

Designing a Digital Keyboard for Itunyoso Triqui

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Language Background

ITUNYOSO TRIQUI (Otomanguan)

- One of three Triqui varieties
- Spoken in San Martín Itunyoso, Oaxaca, Mexico
- ~2500 speakers^[1]
- Orthography based on Spanish

LITERACY AND BILINGUALISM

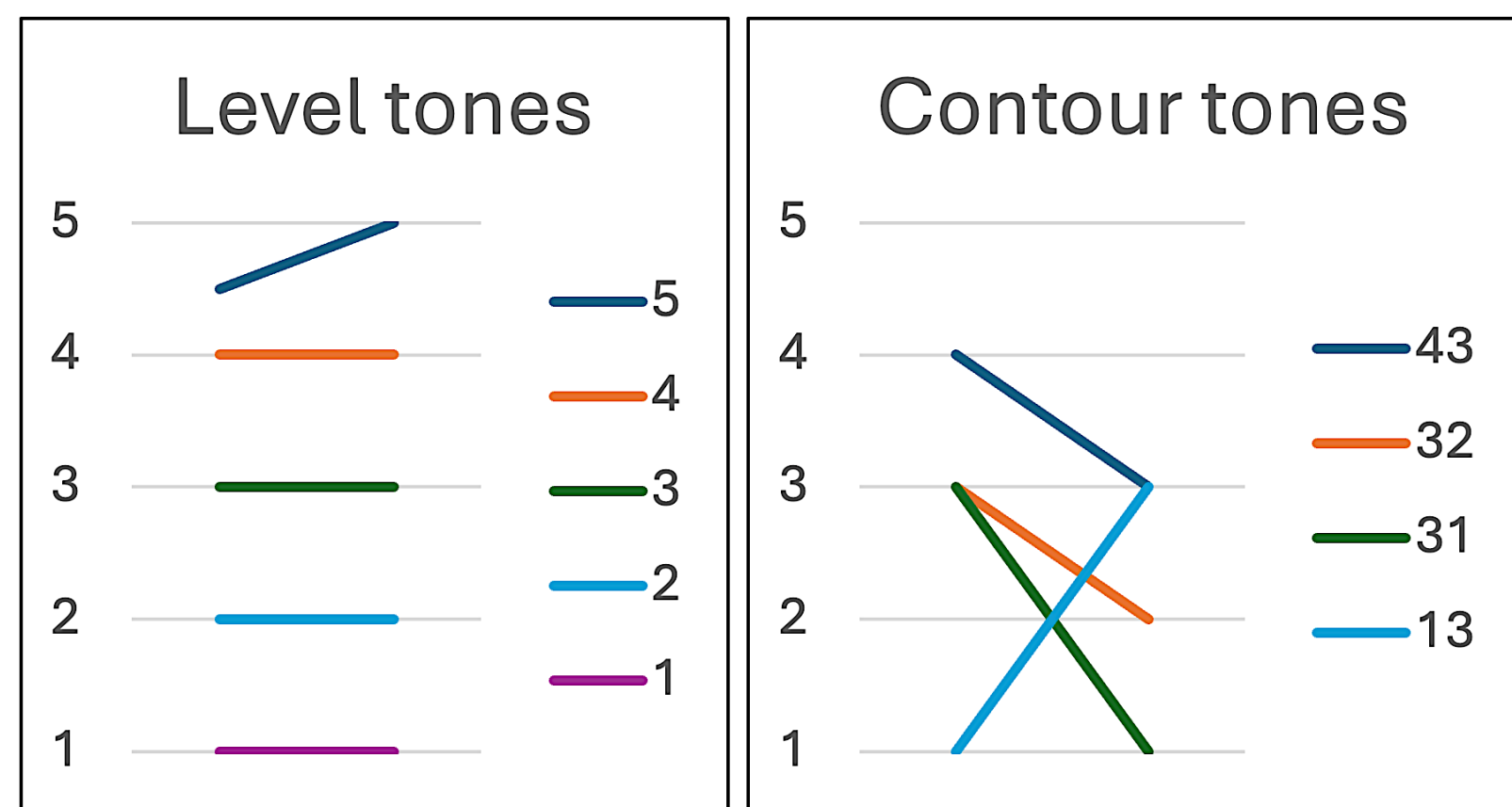
- Most speakers bilingual with Spanish
- Low literacy (only 1-2% fluent)
 - Speakers tend to write & type in Spanish
- Literacy program on hiatus
 - Due to political and economic conditions
- Few computers, smartphones more common

Notable phonological/orthographic features

Feature	Orthography	Pronunciation
Five level tones	á á á à à	a ⁵ a ⁴ a ³ a ² a ¹
Four contour tones	áa aa àa àa	a ⁴³ a ³² a ³¹ a ¹³
Consonant length	ch cch	tʃ tʃ:
Glottal codas	a aj ah	a ah aʔ
Nasal vowels	an anj anh	ã ãh ãʔ
Glott. Sonorants	n hn	n ʔn

