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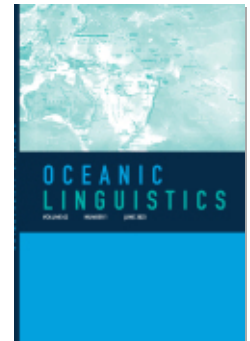
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A Note on Morphological Changes in Kaxabu

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Kaxabu is an Austronesian language of Taiwan with fewer than ten speakers, all of whom are over the age of seventy and mainly use Taiwanese Southern Min in daily life. A number of morphological changes are observed. The affixes <in> ‘perfective’ and *ta-...-i* ‘hortative’ have become fossilized and have been replaced by other more productive lexical or morphosyntactic processes. Reflexes of the Proto-Austronesian monosyllabic suffixes *-en ‘UVP’, *-an ‘UVL’, and *-i ‘IMP/DEP.UVL’ have become clitics while the disyllabic prefixes *pa-ka-* ‘CAUS (STAT)’ (reconstructed at the PAN level as **pa-ka-*) and *ma-ti-* ‘wear (AV)’ now also occur as (function/content) words *paka* ‘cause, make’ and *mati* ‘wear’. The aim of this paper is to examine these morphological changes, and more specifically, affix fossilization, which constitutes the last step of grammaticalization in paradigmaticity and deaffixation, which is an instance of degrammaticalization. These two processes are quite opposite and result from two concomitant factors which are causing language change: (i) language obsolescence, which induces fossilization, and (ii) language contact with Taiwanese Southern Min, which causes deaffixation.

Based on these findings, we demonstrate that Kaxabu uses syntactic processes more, and morphological processes less than other Formosan languages, and that it is changing from an agglutinating language to a more isolating language.

Keywords: Kaxabu; Formosan Language; Morphological Changes; Fossilization; Deaffixation; Taiwanese Southern Min; Agglutinating; Isolating

1. INTRODUCTION.¹ Kaxabu and Pazeh are two dialects of the same language which was coined “Pazeh–Kaxabu” by Ferrell (1968), part of the Austronesian languages of Taiwan, but not officially recognized by the government at the time of writing. Kaxabu is spoken in the northeast part of Puli Township, Nantou County, in Shoucheng, Danan, Wugonglun, and Niumianshan; Pazeh (also known as Pazih) is mainly spoken in Ailan (or Auran), in the western part of Puli. These two dialects are critically

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endangered with few remaining speakers, as the majority of the population speaks Taiwanese Southern Min (henceforth TSM). As of November 2021, there were only three known speakers of Pazeh—two rather fluent in their language, and the other only partially fluent²—and fewer than ten speakers of Kaxabu; no more than half are fully fluent and communicatively competent.³

The position of Kaxabu and Pazeh within the Austronesian phylogeny is still a matter of controversy and different hypotheses have been advanced. Without going into too many details, Li (1985) hypothesizes that Pazeh (and, by default, Kaxabu) is part of a “Northern group,” which comprises Atayalic and Northwestern. This later group further divides into Pazeh and Saisiyat (PS), on the one hand, Taokas, Babuza, Papora, and Hoanya (TBPH), on the other. Blust (1999a:45), on the other hand, supports the hypothesis that Pazeh is closely related to Saisiyat with which it forms a group labeled “Northwest Formosan” but, in a separate work (Blust 1999b:339), claims that Pazeh subgroups with the Western Plains languages which include TBPH and Thao. Sagart (2004) suggests that Pazeh and Saisiyat form a primary subgroup based mainly on the Proto-Austronesian (PAN) numeral system which he assumes to be quinary.

Because of the preference given to Pazeh,⁴ Kaxabu, which was first documented by Ferrell (1968), was long overlooked in the literature.⁵ A few lexical items were collected by Li and Tsuchida (2001, 2002), and a short text and traditional songs were recorded, many of which with a speaker born in 1908, Kunay Phuann (Li and Tsuchida 2002:88–90, 201–10). Studies on Kaxabu phonology and morphosyntax are found in Lim (2012, 2016, 2022) and Chen (2016).⁶

Though few comparative studies have been consistently done between these two dialects (see Chen 2018; Lim and Zeitoun 2023), it is interesting to note that

2. Our attempt to elicit data from one of the three speakers, Meiyu Pan, in June 2019 was extremely difficult and challenging. She mentioned that she was a late learner, and though she may have acquired Pazeh well enough to understand it (see Tong 2017), she did not speak it most of her life until she started to relearn it at the age of seventy.

3. The most fluent speaker, Tik-hing Phuann, died on August 13, 2021, at the age of ninety-six.

4. Blust (1999b:323) mentions that “the relatively clear-cut dialect distinction that Ferrell [1968] suggests should be viewed with caution.” Clear evidence show that they are distinct (though very close) dialects of a single language—referred to as Pazeh–Kaxabu, following Ferrell (1968)—spoken in different areas in Puli with some obvious variation, at least in terms of phonology and lexicon.

In her article, Chen (2016) refers to Kaxabu Pazeh as if Kaxabu was a dialect of the Pazeh language, as Formosanists conventionally do when referring to the dialect of a certain language, for example, Isbukun Bunun (i.e., the Isbukun dialect of the Bunun language), but there is no reason to stipulate the supremacy of one dialect over the other, and we do not have a name that encompasses both dialects in the literature other than Pazeh–Kaxabu, mentioned in Ferrell (1968).

5. Raleigh Ferrell did fieldwork in August 1967 and March 1969. He submitted an article in the summer of 1969, and it was published in 1970 but backdated November 1968 (R. Ferrell, p.c., July 21, 2019).

6. Chen’s (2016) fieldnotes are based on her interviews of Ing-lik Phuann (son of Kunay Phuann). Fieldwork for this paper was conducted mostly in Shoucheng, with different consultants, including Tik-hing Phuann (born in 1925), Ing-ngoo Phuann (born in 1930), Ing-lik Phuann (born in 1935), Giok-sim Tsu, and Miao-im Thoo (both born in 1936). Both elicited examples and short texts were recorded during a seven-year period, from 2014 to 2021 (see Lim 2022). Fieldwork was interrupted by the 2019 novel coronavirus (COVID-19) pandemic.

Pazeh seems to preserve more archaic phonological and morphosyntactic features than Kaxabu, which has undergone, among other things a loss of productivity of certain verbal and voice affixes and their replacement by other morphosyntactic devices. Another reason might be the timeline of data collection. Ferrell (1968) mentions that back in the late 1960s, it was clear that Pazeh was endangered, but it was still spoken on a daily basis. Data reported on this dialect by Li and Tsuchida (2001, 2002) were recorded over two decades in the 1970s and the 1980s, with fieldwork also done in the late 1990s with the last fluent speaker of Pazeh, Jin-yu Pan. The different epochs at which the data were collected in Pazeh and in Kaxabu might account for the discrepancies found between these two dialects, and we are unable to determine whether Pazeh would have followed the same path as Kaxabu, though it seems it could have (see footnote 26).

