

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

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### Overview

- A’ingae** (or Cofán, ISO 639-3: con): an understudied and endangered Amazonian isolate

FOCUS: **variation** between the diphthongs *ai* and *ii*

- by comparing data reported in **Borman’s (1976) dictionary** (B76)
- with **contemporary productions** collected in the author’s **fieldwork**

- in B76: *ai* **does not appear** after labial consonants *f*, *p<sup>h</sup>*, *p*, *<sup>m</sup>b*, *m*, *v* (hence-forth P);<sup>1</sup> the distribution of *ii* is not restricted

POSTLABIAL RAISING (PLR): *\*ai* → *ii* / P \_

- some **modern productions**: postlabial *ai* **is allowed** when the diphthong crosses a morpheme boundary (*Pa+i*)

PARADIGM LEVELING: *a* : *ai* :: *Pa* : *Pai*

- new** productively-formed **words**: PLR is speaker-specific, i. e. it has been variably grammaticalized

- post-labial raising **lacks phonetic motivation**; result of two changes:

- POSTLABIAL ROUNDING: *\*ai* → *\*ui* / P \_
- UNCONDITIONED UNROUNDING: *\*u* → *i*

- philological methods** and **migration history** make sense of **contemporary variation** in an isolate with a short history of literacy

### Background

- A’ingae is an endangered isolate spoken by ca. 1,500 Cofán people in **Ecuadorian and Colombian Amazonia**

- ca. **16th century**, the Cofán used to live **in the Andes** (Lucitante, 2019)
- many are **bilingual with Kichwa and/or Spanish** (Dąbkowski, 2021)

### Methodology

- comparing the distribution of *ai* ~ *ii* between B76 and three contemporary speakers: JXM (36 y.o.), RGQ (34), and SIA (23)
- B76 collected data **since 1954**; differences between B76 and contemporary A’ingae = **language change in the past 50~70 years**
- each consultant was asked
  - for judgments on realizations with *ai* and *ii*,
  - 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

<sup>1</sup> The only exception is ‘incline,’ reported by B76 with two realizations: *p<sup>h</sup>āijnā* and *p<sup>h</sup>īijnā* (2f). All three consultants accept *p<sup>h</sup>īijnā*. RGQ and SIA note that other speakers could use *p<sup>h</sup>āijnā*.

