POSTLABIAL RAISING AND PARADIGMATIC LEVELING IN A'INGAE: A DIACHRONIC STUDY FROM THE FIELD

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In this paper, I discuss and analyze the variation between *ai* and *ɨi* in A'ingae (or Cofán, an Amazonian isolate, ISO 639-3: con) by comparing data reported in Borman's (1976) dictionary (henceforth B76) with contemporary productions collected in fieldwork. In B76, *ai* does not appear after labial consonants *f*, *pʰ*, *p*, *ᵐb*, *m*, *v* (henceforth P); the distribution of *ɨi* is not restricted. In some modern productions, postlabial *ai* is allowed when the diphthong crosses a morpheme boundary (P*a*+*i*). I propose that B76's distribution of *ai* and *ɨi* is a consequence of "postlabial raising" (henceforth PLR), a diachronic change of *ai* to *ɨi* after labials (**ai* → *ɨi* / P _). The contemporary distribution results from paradigm leveling: In some lexical items, B76's P*ɨi* corresponds to contemporary P*ai* if P*a* is present in another related form. In novel productively-formed words, the availability of PLR is speaker-specific, i.e. it has been variably grammaticalized. Finally, I note that PLR lacks obvious phonetic motivation. I speculate that PLR reflects phonetically plausible postlabial rounding **ai* → **ui* / P _ opacified by subsequent **u* → *ɨ*. Thus, I show that a combination of philological methods and migration history can help make sense of contemporary variation even in the case of an isolate with a short history of literacy. All the contemporary data were collected by the author.

BACKGROUND A'ingae is an endangered isolate spoken by ca. 1,500 Cofán people in Ecuadorian and Colombian Amazonia. Around the 16th century, they used to live in the Andes (Lucitante, 2019). Many Cofán are bilingual with Kichwa and/or Spanish (Dąbkowski, 2021).

METHODOLOGY I compare the distribution of *ai* and *ɨi* in morphologically simple and complex forms as reported by B76 and realized by three contemporary speakers: JXM (36 y.o.), RGQ (34), and SIA (23). B76 reports data collected since 1954. Thus, any systematic differences between the B76 and contemporary A'ingae provide evidence for language change in the past 50∼70 years. To obtain the contemporary judgments, I asked each consultant for judgments on realizations with *ai* and *ɨi* and if they were aware of variation in the speech community. Elicitation was chosen over more naturalistic methods due to the rarity of relevant forms in uncontrolled discourse.

DATA AND ANALYSIS *Native roots* The distribution of *ɨi* in native roots is not restricted: *ɨi* can appear after velars (1a-b), coronals (1c-d), and labials (1e-g). The distribution of *ai* in native roots is restricted; *ai* can appear after after velars (2a) and coronals (2b-e), but sequences P*ai* are missing. To account for this distributional gap, I propose that *ai* underwent raising to *ɨi* after labials (**ai* → *ɨi* / P _), resulting in a conditioned merger of *ai* and *ɨi*. For (1-2), no differences were found between B76 and the contemporary productions.

Borrowings A few borrowings where *ai* appears after a labial in the donor language corroborate PLR (3). The following notation is used to report judgments: No superscript indicates a given speaker's only or preferred realization. @ marks a realization deemed wrong or dispreferred, but available for others. * marks a realization identified as archaic. Unrecognized items are represented with —. Contemporary judgments which differ from B76 are additionally marked with a wavy underline. When not preceded by P, a donor language *ai* corresponds to an A'ingae *ai* (3a). According to B76, postlabial *ai* is adapted as *ɨi*. The Kichwa root *waita* 'flower' appears in two A'ingae compounds *sĩmĩ̃ĩta* 'vanilla' (3b, from A'ingae *sĩ* 'black;' progressive nasalization is a regular process) and *rosavɨita* 'marigold' (3c, from Spanish *rosa* 'rose'). B76 reports both compounds with *ɨi*. This shows that the borrowing took place before or during PLR. However, all three speakers recognize both *rosavɨita* and *rosavaita*. Notably, RGQ explicitly identifies *rosavɨita* as a form used by the elders. According to B76, the Spanish *paitʃe* 'paiche (a fish species)' is borrowed as both *pɨitsɨ* and *paitsɨ* (3d). All three consultants only accept *paitsɨ*. I propose that *vɨita* was replaced with *vaita* and *paitsɨ* won over *pɨitsɨ* due to a pressure to reflect the pronunciation of the source language more accurately. This is plausible because many Cofán people are bilingual in Kichwa and Spanish (Dąbkowski, 2021).