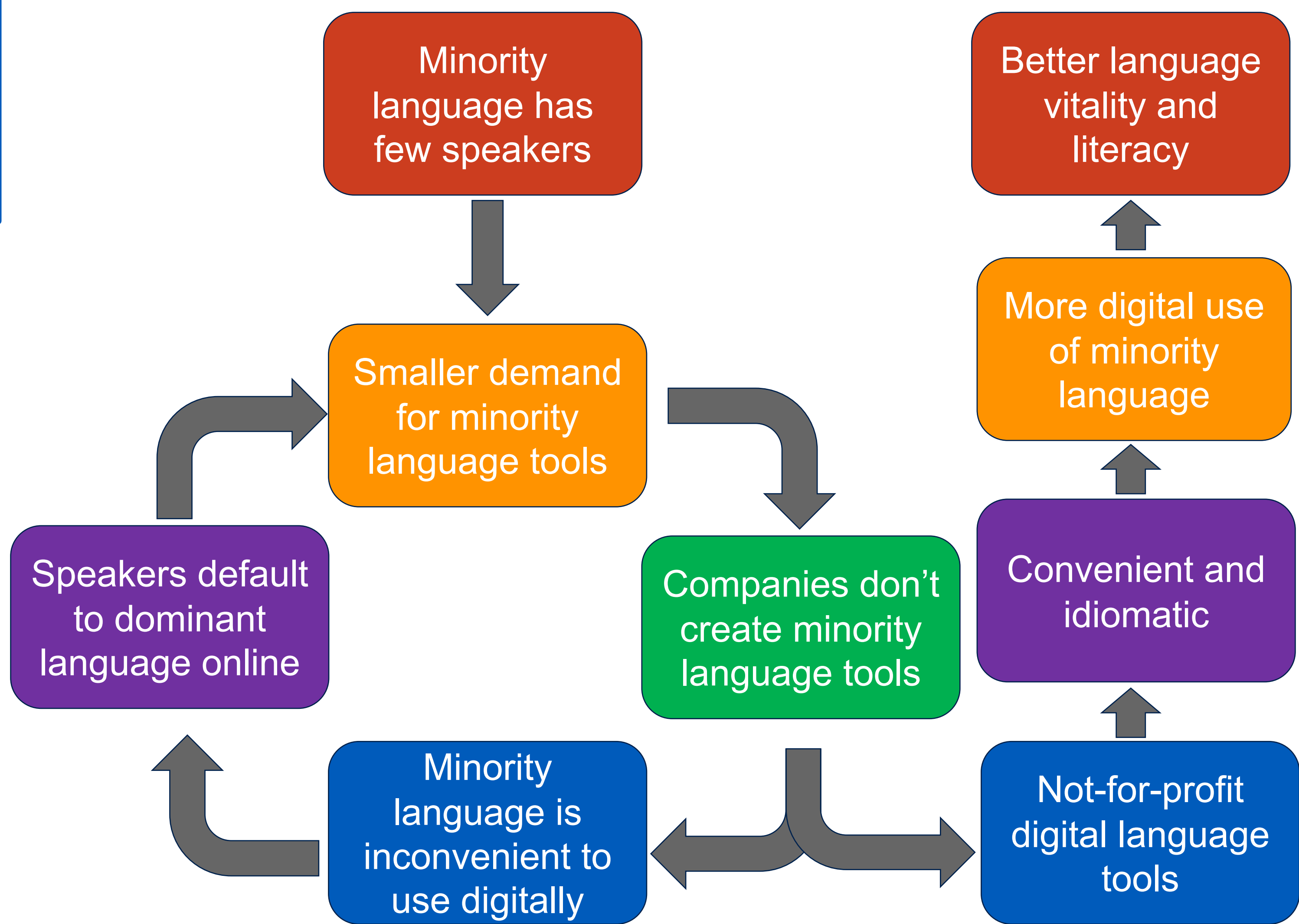
Problem – Tone Input

- Nine phonemic tones, high functional load
- Accents in nearly every word
- Conventional mobile accent input (long-press) becomes cumbersome
- Need more idiomatic input options



Digital tools for minority languages

- Typing and texting are a key part of modern literacy
- Minority languages lack high-quality digital tools
- Speakers switch to dominant language online due to better language tools
- Tools that exist are often low-quality and hard to use
- For speakers to adopt them, tools must be convenient and idiomatic to that language



Inspiration: TZ'IB'MA project^[2]

- Digital keyboards for Mayan languages
- Phonemic keyboard layout, with digraph keys
- Tailored to individual language needs