The aim of this paper is to examine morphological changes in Kaxabu, and more specifically, affix fossilization and deaffixation. While fossilization constitutes the last step of grammaticalization in paradigmaticity (Lehmann 2015:145), deaffixation represents an instance of degrammaticalization (Viti 2015). These two processes are quite opposite and result from two concomitant factors which are causing language change: (i) language obsolescence (which induces fossilization) and (ii) language contact (which causes deaffixation). We further demonstrate that Kaxabu uses syntactic processes more, and morphological processes less than other Formosan languages, and that it is changing from an agglutinating language to a more isolating language.

We will start with the major phonological and grammatical features of Kaxabu in section 2 as a background for the discussion that unfolds in the remainder of this paper. In section 3, we present an overview of Kaxabu affixation, followed by a discussion of affix fossilization in section 4 and deaffixation in section 5. Finally, we deal with the morphological changes that Kaxabu is undergoing and the reasons behind them in section 6.

2. THE MAJOR PHONOLOGICAL AND GRAMMATICAL FEATURES OF KAXABU.⁷

2.1. PHONOLOGICAL NOTES. Kaxabu has sixteen consonants⁸ and six vowels, as shown in tables 1 and 2 below, with orthographic symbols in italics

7. Abbreviations usually follow those found in the Leipzig Glossing Rules and include: AV, agent voice; CAUS, causative; CLF, classifier; COS, change of state; DEP, dependent; GEN, genitive; IMP, imperative; INCL, inclusive; INS, instrument; IPFV, imperfective; HORT, hortative; LIG, ligature; NEG, negation; NEUT, neutral; NMLZ, nominalization; PART, particle; PFV, perfective; PL, plural; RED, reduplication; RES, resultative; SG, singular; STAT, stative; TOP, topic; UV, undergoer voice; UVC, undergoer voice—circumstantial; UVL, undergoer voice—locative; UVP, undergoer voice—patient.

8. In lexical words, the glottal stop 'ʔ' is predictable in initial and final position. On the other hand, with the deaffixation of *=en* 'UVP', *=an* 'UVL', and *=i* 'IMP.AV/IMP.UVP', the glottal stop has become contrastive on the morphological level. Compare, for instance, *holak'en* [holakʔən] 'steal (UVP)' versus *saaken* [saakən] '(side) dish (INS.NMLZ)', *aitukuan* [aitukuan] 'seat (LOC.NMLZ)' versus *aitukuʔan* [aitukuʔan] 'sit (UVL)', *pakahalipit'i!* [pakahalipitʔi] 'A little thinner!' versus *tangiti* [taniti] 'angry'.

TABLE 1. KAXABU CONSONANTS (BASED ON LIM 2016, 2022).

		Bilabial	Alveolar	Velar	Glottal
Stop	vl	<i>p</i> /p/	<i>t</i> /t/	<i>k</i> /k/	
	vd	<i>b</i> /p/	<i>d</i> /d/	<i>g</i> /g/	
Nasal		<i>m</i> /m/	<i>n</i> /n/	<i>ŋ</i> /ŋ/	
Fricative	vl		<i>s</i> /s/	<i>x</i> /x/	<i>h</i> /h/
	vd		<i>z</i> /z/		
Lateral			<i>l</i> /l/		
Glide		<i>w</i> /w/	<i>y</i> /j/		

TABLE 2. KAXABU VOWELS (BASED ON LIM 2016, 2022).

	Front	Central	Back
High	<i>i</i> /i/		<i>u</i> /u/
Mid	<i>é</i> /e/	<i>e</i> /ə/	<i>o</i> /o/
Low		<i>a</i> /a/	

followed by the corresponding IPA symbols between slashes. The orthographic system used in this paper was developed by Lim (2015).

Note that all the consonants can appear in onset position word-initially and word-medially. Regarding the coda position, there are two things to note: (i) first, the voiced stops *b*, *d*, *g* /b, d, g/ and the voiced fricative *z* /z/ are never found in word-final position; (ii) with the exception of the nasals *m*, *ng*, *ŋ* /m, n, ŋ/, the other consonants can never appear as a coda in a nonfinal syllable. Blust (1999b) posits a voicing process in intervocalic position to account for this alternation in Pazeh, for example, Pazeh *malep* /maləp/ ‘close (AV)’ versus *alebi* /aləbi/ ‘close (IMP.UVP)’ but there is no such voicing (or devoicing) rule in Kaxabu (in contradistinction to what is stated in Blust [2015:364]).

There are six loan phonemes in Kaxabu which appear mostly in borrowings from TSM and a few words for which the source is unknown: three aspirated stops *ph* /p^h/, *th* /t^h/, *kh* /k^h/; two affricates *ts* /ts/, *tsh* /ts^h/; and the nasalized vowel *ann* /ã/, for example, *phing* /p^hiŋ/ ‘compare’, *sangkunthay* /saŋkunt^haj/ ‘lizard’ (< Hakka loanword), *kha* /k^ha/ ‘more’, *maputsiék* /maputsiek/ ‘dazzled’, *tshay* /ts^haj/ ‘where?’, *tubayann* /tubajã/ ‘tasteless’.

Words are usually disyllabic in Kaxabu, with the following productive syllable structures CV, CVV,⁹ CVN, and CVC. Note that CVC can only appear word-finally. If further affixed or reduplicated, words can consist of three or more syllables.

Stress falls on the final syllable, for example, *midem* [midóm] ‘sleep (AV)’, *wazu* [wazú] ‘dog’, with pitch intrinsically related to stress in that stressed syllables carry a high pitch (H) and unstressed syllables bear a low pitch (L). Starting from the right edge of a word, we get two types of syllables, with mid

9. A CVV syllable, as in *saaken* [saa.kən] ‘(side) dish’ or *dauik* [daw.ik] ‘eye’, consists of a heavy (or dimoraic) syllable that bears stress and high pitch.

FIGURE 1. PITCH TRACK OF *abàabasán* [L.H.L.M.H] ‘MIDDLE-AGED PERSON’ (PHUANN 2015:104; BASED ON LIM 2016:106).