Conventionalized season names Finally, in order to see if PLR has been learned as an active phonological rule, I consider morphologically complex forms with /P*a*+*i*/ where as P*a*-final root is followed by *-ite* PRD. The periodic suffix *-ite* PRD appears in conventional season names (4). When the root-final *a* is not preceded by P, the season name shows no PLR (4a). When the root ends in P*a*, B76 reports PLR for all the season names (4b-f). The three contemporary consultants vary, but largely recognize forms with and without PLR. I propose that the forms with PLR (P*ɨi*) are older, whereas the forms without PLR (P*ai*) are analogical innovations (*na* : *naite* :: *tʃarapa* : *tʃarapaite*). The conventionalized season names are sufficiently transparent for some to level the postlabial *ɨi* to *ai*. Nevertheless, they are non-compositional and have to be learned on a case-by-case basis. Thus, the presence or absence of PLR in (4) might show lexically-specific effects.

Productive ite-formations To see if PLR has been learned as a productive process, I tested neologisms derived with the periodic suffix *-ite* PRD (5). In its productive usage, *-ite* PRD derives time period nouns and adverbials (5). E.g. *fetʰaite* '(in the) opening season' from *fetʰa* 'open' (5a-i). Some neologisms can be absurd, e.g. *ᵑgasorĩnãĩte* 'petrol season' (5a-iv). Since they were almost certainly never heard before, these productions must reflect productive phonology. In productive *ite*-formations, the consultants show three different patterns: JXM does not allow for PLR. SIA allows for, but does does not require, PLR after P. I speculate that the presence of forms where both *ai* and *ɨi* appear in the speech community (3-4) has led SIA to acquire PLR as an optional but productive phonological rule (*a*+*i* → *ɨi* / P _, optional). Finally, RGQ shows the greatest variation in his judgments. Sometimes, he allows for /*ai*/ → [*ɨi*], even when not proceeded by P. This suggest that RGQ generalized the raising beyond its original conditioning environment (*a*+*i* → *ɨi*, optional).

Diachronic analysis PLR lacks an obvious phonetic motivation, which makes it an unexpected sound change. I speculate that A'ingae PLR came about as two subsequent changes. First, postlabial **ai* underwent rounding to **ui* (**ai* → **ui* / P _). Second, **u* underwent unconditioned shift to *ɨ* (**u* → *ɨ*). Two facts lend credibility to this scenario. First, the pressure to round postlabial vowels is independently attested in A'ingae: The diphthong *ae* can be rounded to *oe* after labials (*ae* → *oe* / P _) (Dąbkowski, 2022). Second, before their descent into the Amazon, the Cofán used to live in the Andes (Lucitante, 2019). In the Andean inventories, *u* is commonly attested, but *ɨ* is rare (Moran et al., 2019). Thus, reconstructing **u* for precolonial A'ingae is consistent with migration history. The vowel *ɨ*, on the other hand, is common in the Amazon (Moran et al., 2019). Thus, **u* → *ɨ* is a plausible contact-induced shift. The two changes resulted in apparent **ai* → *ɨi* / P _. Since B76, P*ɨi* has been changed to P*ai* in some words via contact-induced replacement and paradigmatic leveling. PLR has been acquired as a productive rule only by some, yielding considerable inter-speaker variation. The complete timeline is given in Fig. 1.