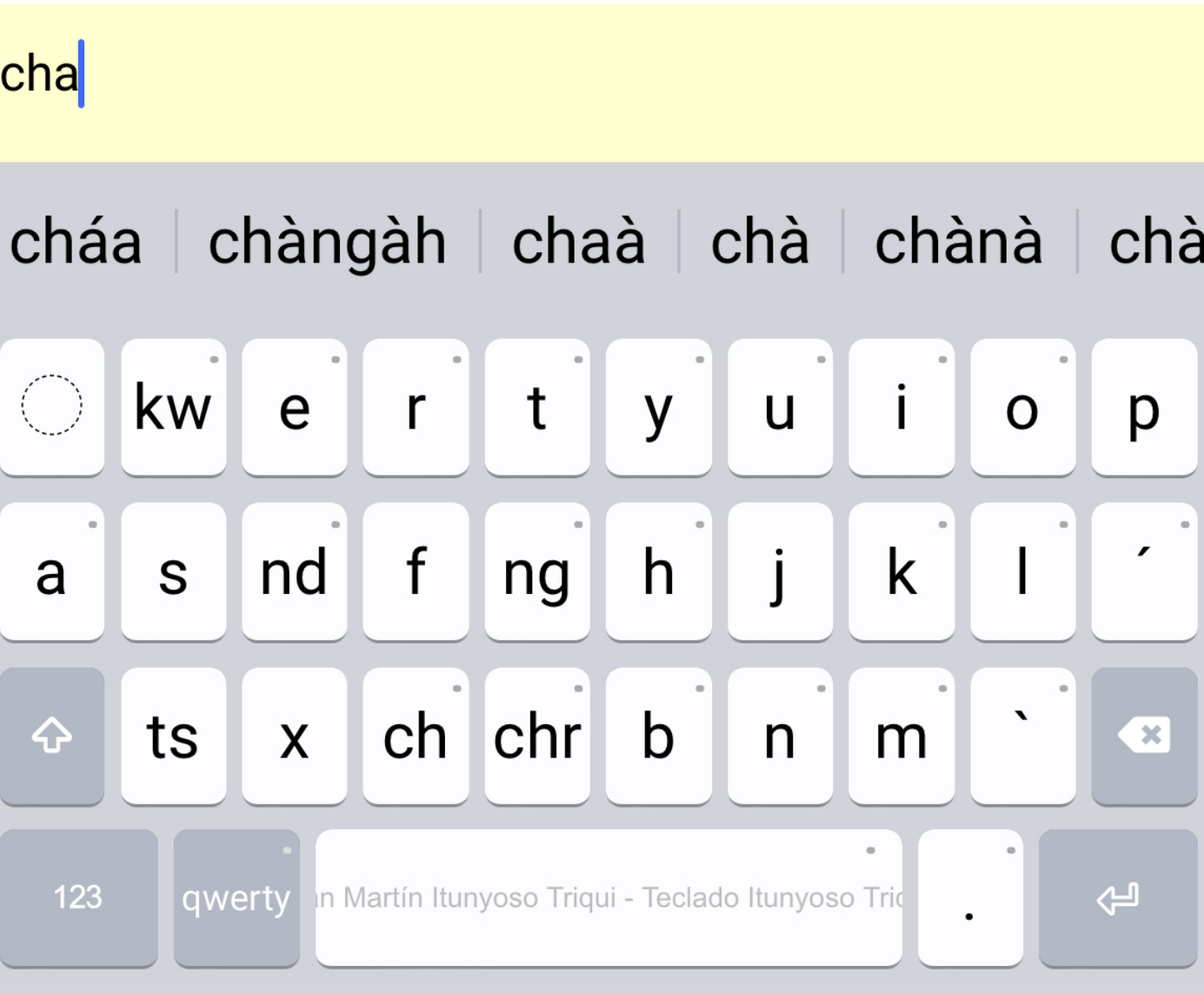
Distribution

- User-friendly installation in the Keyman app
- 378 downloads, ~15% of the language community
- Planning to integrate the keyboard in literacy program when it resumes

Design principles

- Easy to learn with minimal teaching
- Multiple intuitive options for input
 - “If a user thinks it should work, then it will work”
- Typing in Triqui should be as easy as typing in Spanish

Predictive text



Long-Press Options



PHONEMIC LAYOUT

- Unused letters replaced with di- and trigraphs
- Additional multigraphs from long-press & shortcuts

tone input – Multiple options!

- Long-press vowel
- Swipe vowel key up/down
- Accent deadkeys
- Predictive text & backwards tone input

PREDICTIVE TEXT

- Predicts current word (incl. tone)
- Simple algorithm based on word frequency
- “What’s the most common word starting with these letters?”
- Can use predictive text for tone input
 - cf. Chinese pinyin input

BACKWARDS TONE INPUT

- Input accents on words already typed
 - e.g. predictive text fails to predict intended accents
- Tap [shift] or [◌] (no tone) to enter backwards mode
- For each vowel in the word, select an accent to apply
 - Acute, grave, or none

Key Combos		
[kw]	[kw]	kkw
[ch]	[ch]	cch
[ng]	[kw]	ngw
[ch]	[n]	cn
[`]	[a]	à

References

2019. DiCanio, C., Martínez Cruz, Basileo, and Martínez Cruz, Wilberto. Libróu kwéntáa lécháa snáhánj nih chiyúnh / Libreta pedagógica para la alfabetización triqui de Itunyoso (Pedagogical workbook for Itunyoso Triqui literacy).
2022. Mateo Toledo, Eladio. “TZ’IB’MA (Teclado Digital Para Lenguas Mayas),” n.d. <https://www.lenguasmayas.com/>.
“Keyman,” SIL International, n.d. <https://keyman.com/>.