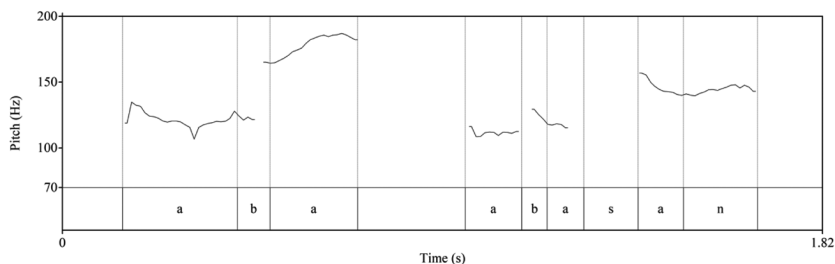
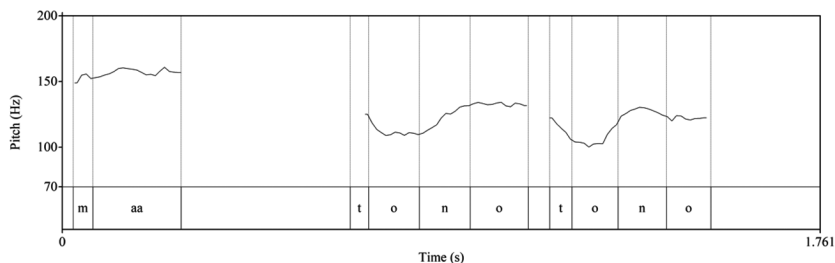


FIGURE 2. PITCH TRACK OF *màatonòtonó* [H.L.H.L.H] ‘FIGHT WITH EACH OTHER’ (PHUANN 2015:36; BASED ON LIM 2016:109).



pitch (M) representing transitions between iambic feet formed by a combination of LH syllables: if the first syllable is a light syllable, it will be unstressed with a low pitch (L), and if the first syllable is a heavy syllable, it will also be stressed with a high pitch (H). This is exemplified in (1).

- | | | |
|-------------------------------|---------------------------------------|--|
| (1) Lim | | (2016, 2022) |
| A. Initial low-pitch syllable | | B. Initial high-pitch syllable |
| a. 2σ L.H | <i>daxé</i> ‘ground’ | H.H <i>dàul̥k</i> ‘eye’ |
| b. 3σ L.M.H | <i>itukú</i> ‘to sit’ | H.L.H <i>sàabazú</i> ‘soap’ |
| c. 4σ L.H.L.H | <i>dinàlumán</i> ‘livestock’ | H.L.M.H <i>sàatikipú</i> ‘stairs’ |
| d. 5σ L.H.L.M.H | <i>abàabasán</i> ‘middle-aged person’ | H.L.H.L.H <i>màatonòtonó</i> ‘fight with each other’ |

The above two figures provide a representation of the pitch track of the two syllable types, with an initial low-pitch syllable (figure 1) and an initial high-pitch syllable (figure 2), in words with five syllables.

2.2. GRAMMATICAL FEATURES. We follow Zeitoun and Huang’s (2000) claim in assuming that there are two major verb classes in Kaxabu, dynamic versus stative, showing correlations between the morphological marking of different verb types (encapsulated in the dynamic/stative dichotomy) and their correspondent nonfinite forms (marked, for instance, by the

causative *pa-*).¹⁰ Dynamic verbs are prefixed by *mu-*¹¹ which has the phonological allomorphs, *mi-*, *me-*, and *m-*, depending on (i) the vowel of the first syllable of the base form and (ii) the presence or absence of an onset. While *mu-* attaches to roots which a vowel /u/ or /a/ in the first syllable (e.g., *mu-kudung* ‘hit, strike with s.t. heavy’, *mu-baxa* ‘give’), *me-* attaches to those with a vowel *e* in the first syllable (e.g., *me-seket* ‘rest’), and the prefix *mi-* to those with an initial *i* (e.g., *mi-kiliw* ‘call’). The prefix *m-* attaches to onsetless roots (e.g., *m-udan* ‘rain’). Stative verbs are usually marked by *ma-* (as in *ma-busuk* ‘drunk’), *ha-* (e.g., *ha-teken* ‘short’),¹² or zero (e.g., *sazian* ‘bad’).

Kaxabu features a reduced voice system (AV-UVP),¹³ and two different word orders: the (originally canonical) VXS word order,¹⁴ as in (2), and

10. Zeitoun and Huang (2000) show that the distinction between dynamic and stative verbs is marked on the morphological level in many Formosan languages: dynamic verbs are marked by <um> and its allomorphs (e.g., Pazeh *mi-kita* ‘see (AV)’) when they occur as finite (i.e., as matrix verbs in affirmative clauses or when unaffixed), and by Ø in their nonfinite (or bare) forms (e.g., *pa-kita* ‘make... see’). On the other hand, stative verbs are marked by *ma-* or Ø- in their finite form (e.g., Pazeh *b<in>aged* ‘used to be fat’) and *ka-* in their nonfinite form, as in Pazeh *pa-ka-baged* ‘make... fat’. In languages which preserve the *ma-* ~ *ka-* (or Ø- ~ *ka-*) alternation, the prefix *ka-* occurs when a verb is marked as negative, causative, imperative, irrealis, in nominalized clauses, and so on.

11. There are two things to note: first, there is no <um> infix in Kaxabu; rather, AV marking is marked by *mu-* and its allomorphs; second, there is another prefix *mu-*, which we treat as a resultative prefix. This resultative prefix was recorded in very few instances, including *mu-aping* ‘torn’, *mu-payak* ‘wet’, *mu-asak* ‘broken’, *mu-ikat* ‘broken off’. Note that it only attaches to stative-like stems; in turn, they take the causative prefix *pa-ka-* that attaches to stative verbs rather than *pa-*, which attaches to dynamic verbs (see Lim 2022:261). Compare (i) and (ii):

(i) Causative form of resultative verbs

- | | | | | | |
|----|---|-------------------|---|-----------------|--------------|
| a. | <i>pa-ka-muaping</i> /* <i>pa-aping</i> | ‘make torn’ | < | <i>mu-aping</i> | ‘torn’ |
| b. | <i>pa-ka-mupayak</i> /* <i>pa-payak</i> | ‘make wet’ | < | <i>mu-payak</i> | ‘wet’ |
| c. | <i>pa-ka-muacak</i> /* <i>pa-asak</i> | ‘make broken’ | < | <i>mu-asak</i> | ‘broken’ |
| d. | <i>pa-ka-muiikat</i> /* <i>pa-ikat</i> | ‘make broken off’ | < | <i>mu-ikat</i> | ‘broken off’ |

(ii) Causative form of dynamic verbs

- | | | | | | |
|----|---|-----------------|---|------------------|--------------|
| a. | <i>pa-kudung</i> /* <i>pa-ka-mukudung</i> | ‘make... knock’ | < | <i>mu-kudung</i> | ‘knock (AV)’ |
| b. | <i>pa-tuting</i> /* <i>pa-ka-mututing</i> | ‘make... beat’ | < | <i>mu-tuting</i> | ‘beat (AV)’ |
| c. | <i>pa-zakay</i> /* <i>pa-ka-muzakay</i> | ‘make... walk’ | < | <i>mu-zakay</i> | ‘walk (AV)’ |

12. As mentioned by D. Kaufman (p.c., January 19, 2022), *ha-* is a reflex of what Blust and Trussel (2020) reconstruct as PMP **ha-* ‘adjective prefix for adjectives of measure’. While we do not adhere to the adjectival function given herein, we cannot reject the evidence of the cognacity.

13. We were able to uncover locative undergoer voice (UVL), but in only one example, as follows:

- (i) [yaku=a aba]_{NSA/S} kaidisiw **a-ituku**=’an.
 1SG.NEUT=LIG father PREP:there IPFV-sit=UVL
 ‘My father sits/sat there.’