Borman, M. (1976). *Vocabulario cofán: Cofán–castellano, castellano–cofán*. SIL. Dąbkowski, M. (2021). "A'ingae ..." In: *LDD* 20. Dąbkowski, M. (2022). "A Q-Theoretic solution to A'ingae postlabial raising." URL: link. UC Berkeley. Lucitante, H. (2019). "The Cofán peoples of Ecuador and ..." Honors thesis. Brown University. Moran, S. et al., eds. (2019). *Phoible 2.0*. URL: link.

	source/root	B76	JXM	RGQ	SIA
(1)	Diphthong *ɨi* appears after velars, coronals, and labials				
	a.	*kʰɨivo* ‘catfish’	*kʰɨivo*	*kʰɨivo*	*kʰɨivo*
	b.	*kɨiʔ-* ‘drink’	*kɨiʔ-*	*kɨiʔ-*	*kɨiʔ-*
	c.	*sɨiʔvo* ‘twist’	*sɨiʔvo*	*sɨiʔvo*	*sɨiʔvo*
	d.	*fɨⁿdɨi* ‘sweep’	*fɨⁿdɨi*	*fɨⁿdɨi*	*fɨⁿdɨi*
	e.	*fɨite* ‘help’	*fɨite*	*fɨite*	*fɨite*
	f.	*opɨi* ‘cover up’	*opɨi*	*opɨi*	*opɨi*
	g.	*vɨiki* ‘calm down’	*vɨiki*	*vɨiki*	*vɨiki*
(2)	Diphthong *ai* appears after velars and coronals, but not labials				
	a.	*ᵑgãĩŋã* ‘scatter’	*ᵑgãĩŋã*	*ᵑgãĩŋã*	*ᵑgãĩŋã*
	b.	*otʃʰai* ‘smack’	*otʃʰai*	*otʃʰai*	*otʃʰai*
	c.	*ⁿdʒai* ‘sit’	*ⁿdʒai*	*ⁿdʒai*	*ⁿdʒai*
	d.	*tsʰai* ‘punch’	*tsʰai*	*tsʰai*	*tsʰai*
	e.	*nãĩʔ-* ‘river’	*nãĩʔ-*	*nãĩʔ-*	*nãĩʔ-*
(3)	In loan words, postlabial *ai* is adapted as *ɨi* or replaced with *ai*				
	a. *airo* (Secoya)	*airo* ‘mountain’	*airo*	—	—
	b. *waita* (Kichwa)	*(sĩ)mɨĩta* ‘vanilla’	*(sĩ)mɨĩta*	—	—
	c. *waita* (Kichwa)	*(rosa)vɨita* ‘marigold’	@*(rosa)vɨita*, *(rosa)vaita*	**(rosa)vɨita*, *(rosa)vaita*	*(rosa)vɨita*, @*(rosa)vaita*
	d. *paitʃe* (Spanish)	*paitsɨ*, *pɨitsɨ* ‘paiche’	*paitsɨ*	*paitsɨ*	*paitsɨ*
(4)	In conventionalized forms derived with *-ite* prd, postlabial *ai* changed to *ɨi*, and then was leveled to *ai* for some				
	a. *na* ‘fruit’	*naite* ‘fruit season’	*naite*	*naite*	*naite*
	b. *sãfã* ‘San Juan’	*sãfɨĩte* ‘winter’	*sãfɨĩte*, *sãfãĩte*	**sãfɨĩte*, *sãfãĩte*	@*sãfɨĩte*, *sãfãĩte*
	c. *taʔva* ‘cotton’	*tavɨite* ‘Aug–Nov’	@*tavɨite*, *tavaite*	*tavaite*	*tavɨite*, @*tavaite*
	d. *koehefa* ‘sun ray’	*koehefɨite* ‘summer’	*koehefɨite*	*koehefaite*	*koehefɨite*, @*koehefaite*
	e. *tʃarapa* ‘turtle’	*tʃarapɨite* ‘Dec–Jan’	@*tʃarapɨite*, *tʃarapaite*	**tʃarapɨite*, *tʃarapaite*	*tʃarapɨite*, @*tʃarapaite*
	f. *oʔma* ‘peach palm’	*omɨite* ‘Feb–Apr’	@*omɨite*, *omaite*	**omɨite*, *omaite*	@*oʔmɨite*, *oʔmaite*
(5)	In fully compositional forms derived with *-ite* prd, the availability of raising depends on the speaker				
	a. ¬P*a*-final roots				
	i. *fetʰa* ‘open’		*fetʰaite*	*fetʰaite*	*fetʰaite*
	ii. *ʃaka* ‘miss’		*ʃakaite*	*ʃakaite*	*ʃakaite*
	iii. *tsõsĩnã* ‘ear’		*tsõsĩnãĩte*	*tsõsĩnãĩte*, *@*tsõsĩnɨĩte*	*tsõsĩnãĩte*
	iv. *ᵑgasorĩnã* ‘gasolina’		*ᵑgasorĩnãĩte*	*ᵑgasorĩnãĩte*, @*ᵑgasorĩnɨĩte*	*ᵑgasorĩnãĩte*
	v. *kʰaʔja* ‘swim’		*kʰajaite*	*kʰaʔjaite*, *@*kʰajɨite*	*kʰaʔjaite*
	b. P*a*-final roots				
	i. *ʃakapa* ‘debt’		*ʃakapaite*	*ʃakapaite*, @*ʃakapɨite*	*ʃakapaite*, *ʃakapɨite*
	ii. *sẽmã* ‘work’		*sẽmãĩte*	*sẽmãĩte*, **sẽmɨĩte*	*sẽmãĩte*, *sẽmɨĩte*
	iii. *sehеʔpa* ‘medicine’		*sehepaite*	*sehеʔpaite*, *sehеʔpɨite*	*sehеʔpaite*, *sehеʔpɨite*
	iv. *ajaʔfa* ‘language’		*ajafaite*	*ajaʔfaite*, *ajaʔfɨite*	*ajaʔfaite*, *ajaʔfɨite*
	v. *tʃava* ‘buy’		*tʃavaite*	*tʃavaite*, @*tʃavɨite*	*tʃavaite*, *tʃavɨite*
	vi. *jajaʔpa* ‘lard’		*jajaʔpaite*	*jajaʔpaite*, @*jajaʔpɨite*	*jajaʔpaite*, *jajaʔpɨite*

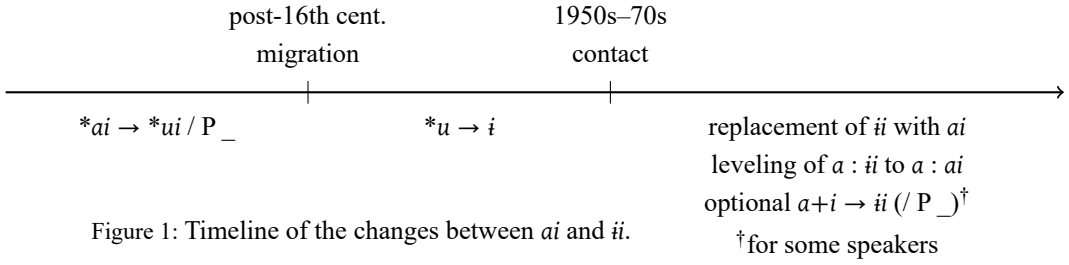

Figure 1: Timeline of the changes between *ai* and *ɨi*.

COVID-19 STATEMENT My ability to collect data has been affected by institutional and national COVID-19 restrictions as I was unable to travel to Cofán communities in Ecuador. Thus, the data presented in this abstract come only from three speakers who I was able to work with remotely. (They have internet access but most A'ingae speakers do not.) The three speakers are all male, similar in age, and represent only two communities (Dureno and Dovuno). As such, they do not properly represent all social groups relevant in the Cofán context. This summer, I will travel to Ecuador to collect more data in an attempt to better understand the sociolinguistic predictors of the *ai*~*ɨi* variation. In order to correct for the currently unrepresented groups, I will collect data from speakers of different ages, genders, communities of origin, linguistic backgrounds, literacy levels, and educational histories. To correct for the confounds introduced by the elicitation methodology, I will use more naturalistic methods of data collection, such as unstructured and semi-structured interviews. Data collection will take place between June 29 and July 24 in Sucumbíos, Ecuador. In August and September, I will hire native-speaking research assistants to transcribe and translate the interviews. In the following three months, I will code the data and perform statistical analyses. The analyses will be complete by the end of December.