### Data set

	SOURCE/ROOT	B76	JXM	RGQ	SIA
(1)	DIPHTHONG <i>ii</i> APPEARS AFTER VELARS, CORONALS, AND LABIALS				
a.		<i>k<sup>h</sup>iivo</i> ‘catfish’	<i>k<sup>h</sup>iivo</i>	<i>k<sup>h</sup>iivo</i>	<i>k<sup>h</sup>iivo</i>
b.		<i>kiiʔ-</i> ‘drink’	<i>kiiʔ-</i>	<i>kiiʔ-</i>	<i>kiiʔ-</i>
c.		<i>siiʔvo</i> ‘twist’	<i>siiʔvo</i>	<i>siiʔvo</i>	<i>siiʔvo</i>
d.		<i>fɪ<sup>ʔ</sup>dii</i> ‘sweep’	<i>fɪ<sup>ʔ</sup>dii</i>	<i>fɪ<sup>ʔ</sup>dii</i>	<i>fɪ<sup>ʔ</sup>dii</i>
e.		<i>fiite</i> ‘help’	<i>fiite</i>	<i>fiite</i>	<i>fiite</i>
f.		<i>opii</i> ‘cover up’	<i>opii</i>	<i>opii</i>	<i>opii</i>
g.		<i>viiki</i> ‘calm down’	<i>viiki</i>	<i>viiki</i>	<i>viiki</i>
(2)	DIPHTHONG <i>ai</i> APPEARS AFTER VELARS AND CORONALS, BUT NOT LABIALS				
a.		<i>ʔgāijnā</i> ‘scatter’	<i>ʔgāijnā</i>	<i>ʔgāijnā</i>	<i>ʔgāijnā</i>
b.		<i>otʃ<sup>h</sup>ai</i> ‘smack’	<i>otʃ<sup>h</sup>ai</i>	<i>otʃ<sup>h</sup>ai</i>	<i>otʃ<sup>h</sup>ai</i>
c.		<i>ʔdʒai</i> ‘sit’	<i>ʔdʒai</i>	<i>ʔdʒai</i>	<i>ʔdʒai</i>
d.		<i>ts<sup>h</sup>ai</i> ‘punch’	<i>ts<sup>h</sup>ai</i>	<i>ts<sup>h</sup>ai</i>	<i>ts<sup>h</sup>ai</i>
e.		<i>nāiʔ-</i> ‘river’	<i>nāiʔ-</i>	<i>nāiʔ-</i>	<i>nāiʔ-</i>
f.	(an exception →)	<i>p<sup>h</sup>āijnā</i> , <i>p<sup>h</sup>īijnā</i> ‘incline’	<i>p<sup>h</sup>īijnā</i>	<i><sup>@</sup>p<sup>h</sup>āijnā</i> , <i>p<sup>h</sup>īijnā</i>	<i><sup>@</sup>p<sup>h</sup>āijnā</i> , <i>p<sup>h</sup>īijnā</i>
(3)	IN LOAN WORDS, POSTLABIAL <i>ai</i> IS ADAPTED AS <i>ii</i> OR REPLACED WITH <i>ai</i>				
a.	<i>airo</i> (Secoya)	<i>airo</i> ‘mountain’	<i>airo</i>	—	—
b.	<i>waita</i> (Kichwa)	<i>(si)mūita</i> ‘vanilla’	<i>(si)mūita</i>	—	—
c.	<i>waita</i> (Kichwa)	<i>(rosa)viita</i> ‘marigold’	<i><sup>@</sup>(rosa)viita</i> , <i>(rosa)va<sup>u</sup>ita</i>	<i>*<sup>(rosa)</sup>viita</i> , <i>(rosa)va<sup>u</sup>ita</i>	<i>(rosa)viita</i> , <i><sup>@</sup>(rosa)va<sup>u</sup>ita</i>
d.	<i>paitʃe</i> (Spanish)	<i>paitsi</i> , <i>piitsi</i> ‘paiche’	<i>paitsi</i>	<i>paitsi</i>	<i>paitsi</i>
(4)	IN CONVENTIONALIZED FORMS DERIVED WITH -ite PRD, POSTLABIAL <i>ai</i> CHANGED TO <i>ii</i> , AND THEN WAS LEVELED TO <i>ai</i> FOR SOME				
a.	<i>na</i> ‘fruit’	<i>naite</i> ‘fruit season’	<i>naite</i>	<i>naite</i>	<i>naite</i>
b.	<i>sāfā</i> ‘San Juan’	<i>sāfiite</i> ‘winter’	<i>sāfiite</i> , <i>sāfā<sup>u</sup>ite</i>	<i>*sāfiite</i> , <i>sāfā<sup>u</sup>ite</i>	<i><sup>@</sup>sāfiite</i> , <i>sāfā<sup>u</sup>ite</i>