Note that in many undergoer voice (UV) clauses, the nonsubject actor (NSA) has been reanalyzed as a subject (S), as in AV clauses, where the subject is an actor (A), as demonstrated in the comparison between (i) and (ii).

- (ii) [yaku=a aba]_{A/S} kaidisiw **m-ituku**.
 1SG.NEUT=LIG father PREP:there AV-sit
 ‘My father sits/sat there.’

14. VXS is one of the two canonical word orders, along with VSX, among the Formosan languages. Besides Kaxabu/Pazeh (Lim 2022), two other languages exhibit a more or less flexible SVX word order, Saisiyat (Yeh 1991, 2000, 2018; Zeitoun, Chu, and kaybaybaw 2015; among others) and Thao (Blust 2003b; Wang 2004; Jean 2018).

the now more-commonly occurring SVX word order, as in (3) (S standing for a noun or a pronoun representing the nominative subject, which is unmarked when appearing in clause-initial position; and X standing for the object in an AV clause, usually unmarked, and a nonsubject actor, which is usually preceded by the case marker *ni* in UVP clauses, if a noun, or a genitive pronoun).

(2) KAXABU (Lim 2022)

a. mu-ngazip yaku ha=ki¹⁵ wazu.
 AV-bite 1SG.NEUT EMPH=NOM dog
 ‘The dog bit me.’ (p. 157)

b. tuting=’en naki lia=ki wazu.
 beat=UVP 1SG.GEN COS=NOM dog
 ‘I beat the dog.’ (p. 129)

(3) KAXABU

a. aba mu-tuting akhéhén.¹⁶
 father AV-beat child
 ‘Father beat the child.’

b. binayu=a bauzak kumuk=’en naki=a aba=lia.
 mountain=LIG pig catch=UVP 1SG.GEN=LIG father=COS
 ‘My father caught the pig.’ (Lim 2022:313)

While this change in word order can be attributed to the influence of TSM, it is also likely that case syncretism—with the loss of the distinction between subject and nonsubject (patient) arguments—might have been the motivation for the occurrence of the subject in initial position.

3. AN OVERVIEW OF KAXABU AFFIXATION. As in other Formosan languages, Kaxabu exhibits four types of affixes: prefixes, which represent the majority of affixes, for example, *mu-kusa* ‘go (AV)’, infixes, for example, *m<in>eken* ‘eat (PFV.AV)’, suffixes, for example, *depex-an* ‘school’, and circumfixes, for example, *ta-kan-i* ‘let’s eat’, two or more of which sometimes co-occur, as in *m-a-ituku-ay* ‘will sit’ (*m-* ‘AV’, *a-* ‘IPFV’, *-ay* ‘IRR’). Following Zeitoun, Chu, and kaybaybaw (2015:82), these affixes are divided into two types: grammatical affixes which indicate verb classes, voice, mood, aspect, or induce valency change; and lexical affixes which provide additional meaning to the base. As shown in table 3, nineteen prefixes, one infix, four suffixes, and one circumfix have been recorded so far in Kaxabu. Twenty-five affixes have thus been recorded in Kaxabu compared to 68 in Paze (Li and Tsuchida 2001:10–19), 147 in Mantauran Rukai (Zeitoun 2007: 465–89), 201 in Thao (Blust 2003b:91–199), 318 in Saisiyat (Zeitoun and

15. The morpheme =*lia* [lja] ‘COS’ is a phrasal/clausal clitic which usually attaches on the verb but may also occur at the end of a clause. It is attracted by other morphemes, such as *ki* ‘NOM’ or *ka* ‘TOP’, and together they form a free (function) word, that is, as they are made up of two syllables, they are not cliticized to the previous unit (as demonstrated by the assignment of stress).

16. The doublet form of *akhéhén* is *akhéhan* ‘child’.

TABLE 3. GRAMMATICAL/LEXICAL AFFIXES.

Category and function	Affixes	Example		
Grammatical affixes				
1. Verb classes	ma-	stative	ma-anu	far
	~ ka-	stative	~ ka -lamik='en	get a cold (UVP) [†]
	ha-	stative [†]	ha -lupas	long
2. Voice	mu-	actor voice	mu -tuting	beat (AV)
	-en	undergoer voice–patient	kudis- en	get wounded (UVP) [#]
3. Aspect	<in>	perfect	m< in >eken	ate (PFV.AV)
	a-	imperfective	m- a -udan	be raining
4. Mood	-ay	irrealis	ba-baiw- ay	will buy
	-i	imperative	patus- i	Shoot!
	ta- . . . -i	hortative [§]	ta -kan- i	Lets eat!
5. Induce valency change	maa-	reciprocal	maa -kudu(ng) ~ kudung	fight
	pa-	causative (dyn. verbs)	pa -zakay	make . . . leave
	pa-ka-	causative (stat. verbs)	pa-ka -isilaw	make . . . white, whiten
6. Nominalization	saa-	instrument nominalization	saa -ken	side dish
	-an	locative	padawan- an	bathroom
Lexical affixes (arranged in alphabetical order)				
ma-	to wear	ma -siatu	wear clothes	
maka-	to bring forth	maka -madu	grow fruit	
mana-	to wash	mana -kaaw	wash feet	
masi-	to wear (AV)	masi -dalet	wear inside out (AV)	
mata- (+ Numeral)	times	mata -dusa	twice	
mati-	to wear	mati -kakamus	wear a hat	
mau-	to give birth	mau -khéhan	give birth to a child	
maxa-	to produce, become	maxa -takat	become a teacher	
mia- (+ Direction)	towards	mia -dini	here	
si- (+ Location)	to go	si -tshay	go where?	
~ masi-	to go (into), move (AV)	~ masi -kaum	enter house (AV)	

[†] The prefix *ka-* STAT appears when a stative verb appears in UVP form, for example, *ka-lamik*=[']en ‘get cold (UVP)’, is causativized, for example, *pa-ka-busuk* ‘make . . . drunk’ (see [Blust 1999b](#), for a different analysis, where *ka- . . . -en* and *ka- . . . -an* in Pazeh are analyzed as circumfixes).

[‡] A double form of *ka-lamik*=[']en ‘get a cold (UVP)’ is *ka-lamik-an* ‘get a cold (UVL)’, the latter from being identical to that found in Pazeh (see [Li and Tsuchida 2001](#):138).

[#] We show in section 5 that the UVP marker *-en* has become grammaticalized as =[']en.

[§] Examples that demonstrate (i) *ta- . . . -i* should be treated as a circumfix and that (ii) *ta-* cannot be interpreted as the first-person plural pronoun are the following: *takani nimisiw!* ‘(You) Eat his!’ ([Li and Tsuchida 2001](#):285) and *tausai=lia=ku!* ‘I am leaving!’.

[kaybaybaw 2019](#)). Kaxabu therefore has far fewer affixes than not only Pazeh but also any other Formosan language.

[Li \(1977\)](#) shows that in many Formosan languages, suffixed words may undergo certain morphophonemic alternations, for example, Maga Rukai *ibróo* ‘to fall’ > *ibórv-a!* ‘Fall!’ (p. 382), Paran Seediq *sérus* ‘to wipe’ > *surés-i!* ‘Wipe!’ (p. 395). Likewise, in Kaxabu, when a base is suffixed, two

phonological characteristics can be observed: (i) the word undergoes resyllabification, (ii) stress shifts rightward onto the final syllable (following Kaxabu regular stress assignment), the word complying with an expected pitch pattern, as shown in section 2. For example, when the root [depex] is suffixed by *-an* ‘locative nominalization’, becoming *depex-an* ‘school’, the last consonant of the stem becomes the onset of the final syllable of the derived word, yielding [də.pə.xan] rather than *[də.pəx.ʔan]; its stress shifts rightward onto the final syllable; and the pitch pattern is low–mid–high as expected, since the first syllable of the word is light. Consider example (4) and the pitch tracks in figures 3 and 4 below:

- (4) KAXABU(Lim 2022:64)
- a. *me-depe*¹⁷ [mə.də.pə] [L.M.H] ‘to study’
- b. *depex-an* [də.pə.xan] *[də.pəx.ʔan] [L.M.H] ‘school’

Having provided a short overview of affixation as a general process in Kaxabu, we will now concentrate on two distinct morphological changes in the following two sections, affix fossilization and deaffixation.

FIGURE 3. PITCH TRACK OF *medepe* ‘TO STUDY’ [L.M.H] (PHUANN 2015, #09-051) (BASED ON LIM 2022:64).

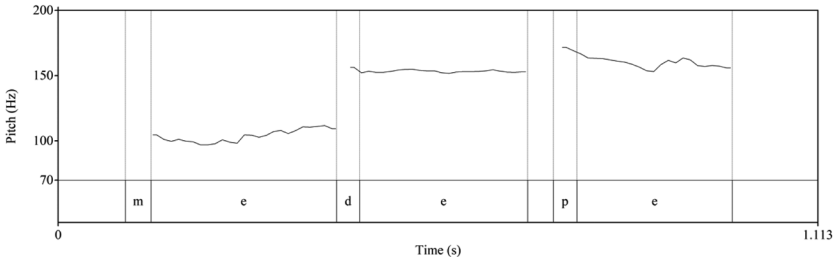
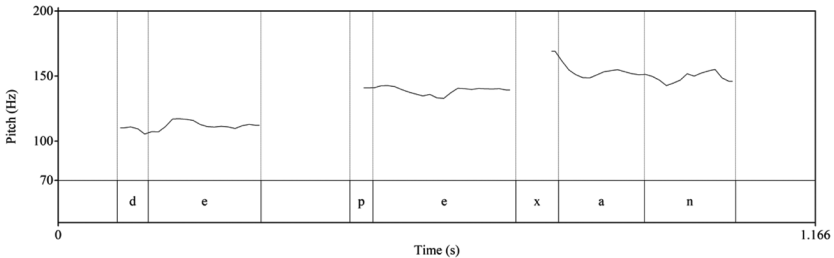


FIGURE 4. PITCH TRACK OF *depexan* ‘SCHOOL’ [L.M.H] (PHUANN 2015, #09-048) (BASED ON LIM 2022:64).



17. There are two pronunciations for the verb ‘study’, *me-depex* and *me-depe*.

4. AFFIX FOSSILIZATION. Kaxabu is undergoing what Lehmann (2015:141) refers to as “morphological degeneration,” in that it is losing derivational affixes, many of which have become nonproductive and only appear in fossilized forms. This loss, illustrated in this section by the fossilization of <in> ‘perfective’ and *ta-...-i* ‘hortative’, reflects a change in status, with the emergence of new morphosyntactic devices replacing those that have been lost, as shown in table 4.

These changes are explained in more detail below.

4.1. <in> ‘PERFECTIVE’. The infix <in> ‘perfective’ is a reflex of PAN *<in> ‘perfective’ (Blust 2013:385), and is found on verbs¹⁸ in languages such as Atayal (Huang 1995; Huang and Hayung 2018:101), Saisiyat (Zeitoun, Chu, and kaybaybaw 2015; Yeh 2000), Thao (Jean 2018:98), Bunun (Li 2018:288), Paiwan (Huang 2012:92), Kananavu (Tsuchida 1976:44), and Pazeh (Ferrell 1968:78; Lin 2000). In Pazeh, <in> similarly marks the perfective, and can co-occur with AV and UV, as shown in (5).

- (5) PAZEH(Li and Tsuchida 2001)
- a. *m<in>a-baza~baza imisiw.*
STAT<PFV>-RED~know 3SG.NEUT
‘He was very knowledgeable.’(p. 24)
- b. *k<in>exed-an ni abua naki=a rima.*
<PFV>cut-UVL GEN Abua 1SG.GEN=LIG hand
‘My hand was cut by Abua.’(p. 30)

Li and Tsuchida (2001:39) only provide one example of <in> co-occurring with *-en*, with no accompanying sentence example (6a).¹⁹ The infix <in> used to also be found co-occurring with *su-* ‘UVC’ when Naoyoshi Ogawa was doing fieldwork in the early 1930s, as shown in (6b) (see Li and Tsuchida 2001:42). It can also carry a portmanteau function and either encode UVP or nominalization as in (6c) and (6c’).

TABLE 4. AFFIX FOSSILIZATION AND CORRESPONDING PERIPHRASTIC EXPRESSIONS.

		Morphological process Nonproductive	Syntactic process Productive
<in>	PFV	Verb <in>	Verb _{AV/UVF} + =lia ‘already’
			Verb _{AV} + muuput ‘finish’ (+ =lia ‘already’)
			muuput ‘finish’ =a + Verb _{AV} + (=lia ‘already’)
ta-...-i	HORT	Verb <ta-...-i>	<i>alo maaedet</i> V _{AV} ...! ‘Come together...!’

18. The infix <in> occurs on nominalized forms (but not on verbs) in Puyuma (Teng 2008), Rukai (Li 1973), and Saaroa (Teng and Zeitoun 2016).

19. The infix <in> is usually not found with the UVP suffix *-en*, but it is found in such environments in certain languages, for example, Saisiyat, for example, *sh<in>bet-en* ‘was beaten (PFV.UVP)’. It has only been reported in a single example in Pazeh (questioned by Blust 1999b:352), so it is difficult to determine whether this usage was productive in an earlier stage of the language.

(6) PAZEH

(Li and Tsuchida 2001)

- a. b<in>aked-en
 <PFV>beat-UVF
 'to have been beaten' (p. 29)
- b. imini=a sa-bazu ka s<in>u-bazu siatu.
 this=LIG INS.NMLZ-wash TOP <PFV>UVC-wash clothes
 'The washing (thing, e.g., the soap) was used to wash clothes.' (p. 278)
- c. t<in>ingi rahuay=siw.
 <PFV,UVF>seize hawk=2SG.NOM
 'You were picked up by a hawk.' (p. 375)
- d. imini=a alaw ka nimu(=a) k<in>umux.
 this=LIG fish TOP 2PL.GEN(=LIG) <PFV,UVF>catch
 'These fish were what you caught.' (p. 37)

We can expect that the function of <in> in Kaxabu must have been the same as in Pazeh. However, in today's Kaxabu, the infix <in> 'perfective' no longer encodes voice or nominalization, and has not been observed co-occurring with the UV suffix *-en* or the UV clitic *=en*. In fact, this infix is no longer productive at all, and has only been found in two elicited examples, *m<in>edepe* 'have studied' and *m<in>eken* ~ *m<en>eken* 'have eaten'. Note, in passing, that the form *m<en>eken* reflects anticipatory assimilation of /i/ to schwa. No other verbs can be infixed with <in>, and the concept of perfectivity in Kaxabu is now encoded outside the verb by the aspect marker *=lia* 'COS', which is productive and also occurs in Pazeh. Therefore, while the Pazeh examples given in table 5 are all grammatical; the Kaxabu equivalents are all ungrammatical except for the form *m<in>eken* ~ *m<en>eken* mentioned above, that is, they are not found in the texts that were collected and are not accepted by any speaker. They are thus preceded by an asterisk * to mark their ungrammaticality.

In addition to the clitic *=lia* 'COS', two verbs are found—*muuput* 'finish (AV)' and *iak* 'good'—which, while not marking perfectivity per se, still emphasize the telicity of an event.

To emphasize the terminal phase of an event, Kaxabu makes use of the verb *muuput* 'finish (AV)', which can either precede or follow the verb in a serial verb construction, as shown in (7). When *muuput* 'finish (AV)' precedes the main

TABLE 5. <in> IN KAXABU AND PAZEH.

	Kaxabu (Tik-hing Phuann)		Pazeh (Lin 2000:81)	Gloss
a.	m<in>eken~ m<en>eken	meken=lia m<in>eken=lia	m<in>eken m<in>eken=lia	'have eaten'
b.	*m<in>u-dok	mu-dok=lia	m<in>u-daux	'have drunk'
c.	*m<in>u-zakay	mu-zakay=lia	m<in>u-zakay	'have walked'
d.	*m<in>i-kita	mi-kita=lia	m<in>i-kita	'have seen'
e.	*m<in>a-busuk	ma-busuk=lia	m<in>a-busuk	'have drunk'

verb, it is followed by the ligature =*a*, as in (7a,b), but not when it follows it, as in (7c,d).²⁰

(7) KAXABU (Lim 2022:110)

- a. *yaku mu-uput*(=a) sii~sinaw siatu=lia.*
 1SG.NEUT AV-finish*(=LIG) RED~wash[AV] clothes=COS
 ‘I have already finished washing clothes.’
- b. *yaku mu-uput*(=a) mu-dawan=lia.*
 1SG.NEUT AV-finish*(=LIG) AV-take.a.shower=COS
 ‘I have already finished showering.’
- c. *mi-kita babizu*(=a) mu-uput=lia.*
 AV-read book*(=LIG) AV-finish=COS
 ‘(I) have already finished reading (a) book.’
- d. *yaku mu-dawan*(=a) mu-uput=lia*
 1SG.NEUT AV-take.a.shower*(=LIG) AV-finish=COS
 ‘I have already finished showering.’

The form *mu-ruput*²¹ ‘to finish’ is also found with the same word order in Paze, where the ligature =*a* is optional, as shown in (8).

(8) PAZE (Li and Tsuchida 2001:26)

- a. *mu-ruput(=a) me-ken dadas.*
 AV-finish(=LIG) AV-eat sweet.potato
 ‘(He/she) finished eating sweet potatoes.’
- b. *yaku mu-kukusa mu-ruput=lia.*
 1SG.NEUT AV-work AV-finish=COS
 ‘I have already finished working.’

As mentioned above, another verb that can be used to convey the termination of an event is *iak* ‘good’, which only occurs after the main (lexical) verb, as in (9).

(9) KAXABU (Lim 2022:236)

- yaku=a aba mu-kukusa iak=lia.*
 1SG.NEUT=LIG father AV-work good=COS
 ‘My father has finished his work.’

Note that this construction is not found in Paze, and it is most likely a calque from TSM. In TSM, completion can be encoded through a phase complement which signals that the action expressed by the verb has come to an end. One of these phase complements is *hó* ‘good’ (see Wu and Wang 2020),

20. Note that the ligature =*a* in (7a) is found in other constructions, including after the negatives *kuang* ‘negative existential’ and *nang* ‘not to want’, as in (i):

(i) KAXABU (Lim 2022:168)

- a. *ohoza ka kuang*(=a) saanu mu-kukusa...*
 in.the.past TOP not.exist*(=LIG) use.for AV-work
 ‘In the past, there was no work to do...’
- b. *ma-muduk=a kaaw=lia, nang*(=a) mu-zakay=lia.*
 STAT-swollen=LIG foot=COS not.to.want*(=LIG) AV-walk=COS
 ‘(My) feet are swollen and (I) do not want to walk.’

21. There is a sound change called “flap drop” in Kaxabu, **r* > Ø, see Li and Tsuchida (2001:2) and Lim (2016:77–83).

which Kaxabu has calqued, as shown by a comparison between (10a) and (10b).

(10) KAXABU (Lim 2022:237)

- a. *yaku=a apu mu-dawan iak=lia.*
 1SG.NEUT=LIG grandfather AV-take.a.shower good=COS
 ‘My grandfather has taken a shower.’
- b. TSM
guá=ê a-kong sé hó=ah.
 1SG=POSS grandfather wash well=COS
 ‘My grandfather has washed.’

4.2. *ta-...-i* ‘HORTATIVE’. In Pazeh, there are two ways to encode the hortative, *ta-...-i* (HORT.AV/UVP) in AV clauses, and *ta-...-aw* (HORT.UVP) in UVP clauses, as shown in (11).

(11) PAZEH

- a. *wailu ta-kan-i!*
 quickly HORT-eat-HORT.AV
 ‘Let’s eat at once!’ (Li and Tsuchida 2001:141)
- b. *ta-kazip-i saaken!*
 HORT-pick.up.food.with.chopsticks-HORT.AV side.dish
 ‘Let’s help ourselves to the dishes!’ (Lin 2000:74)
- c. *ta-baked-aw (ki balan)!*
 HORT-beat-HORT.UVP NOM cat
 ‘Let’s beat the cat!’ (Li and Tsuchida 2001:37)
- d. *ta-kita’-aw!*
 HORT-see-HORT.UVP
 ‘Let’s look at it!’ (Li and Tsuchida 2001:285)

Only one form containing *ta-...-i* has been found in Kaxabu, *takani* ‘Let’s eat!’ (heard in conversation), as shown in (12).²² The UVP hortative *ta-...-aw* has not been reported in Kaxabu; examples as those in (12b) have been rejected firmly by our consultants.

(12) KAXABU (Lim 2022)

- a. *ta-kan-i sumay!*
 HORT-eat-HORT.AV rice
 ‘Let’s eat!’
- b. **ta-dok-i inusat!*
 HORT-drink-HORT.AV wine
 ‘Let’s drink wine!’

There is no other morphological form to express the hortative in Kaxabu. While there is no direct functional replacement, there is an equivalent phrase introduced by the verb *alo* ‘come (IMP.AV)’ in the imperative (with the addressee as the subject), immediately followed by the verb *maaedet*

22. Li and Tsuchida (2002:88) recorded another example, *ta-dudu-i* ‘Let’s talk’, in a text narrated by Kunay Phuann in 1988.

‘together’ and another lexical verb in a serial verb construction, as in (13a,b).

(13) KAXABU

- a. **alo** *maaedet* *meken* *sumay*!
 come.IMP.AV AV.together AV.eat rice
 ‘Come to eat together!’
- b. **alo** *maaedet* *mu-dok* *inusat*!
 come.IMP.AV AV.together AV-drink wine
 ‘Come to drink together!’

4.3. INTERIM SUMMARY. We have shown that in Kaxabu, affix fossilization is caused by language obsolescence. The affixes *<in>* and *ta-...-i* are no longer productive and have been replaced by other syntactic processes, the first by the clitic =*lia* ‘COS’ and the second by a verb that is part of a serial verb construction. The fact that the only verb that can take these two affixes is ‘eat’, cf. *m<in>eken* ‘have eaten’ (cf. *meken* ‘eat’) and *ta-kan-i* ‘Let’s eat!’ might be because it represents a concept that is of utmost cultural importance in daily life, and is found with a much higher frequency in daily conversation.²³

We turn in the next section to the notion of “deaffixation.”

5. DEAFFIXATION. “Deaffixation” refers to a process whereby affixes are no longer affixes, but become clitics and words (Jeffers and Zwicky 1980; Nevis 1986; Viti 2015). The occurrence of deaffixation in Formosan languages has not been reported in the literature, though Chen’s (2016) analysis presupposes it.

Kaxabu does not only exhibit an affix-to-word cline but also displays “the less frequent and also more controversial” affix-to-clitic cline (Viti 2015:398): three affixes (*-en* ‘UVP’, *-an* ‘LOC.NMLZ’, and *-i* ‘IMP.AV’) have become clitics (=‘*an*’ ‘UVL’,²⁴ =‘*en*’ ‘UVP’, and =‘*i*’ ‘IMP.AV/IMP.UVP’), and two others have become free words (*paka* ‘cause, make’ and *mati* ‘to wear’). There are two things to note: as shown in (14), (i) the continued use of these morphemes as affixes, albeit more or less productively; (ii) a possible change in function. For instance, the suffix *-an* is understood as a nominalizer, as opposed to =‘*an*’, which is a voice marker; *-i* signals the imperative AV, while =‘*i*’ marks the imperative AV and UVP; *pa-ka-* encodes the causative of stative verbs, a function also found in *paka*, which allows the occurrence of the object to the left of the verb, like the disposal marker *kā* in TSM and *bǎ* in Mandarin Chinese (see section 5.2.1).

23. D. Kaufman (p.c., January 19, 2022) notes that in many languages of Borneo where the infixes *<um>* and *<in>* have also ceased to be productive, frozen instances in reflexes of the PAN root *kaen* ‘eat’ are commonly found.

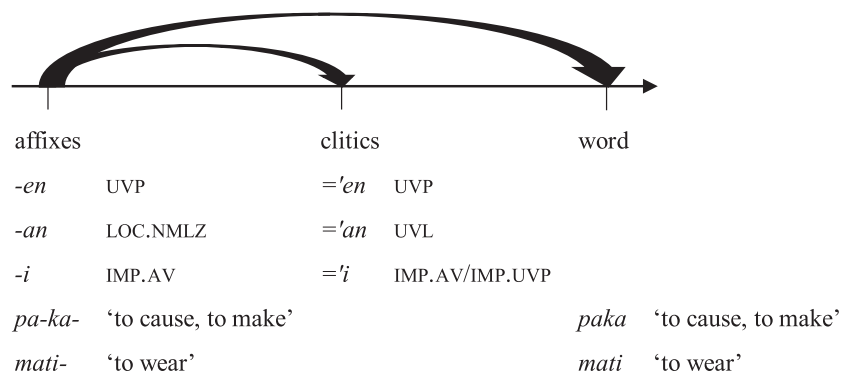
24. The voice clitic =‘*an*’ marking UVL is far less productive than =‘*en*’ ‘UVP’ and =‘*i*’ ‘IMP.AV’.

- (14) a. a-ituku-**an** 'seat (LOC.NMLZ)'
 a'. a-ituku=**'an** 'sit (UVL)'
 b. kudis-**en** 'get wounded (UVP)'
 b'. maa=**'en** 'take (UVP)'
 c. patus-**i** 'Shoot! (IMP.AV)'
 c'. meken=**'i**²⁵ 'Eat! (IMP.AV)'
 c''. kani=**'i** 'Eat this! (IMP.UVP)'
 d. **pa-ka**-teehen 'blacken (CAUS.AV)'
 d'. **paka** ... teehen 'make ... black (CAUS)'
 e. **mati**-kakumus 'wear a hat (AV)'
 e'. **mati** made=a kakumus 'wear a crash helmet'

These two clines can be explained in terms of syllable count. We have mentioned in section 2 that in Kaxabu (as in most Formosan languages), content words must be minimally disyllabic. Clitics derived from affixes (cf. =*'an* 'UVL', =*'en* 'UVP', and =*'i* 'IMP.AV/IMP.UVP') are monosyllabic—thus, it is very unlikely that they become free—while words derived from affixes are disyllabic (cf. *paka* 'cause, make' and *mati* 'to wear'). Figure 5 illustrates deaffixation in Kaxabu.

Deaffixation is not found in Pazeh (Ferrell 1968; Blust 1999b; Li and Tsuchida 2001; Lin 2000), where *-en* 'UVP', *-i* 'IMP.AV/IMP.UVP', *pa-ka*- 'CAUS (of stative verbs)', and *mati*- 'to carry, to wear' are affixes rather than clitics or independent words.²⁶

FIGURE 5. DEAFFIXATION IN KAXABU.



25. It is worth noting that most verbs marked as imperative with =*'i* 'IMP.AV/IMP.UVP' do not take the AV M-prefix, as is expected and shown in (16). However, certain stems, such as *meken* 'eat' and *midem* 'sleep', are invariable, and keep the M-prefix, cf. *meken*=*'i* 'Eat! (IMP.AV)' and *midem*=*'i* 'Sleep! (IMP.AV)'. A similar situation holds with UVP-marked verbs with =*'en*. Compare *apat*=*'en* 'pile up (UVP)' (see also the examples given in (15)), with stems such as *modok*=*'en* 'drink (UVP)' and *maa*=*'en* 'take (UVP)' (Lim 2022).

26. Though there is no report in the literature of a similar phenomenon in Pazeh, it is noteworthy that during a fieldtrip in the Pazeh community in June 2019, we found that Ms. Pan Meiyu used suffixes as clitics, as in: *baket*=*'i* 'Hit!', *baabaket*=*'ay* 'will hit', *baabaket*=*'en* 'will be beaten (UVP)', *baabaket*=*'an* 'place of hitting (LOC.NMLZ)', *sa-sumat*=*'an* 'church

5.1. AFFIXES BECOMING CLITICS. A clitic is a bound form that cannot stand alone in an utterance and is phonologically dependent upon a neighboring word (Zwicky and Pullum 1983; Spencer and Luís 2012). Reflexes of PAN *-en ‘patient voice’, *-an ‘locative voice’, and *-i ‘imperative’ (see Blust 2013:395, 498) have become enclitics in Kaxabu: *-en* ‘UVP’ > =’en ‘UVP’, *-an* ‘LOC.NMLZ’ > =’an ‘UVL’ and *-i* ‘IMP’ > =’i ‘IMP.AV/IMP.UVP’, phonologically dependent upon the preceding word, as shown in (15) and (16).

- (15) KAXABU (Phuann 2015)
- | | | | |
|----|------------|-----------------|----------|
| a. | apat=’en | ‘pile up (UVP)’ | #02E-075 |
| b. | doko=’en | ‘lift (UVP)’ | |
| c. | holak=’en | ‘rob (UVP)’ | #12A-010 |
| d. | kumuk=’en | ‘catch (UVP)’ | |
| e. | mudok=’en | ‘drink (UVP)’ | |
| f. | ngazip=’en | ‘bite (UVP)’ | #02B-024 |
| g. | sinaw=’en | ‘wash (UVP)’ | |
| h. | tuting=’en | ‘beat (UVP)’ | #02C-029 |
- (16) KAXABU (Phuann 2015)
- | | | | |
|----|-----------|-------------------------|----------|
| a. | alep=’i | ‘Close (it)! (IMP.AV)’ | #05-118 |
| b. | iliw=’i | ‘Carry (it)! (IMP.AV)’ | #08-084 |
| c. | asu=’i | ‘Bring (it)! (IMP.AV)’ | #08-087 |
| d. | ituku=’i | ‘Sit! (IMP.AV)’ | #05-081 |
| e. | dadang=’i | ‘Roast (it)! (IMP.AV)’ | #04B-024 |
| f. | damay=’i | ‘Lick (it)! (IMP.AV)’ | #04B-047 |
| g. | ngazip=’i | ‘Bite (it)! (IMP.AV)’ | #04B-052 |
| h. | silik=’i | ‘Filter (it)! (IMP.AV)’ | #04C-005 |
| i. | sian=’i | ‘Fry (it)! (IMP.AV)’ | #04B-021 |

The following pieces of evidence support our analysis. First, phonologically, when an enclitic is attached to a base, the phonological characteristics are different from affixation (see section 3): (i) the word does not undergo resyllabification, (ii) stress does not shift rightward onto the last syllable of the word, which does not comply with the expected pitch. In *ngazip=’en* ‘be bitten’,²⁷ the coda of the final syllable of the stem *p* does not become the onset of the new syllable, since the enclitic =’en begins with a glottal stop. Stress still remains on the syllable *zip*. The first syllable of this word is light, so we would expect the pitch to be [L.M.H.], but instead it is [L.H.L.]. This is evidenced by a comparison of the spectrograms in figures 6 and 7 (from Lim 2016:129). In figure 6,

(LOC.NMLZ)’. If *-i*, *-en* and *-an* were suffixes (as we would expect them to be), the above verbs would be pronounced as **[bakedi] ‘Hit!’, **[baabakeday] ‘will hit’, **[baabakeden] ‘will be beaten’, **[baabakedan] ‘place of hitting’, **[sasumadan] ‘church’, which is not the case. Since the focus of this study is Kaxabu, the Pazeh data will not be further discussed here.

27. It is worth noting that the Pazeh cognate of this word is *ngazib-en* (see Li and Tsuchida 2001:19), rather than *ngazip-en*. This is because the word is from **ngazib (see Ferrell 1968:86) with a voiced coda, which is only devoiced in word-final position (see Lin 2000:55; Blust 1999b). In Kaxabu the word is pronounced [ŋa.zip.ʔən] (< *ngazip=’en*) instead of **[ŋa.zib.ʔən] (< **ngazib=’en), which shows that =’en has evolved into a clitic, independent from the root.

FIGURE 6. PITCH TRACK OF *mungazip* ‘TO BITE’ [L.M.H]
(ING-LIK PHUANN, FROM LIM 2016:129).

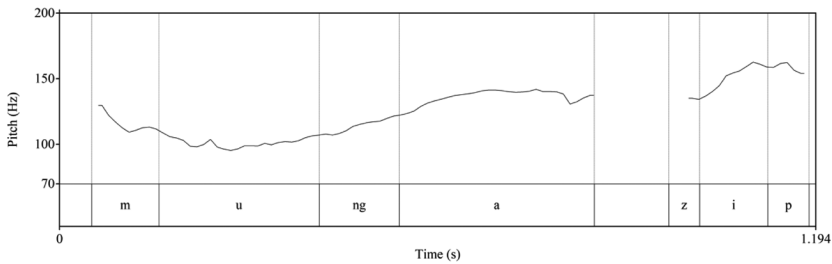
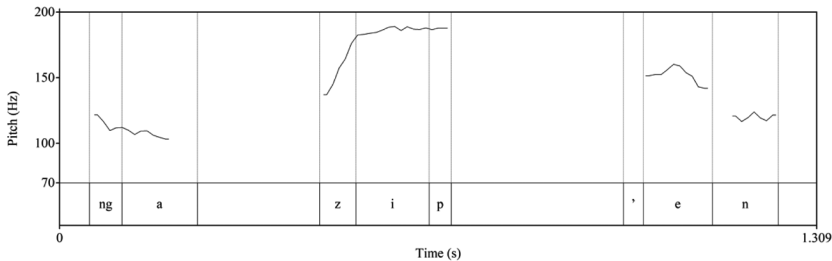


FIGURE 7. PITCH TRACK OF *ngazip*=‘en ‘BE BITTEN’ [L.H.L]
(ING-LIK PHUANN, FROM LIM 2016:129).



the trisyllabic word *mungazip* exhibits the expected pitch LMH, while in figure 7, *ngazip*=‘en exhibits a pitch contour of LHL instead of the expected LMH, as in *depex-an* ‘school’, as in figure 4.

We mentioned in section 5 that both *-en* ‘UVP’ and *-i* ