS BETWEEN (PARTIALLY) ORAL SEGMENTS AND NASALITY
a. FULLY ORAL OBSTRUENT b. PARTIALLY ORAL OBSTRUENT

4.1 *New predictions* By proposing that no A'ingae segments are underlyingly nasal, i. e. that all nasal and prenasalized segments are derived by the spreading of nasality from the left edge of a morpheme, the present account makes two predictions, which have not—to the best of my knowledge—been made in the previous literature.

4.1.1 *First prediction* First, since N nasalizes all vowels and sonorants, there should be no native roots where a nasal or prenasalized stop is preceded by an oral vowel or sonorant.

This prediction is largely borne out. Some native roots which demonstrate the pattern are given in (16). In the examples to come, nasal spans are marked with a wavy underline.

(16) (PRE)NASAL(IZED) SEGMENTS PRECEDED BY NASAL VS/SONORANTS

a.	*ãɲõɲõ*	siren	(2025-12-29(1)_mll)
b.	*õmãʔⁿdo*	macaw	(2022-07-21(2)_sia)
c.	*tĩsãnã*	woodpecker	(2025-12-29(1)_mll)
d.	*fẽtsĩⁿda*	twist	(2025-12-29(1)_mll)
e.	*õtsẽᵐbi*	carry on head	(2025-12-29(1)_mll)
f.	*pãⁿdza*	hunt	(2023-12-04(1)_sia)

As we can see in (16), every nasal segment is preceded by segments that are a part of a nasal span that can be traced to the left edge of the root.

(Note that the nasal spans may contain not only nasal segments, but also oral segments, if those oral segments are permeable to nasality, i. e. glottals, fricatives, and voiceless stops.)

4.1.2 *Second prediction* Second, since all prenasalized stops result from nasality (N) spreading and stopping, prenasalized stops should always be followed exclusively by oral segments. This is, again, borne out in a vast majority of native roots (17).

(17) PRENASALIZED STOPS FOLLOWED BY ORAL SEGMENTS

a.	*ⁿdaɾo*	piranha	(2023-12-13(1)_sia)
b.	*ⁿdzija*	calm down	(2024-02-12(1)_sia)
c.	*ᵑgetʰi*	divide	(2024-02-12(1)_sia)
d.	*õtsẽᵐbi*	carry on head	(2025-12-29(1)_mll)
e.	*ⁿdzaʔpʰo*	splash	(2025-12-29(1)_mll)
f.	*ĩⁿdzɨ*	green	(2023-12-04(1)_sia)

5 EXCEPTIONALITY AND PRODUCTIVENESS

Now, there are some exceptions to the patterns described so far. For example, in (18), nasality does not spread across stops/fricatives, even though that is what we would expect.

(18) EXCEPTIONS TO NASAL SPREADING

a. *sĩte* morning (2023-12-13(1)_sia)
b. *ɲõʔfa* rest (2024-02-15(1)_sia)
c. *mĩʃi* kitty (2023-12-11(2)_rgq)

Additionally, words in (19) have oral vowels and/or sonorants before nasal segments, so they violate the first new prediction (§4.1.1).

(19) EXCEPTIONS TO FIRST NEW PREDICTION

a. *vejãẽ* (lightning) strike (2023-12-27(1)_jxm)
b. *aipãnõ* infant (2023-12-27(1)_jxm)
c. *vãnã* suffer (2024-06-11(2)_mll)

Words in (20) have nasal segments after a prenasalized stop, so they violate the second prediction (§4.1.2).

(20) EXCEPTIONS TO SECOND NEW PREDICTION

a. *tã^{n}dã* tie (2023-12-11(1)_sia)
b. *^{m}bĩnĩ* blind (2024-02-12(1)_sia)
c. *^{m}bĩʃĩ* flea (2024-02-12(1)_sia)
d. *^{n}dzĩã(ʔtʃo)* cicada (2024-02-15(1)_sia)

However, a careful look reveals that many of the exceptions are likely not roots or not native. First, many of these are morphologically complex (at least in diachronic analysis, even if the derivational processes that gave rise to them are no longer active) (21).

(21) EXCEPTIONS AS FROZEN DERIVATIVES

a. *sĩte* morning < **sĩ* black + *-ite* PRD (2023-12-13(1)_sia)
b. *ɲõʔfa* rest < **ɲõ* good + *-ʔfa* LAT? (2024-02-15(1)_sia)
c. *vejãẽ* strike < **veja* shiny + *-ẽ* CAUS (2023-12-27(1)_jxm)
d. *aipãnõ* infant < **aʔi* person + *pãnõ* ? (2023-12-27(1)_jxm)
e. *tã^{n}dã* tie < **tã* tie? + RED (2023-12-11(1)_sia)
f. *kõ^{ŋ}gõ* rot < **kõ* rot? + RED (2025-12-30(1)_mll)

(The fact that they are morphologically complex is relevant because derived forms behave differently from what we have seen so far. I will discuss this briefly in Section 6.)

Moreover, many of the exceptional words are borrowings (22).

(22) EXCEPTIONS AS BORROWINGS (from ALDP, 2018)

a. *vãnã* suffer < Spanish *vano* vain `(2024-06-11(2)_mll)`
b. *mĩʃi* kitty < Spanish *michi*, *mishi* `(2023-12-11(2)_rgq)`
c. *tsãpi* forest < Kichwa *champira* `(2023-12-08(1)_jxm)`
d. *mõtʃa* kiss < B. Quechua *much'a* `(2023-12-11(2)_rgq)`
e. *mãʃa* great blue heron < K. *mashalli* `(2024-02-15(1)_sia)`
f. *torõ^{m}ba* large green frog < K. *tulumpa* `(2025-12-29(1)_mll)`

Lastly, some of the exceptions whose origin is not easily identified are the names of fauna and flora (23). Biological terms are generally often borrowed, and we might expect that this would be even more likely for A'ingae, given the history of the speakers' migration (AnderBois et al., 2019; Lucitante, 2019).

(23) EXCEPTIONAL NAMES OF FAUNA AND FLORA

a.	*^{n}dzĩã(ʔtʃo)*	cicada	`(2024-02-15(1)_sia)`
b.	*mãsaka*	fish sp.	`(2023-12-27(1)_jxm)`
c.	*mãkoro*	northern owl monkey	`(2025-12-29(1)_mll)`

5.1 *The ongoing restructuring* In summary, we have seen that even though clear patterns of nasality distribution can be observed, A'ingae also sustains many exceptions.

One may ask then: Does an analysis of these patterns shed light on something in the language's past, or does it (also) reveal something about the speakers' contemporary mental grammar?

I suggest that the patterns of adaptations seen in borrowings and the recent reshaping of some words support the idea that the generalizations described in Section 3 are phonologically active and exert a force over the language's lexicon.

First, some borrowings are adapted with nasality spreading across fricatives and stops (24a-c). This is expected since—recall—those segments are permeable to nasality (§3.3, §3.5). In other borrowings, the orality of a non-initial vowel is retained by prenasalizing and voicing a stop, which stops the first vowel's nasality from spreading (24d-e).

(24) ADAPTATIONS PREDICTED BY PREVIOUS ANALYSES (from ALDP, 2018)

a. *kõfẽsẽ* confess < Spanish *confesa* `(2024-01-04(1)_jxm)`
b. *kãpãnĩɲã* little bell < Sp. *campanilla* `(2023-12-13(1)_sia)`
c. *kõpãnĩɲã* company < Sp. *compañía* `(2023-12-11(2)_rgq)`
d. *kõ*^{m}*ba* child's godfather < Sp. *compadre* `(2023-12-11(2)_rgq)`
e. *kõ*^{n}*da* let know < *contar* `(2023-12-11(2)_rgq)`

The adaptations in (24) are predicted by the present account, but not exclusively so—the previous accounts which recognize progressive nasalization, including Bennett et al. (t.a.), Dąbkowski (2024a), and Sanker and AnderBois (2024), also accommodate these outcomes.

However, there are other adaptations which can be explained only if one assumes that A'ingae nasality wants to spread from the left edge.

In the donor language words in (25a-f), nasality appears in the second or third syllable. Yet, the adapted borrowings have been restructured in such a way that nasality starts at the left edge. This restructuring can be seen as driven by the generalizations described in Section 3.[6]

(25) ADAPTATIONS NOT PREDICTED BY PREVIOUS ANALYSES (from ALDP, 2018)

a. *kõtõ* blouse < Sp. *cotón* cotton `(2023-12-11(2)_rgq)`
b. ^{m}*bõtãẽ* button < Sp. *botón* `(2023-12-13(1)_sia)`
c. *kãtʃĩ*^{m}*ba* pipe < Sp. *cachimba* (Borman, 1976)
d. *õkõmãɾi* spectacled bear < K. *ukumari* `(2025-12-29(1)_mll)`
e. *mãkãmãɾĩnã* manatee < Sp. *vaca marina* `(2023-12-13(1)_sia)`
f. *sãmĩ*^{n}*do(ʔtʃo)* guayaba < K. *sawintu* `(2023-12-13(1)_sia)`
g. ^{m}*bosija* sausage < Sp. *morcilla* `(2024-01-04(1)_jxm)`
h. *ɾapaɾia* torch < Sp. *lamparilla* `(2023-12-13(1)_sia)`

6 In (25g-h), a pattern of denasalization is seen. Since A'ingae nasalization prototypically starts at the left edge and spreads, denasalization in these cases can be understood as deflection aimed at maximizing perceptual similarity to the donor language form across the whole word.
In (25g), the word-initial *m* is (partially) denasalized. If *m* were retained faithfully, its nasality would spread across *s* and nasalizing all the vowels and turning *ʎ* to *ɲ*. This would give rise to **mõsĩɲã*, arguably more perceptually distant from the Sp. source *morcilla*. Similarly, the complete oralization in (25h) can be seen as aimed at avoiding the less phonetically recognizable **nãpãnĩã*.

Even stronger evidence in favor of the synchronic status of Section 3's generalizations comes from the differences between forms reported in Borman's (1976) dictionary and some contemporary productions.

Borman started working in the Cofán communities in 1954 (Hugo Lucitante, p.c.). As such, differences between Borman's (1976) data and present-day forms are indicative of changes that must have taken place in the past 50–70 years (26).

(26) BORMAN'S (1976) FORM > PRESENT-DAY FORM

a. *ãsi* > *ãsĩ* salt (2023-12-13(1)_sia)
b. *tõtsa* > *tõtsã* giant cowbird (2024-01-04(1)_jxm)
c. *tɨ̃to* > *tɨ̃tõ* coral snake (2024-01-04(1)_jxm)
d. *ãtia* > *ãtĩã* relative (2023-03-22(1)_jxm)

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e. *tsosĩnã* > *tsõsĩnã* ear (2023-03-22(1)_jxm)
f. *ʃokẽ^{n}di* > *ʃõkẽ^{n}di* turn (2025-12-29(1)_mll)
g. *aipãnõ* > *aipãnõ*, *ãpãnõ* infant (2023-12-27(1)_jxm)

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h. *õpã^{n}dzã* > *õpã^{n}dza* cover up (2025-12-30(1)_mll)
i. *fĩ^{ŋ}gĩã* > *fĩ^{ŋ}gia* wind (2023-12-13(1)_sia)
j. *fĩ^{ŋ}gĩ* > *fĩ^{ŋ}gĩ*, *fĩ^{ŋ}gi* winnow (2024-02-12(1)_sia; 2024-01-10(1)_jxm)
k. *tã^{n}dã* > *tã^{n}dã*, *tã^{n}da* tie (Sanker and AnderBois, 2024; 2025-12-29(1)_mll; 2023-12-11(1)_sia)

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l. *kõmãtsia*, *kõmã^{n}dzia* > *kõmã^{n}dzia* small ant sp. (2025-12-30(1)_mll)

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m. *^{m}bĩʃi*, *^{m}bĩʃĩ* > *^{m}bĩʃĩ*, *pĩʃi* flea (2024-02-12(1)_sia; 2025-12-30(1)_mll)
n. *^{n}dzĩ(ts^{h}i)*, *tsĩ(ts^{h}i)* > *tsɨ̃ĩ(ts^{h}i)* sharp (2025-12-30(1)_mll)

Note that although the adaptations seen above represent a few different types, they all result in better compliance with the patterns described in Section 3.

In (26a-d), the older forms had nasality only on the first syllable. Contemporary productions have extended the nasality to spread across stops and fricatives (as expected from §3.3, §3.5).

In (26e-g), forms as reported in the dictionary had nasal spans which began mid-word. Contemporary productions often extend those nasal spans to begin at left the edge of the word (§3.1).

In (26h-k), the dictionary forms had a nasal vowel after a voiced prenasalized stop. Present-day speakers have denasalized the post-stop vowels in some cases, in line with the observation that prenasalized stops block nasal spreading (§3.5).

In (26l), the dictionary reported two variants of the same word: one with *ts* and another one with *ⁿdz*. Today, speakers only accept the more regular form with *ⁿdz*, where the affricate is prenasalized due to preceding nasality (§3.5).

In (26m-n), the dictionary had forms with word-initial prenasalized stops followed by nasal vowel. In some of these words, the word-initial stop has been devoiced and denasalized. Since plain stops are permeable to nasality, this has created one continuous left edge-anchored nasal span (§3.1, §3.5).

To sum up, we see that even though A'ingae tolerates exceptional nasalization, the patterns of spreading and blocking identified in Section 3 still exert a force in the language, as they have resulted in the leveling of many exceptions.

Now, having completed this detour on exceptionality and diachrony, let us turn to the formal analysis again.

6 EXTENSIONS OF THE PROPOSAL

So far, I have focused on nasality in A'ingae roots. However, the proposal can be insightfully extended to morphologically complex forms.

In this section, I will touch upon only some key aspects of what this extension entails.

6.1 *Spreading across morpheme boundaries*

First, the basic rightward nasal spreading mechanism proposed in Section 4 applies regularly to morphologically complex words. For example, the underlyingly oral (or, in proposed analysis: underspecified) infinitival *-je* INF (27a) and imperative *-ha* IMP (27b) nasalize when attached to nasal bases.

(27) NASALITY SPREADING ONTO SUFFIXES

a. N
/ *s e v a -j e* /
[*s ẽ m ã -ɲ ẽ*]
work -INF
"to work" (2024-08-06(1)_jxm)

b. N
/ *k a ʔ ɾ i -h a* /
[*k ã ʔ n ĩ -h ã*]
enter -IMP
"enter!" (2023-08-15(5)_mnm)

6.2 *Nasal suffixes* I have proposed that there is (almost, cf. §5) always only one nasal span per A'ingae morpheme (2). I focused on roots, but if suffixes may come with their own nasality, this will give rise to multiple nasal spans in morphologically complex words. Below, this is demonstrated with the prohibitive *-hãmã* PROH, which is a nasal suffix (28).

(28) MULTIPLE NASAL SPANS WITHIN A COMPLEX WORD

N N
/ *s o p o -h a v a* /
[*s õ ᵐb o -h ã m ã*]
exit -PROH
"don't exit" (2024-04-12(1)_sia)

6.3 *Fricatives in suffixes* However, there are also important differences between roots and suffixes when it comes to nasality.

The first notable difference is that while nasality spreads across fricatives within roots (29), suffix fricatives block nasal spreading (30).

(29) ROOT FRICATIVES ARE TRANSPARENT TO NASALITY

a. / *~sasa* / [*sãsã*] liver (2025-12-29(1)_mll)

b. / *~aʃa* / [*ãʃã*] weave (2024-12-22(1)_mll)

c. / *~fifi* / [*fĩfĩ*] signal (2024-02-12(1)_sia)

(30) SUFFIX FRICATIVES BLOCK NASAL SPREADING

b. / *~a -foʔtʃo* / [*ãfoʔtʃo*] eat -DFFS "food debris" (2023-12-11(2)_rgq)

b. / *~ɾoha -ʔsi* / [*nõhãʔsi*] thorn -BRS "thorny plant" (2024-03-28(1)_sia)

c. / *~aɾa -si* / [*ãnãsi*] sleep -DS "having$_{DS}$ slept" (2024-04-02(1)_sia)

To capture this behavior, we can extend the representational apparatus proposed earlier and say that fricatives in suffixes are prespecified as underlying oral. This captures the fact that they block the spreading of nasality (31).[7]

(31) SUFFIX FRICATIVES AS UNDERLYINGLY ORAL

N O

/ *a r a*-(*s s s*) *i* /
[*ã n ã*-(*s s s*) *i*]
= *ãnãsi*

sleep -DS
"having$_{DS}$ slept" (2024-04-02(1)_sia)

6.4 *Stops in suffixes* Finally, plain stops in suffixes show unpredictable behavior. In some suffixes, plain stops prenasalize and block nasal spreading (32). This is a type of behavior we have already seen in root stops.

(32) SOME PLAIN STOPS IN SUFFIXES PRENASALIZE

a. / *~tʃa =ʔpa* / [*tʃãʔ^{m}ba*] mother =ASSC "mothers et al." (2024-01-04(1)_jxm)

b. / *~a -pa* / [*ã^{m}ba*] eat -SS "having$_{SS}$ eaten" (2024-01-04(1)_jxm)

c. / *~ja =te* / [*ɲã^{n}de*] 1SG =RPRT "me, reportedly" (2024-03-28(1)_sia)

In other suffixes, plain stops block the spread of nasality without prenasalizing (33). We have seen this behavior for other classes, including aspirated stops and suffix fricatives, but it is not (commonly) observed for plain stops in roots.

(33) SOME PLAIN STOPS IN SUFFIXES BLOCK WITHOUT PRENASALIZING

a. / *~tʃa =pa* / [*tʃãpa*] mother =HAVR "having a mother" (2023-12-27(1)_jxm)

b. / *~ɾaʔe =pi* / [*nãʔẽpi*] river =TERM "up to (the) river" (2023-12-13(1)_sia)

c. / *~ɾa -ite* / [*nãĩte*] fruit -PRD "fruit season" (2022-07-22(2)_sia)

7 Aspirated stops in roots are either transparent to nasality or block it. Aspirated stops in suffixes always block nasality. As such, I propose that in suffixes, orality is also always preassociated to aspirated stops.

	INTERACTION WITH NASALITY	
VOWELS:	N / (v v v) ... / [(ṽ ṽ ṽ)]	(*vowels become nasalized and nasalization continues spreading*)
SONORANTS:	N / (r r r) ... / [(n n n)]	(*sonorants become nasalized and nasalization continues spreading*)
GLOTTALS:	N / (h h h) ... / [(h h h)]	(*glottals are transparent to spreading nasality*)
FRICATIVES *TYPE 1*: (*found in roots*)	N / (s s s) ... / [(s s s)]	(*fricatives in roots are transparent to spreading nasality*)
FRICATIVES *TYPE 2*: (*found in suffixes*)	N O / (s s s) ... / [(s s s)]	(*fricatives in suffixes are transparent to spreading nasality*)
ASPIRATES *TYPE 1*: (*found in some roots*)	N / (t t ^{h}) ... / [(t t ^{h})]	(*some aspirated stops in roots are transparent to spreading nasality*)
ASPIRATES *TYPE 2*: (*in sfxs & some roots*)	N O / (t t ^{h}) ... / [(t t ^{h})]	(*aspirated stops in suffixes and some roots block the spreading of nasality*)
PLAIN STOPS *TYPE 1*: (*found some in roots*)	N / (t t t) ... / [(t t t)]	(*some unaspirated stops in roots are transparent to spreading nasality*)
PLAIN STOPS *TYPE 2*: (*found in some suffixes*)	N O / (t t t) ... / [(t t t)]	(*unaspirated stops in some suffixes are transparent to spreading nasality*)
PLAIN STOPS *TYPE 3*: (*in some roots & some sfxs*)	N O / (t t t) ... / [(^{n} d d)]	(*unaspirated stops in some roots & some suffixes become prenasalized and block the spreading of nasality*)

Table 4: Summary of natural class–nasality interactions, final version

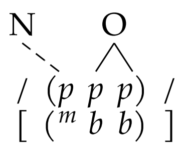
The difference between the suffixes in (32) and (33) does not have syntactic, semantic, etc. predictors (Dąbkowski, 2024a).

Moreover, while these differences have been noted in previous literature (Dąbkowski, 2024a), no analysis has been given.

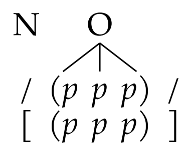
Within the framework developed here, the two classes of suffixes can simply be seen as differing in their underling representations. The prenasalizing suffixes have an underspecified closure and oral q^2 and q^3, leading to prenasalization (34a). The blocking suffixes are underlying specified as fully oral (34b).

(34) SUFFIX STOPS WITH DIFFERENT UNDERLYING REPRESENTATIONS

a. THE STOP IN =ʔ*PA* ASSC



b. THE STOP IN =*PA* HAVR



A summary of all the different natural classes of sounds in different morphological contexts, and their interactions with nasality, is given in Table 4.

(And the same mechanism of prespecification proposed here for different suffix types can be extended to exceptional words discussed in Section 5.)

7 DISCUSSION AND CONCLUSIONS

In summary, I have presented a new account of A'ingae nasality (35).

(35) PROPOSAL RECAP

a. *Nasality in A'ingae is always a feature of the morpheme and associates from the left, and*

b. *All segments are underlyingly either*

i. *underspecified for orality/nasality,*

ii. *specified as fully oral, or*

iii. *specified as oral but with an underspecified stop closure.*

The proposal has several theoretical and diachronic implications. First, the analysis has revealed a meaningful phonological generalization at the level of the root. While traditional work in phonology has often been concerned with root-level constraints (e. g. Kenstowicz and Kisseberth, 1977), recent literature has tended to focus more on phonological alternations. A'ingae nasality contributes a new case study showing that phonological patterns restricted to roots can be complex and benefit from sustained analytical attention.

Second, the account captures the distribution of A'ingae nasality by making fine-grained distinctions among different types of underspecification below the level of the segment. While these sorts of distinctions are predicted by theories of subsegmental structure, such as Q-Theory (e. g. Garvin, Lapierre, and Inkelas, 2018; Inkelas and Shih, 2016, 2017), their existence was not previously demonstrated.

(Notably, the A'ingae nasality/orality distinctions co-exist with distinctions in aspiration, which itself is subject to root-level laryngeal co-occurrence constraints; Repetti-Ludlow, 2021.)

And lastly, A'ingae shows areal features of both Andean and Amazonian languages. AnderBois et al. (2019) propose that A'ingae speakers originated in the Andes, and migrated to the Amazon in the 16th century. Suprasegmental root-level nasality is highly characteristic of Amazonian languages (e. g. Tucanoan; Silva, 2012). This suggests that the explanation for the language's nasality-related generalizations should not be sought in its past (contra Sanker and AnderBois, 2024), but rather in its contact with Amazonian neighbors.

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