c.	<i>taʔva</i> ‘cotton’	<i>taviite</i> ‘Aug–Nov’	<i><sup>@</sup>taviite</i> , <i>tava<sup>u</sup>ite</i>	<i>tava<sup>u</sup>ite</i>	<i>taviite</i> , <i><sup>@</sup>tava<sup>u</sup>ite</i>
d.	<i>koehefa</i> ‘sun ray’	<i>koehefiite</i> ‘summer’	<i>koehefiite</i>	<i>koehefā<sup>u</sup>ite</i>	<i>koehefiite</i> , <i><sup>@</sup>koehefā<sup>u</sup>ite</i>
e.	<i>tʃarapa</i> ‘turtle’	<i>tʃarapiite</i> ‘Dec–Jan’	<i><sup>@</sup>tʃarapiite</i> , <i>tʃarapa<sup>u</sup>ite</i>	<i>*tʃarapiite</i> , <i>tʃarapa<sup>u</sup>ite</i>	<i>tʃarapiite</i> , <i><sup>@</sup>tʃarapa<sup>u</sup>ite</i>
f.	<i>oʔma</i> ‘peach palm’	<i>omiite</i> ‘Feb–Apr’	<i><sup>@</sup>omiite</i> , <i>oma<sup>u</sup>ite</i>	<i>*omiite</i> , <i>oma<sup>u</sup>ite</i>	<i><sup>@</sup>oʔmiite</i> , <i>oʔma<sup>u</sup>ite</i>
(5)	IN FULLY COMPOSITIONAL FORMS DERIVED WITH -ite PRD, THE AVAILABILITY OF RAISING DEPENDS ON THE SPEAKER				
a.	→Pa-FINAL ROOTS				
i.	<i>fet<sup>h</sup>a</i> ‘open’		<i>fet<sup>h</sup>aite</i>	<i>fet<sup>h</sup>aite</i>	<i>fet<sup>h</sup>aite</i>
ii.	<i>faka</i> ‘miss’		<i>fakaite</i>	<i>fakaite</i>	<i>fakaite</i>
iii.	<i>tsōsinā</i> ‘ear’		<i>tsōsināite</i>	<i>tsōsināite</i> , <i>*<sup>@</sup>tsōsināite</i>	<i>tsōsināite</i>
iv.	<i>ʔgasorinā</i> ‘gasolina’		<i>ʔgasorināite</i>	<i>ʔgasorināite</i> , <i><sup>@</sup>ʔgasorināite</i>	<i>ʔgasorināite</i>
v.	<i>k<sup>h</sup>aʔja</i> ‘swim’		<i>k<sup>h</sup>ajaite</i>	<i>k<sup>h</sup>aʔjaite</i> , <i>*<sup>@</sup>k<sup>h</sup>ajiite</i>	<i>k<sup>h</sup>aʔjaite</i>
b.	Pa-FINAL ROOTS				
i.	<i>fakapa</i> ‘debt’		<i>fakapaite</i>	<i>fakapaite</i> , <i><sup>@</sup>fakapiite</i>	<i>fakapaite</i> , <i>fakapiite</i>
ii.	<i>sēmā</i> ‘work’		<i>sēmāite</i>	<i>sēmāite</i> , <i>*sēmāite</i>	<i>sēmāite</i> , <i>sēmāite</i>
iii.	<i>seheʔpa</i> ‘medicine’		<i>sehepaite</i>	<i>seheʔpaite</i> , <i>seheʔpiite</i>	<i>seheʔpaite</i> , <i>seheʔpiite</i>
iv.	<i>ajaʔfa</i> ‘language’		<i>ajafaite</i>	<i>ajaʔfaite</i> , <i>ajaʔfiite</i>	<i>ajaʔfaite</i> , <i>ajaʔfiite</i>
v.	<i>tʃava</i> ‘buy’		<i>tʃavaite</i>	<i>tʃavaite</i> , <i><sup>@</sup>tʃaviite</i>	<i>tʃavaite</i> , <i>tʃaviite</i>
vi.	<i>jajaʔpa</i> ‘lard’		<i>jajaʔpaite</i>	<i>jajaʔpaite</i> , <i><sup>@</sup>jajaʔpiite</i>	<i>jajaʔpaite</i> , <i>jajaʔpiite</i>

### Timeline of the changes between *ai* and *ii*

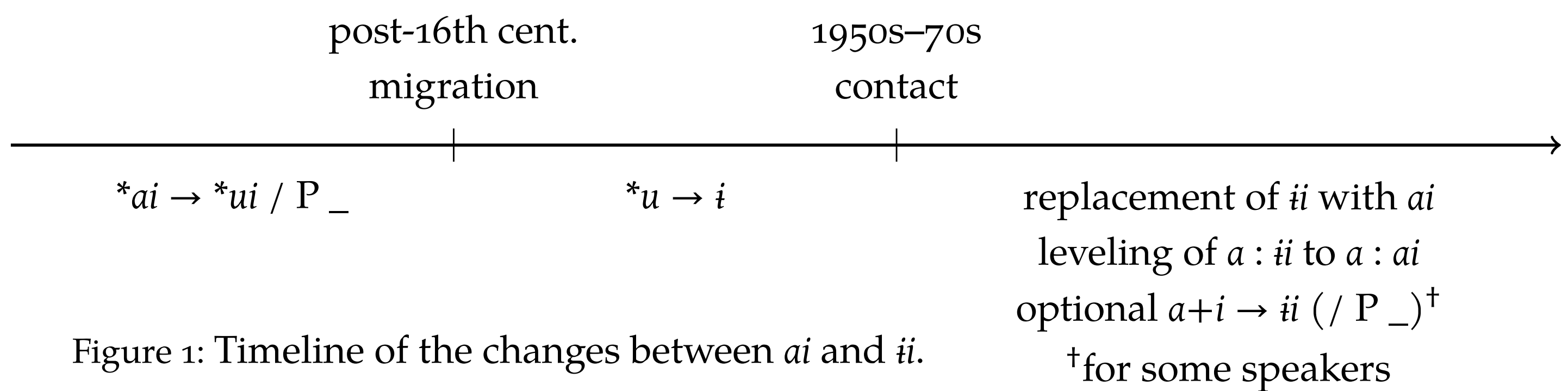


Figure 1: Timeline of the changes between *ai* and *ii*.

### Legend

no superscript indicates the speaker’s only or preferred realization

<sup>@</sup> marks a dispreferred realization, but available for other speakers

\* marks a realization identified as archaic

— marks unrecognized items

— marks contemporary judgements which differ from B76

### Discussion

**NATIVE ROOTS** the distribution of *ii* **not restricted**: *ii* can appear after velars (1a-b), coronals (1c-d), and labials (1e-g)

- the distribution of *ai* **is restricted**: *ai* can appear after after velars (2a) and coronals (2b-e), but **sequences *Pai* are missing**

**PROPOSAL**: *\*ai* → *ii* / P \_ (a diachronic change of postlabial raising)

**BORROWINGS** a few borrowings where *ai* appears after a labial in the donor language corroborate PLR (3)

- in B76, postlabial *ai* is **adapted as *ii*** (3b-d); the borrowings must have taken place **before or during PLR**
- contemporary speakers recognize forms **with *ai* as well as *ii***

**PROPOSAL**: *vaita* **replaced *viita*** and *paitsi* **replaced *piitsi*** to reflect the pronunciation of the source language more accurately

- plausible: many Cofán speak Kichwa/Spanish (Dąbkowski, 2021)

**CONVENTIONALIZED ITE-FORMS (SEASON NAMES)** the periodic suffix -ite PRD appears in conventional season names (4)

- for Pa-final roots, B76 reports PLR for all the season names (4b-f)
- contemporary consultants recognize forms with and without PLR

**PROPOSAL**: the forms with PLR (*Pii*) are older, whereas the forms without PLR (*Pai*) are **analogical innovations** (*na* : *naite* :: *tʃarapa* : *tʃarapaite*)

**PRODUCTIVE ITE-FORMATIONS** -ite PRD productively derives time period nouns and adverbials (5); consultants show different patterns:

- JXM **did not acquire** PLR as a **productive phonological rule**
- SIA acquired PLR as an optional rule: *a+i* → *ii* / P \_ (optional)
- RGQ generalized the raising beyond P \_: *a+i* → *ii* (optional)

### Analysis

- post-labial raising **lacks phonetic motivation**; result of two changes:

- POSTLABIAL ROUNDING: *\*ai* → *\*ui* / P \_

REASON: the pressure to round postlabial vowels is independently attested in A’ingae: *ae* → *oe* / P \_ (optional) (Dąbkowski, ms.)

- UNCONDITIONED UNROUNDING: *\*u* → *i*

REASON: *u* **is common in Andean inventories** and *i* **is common in the Amazon** (Moran et al., 2019); a plausible **contact-induced shift**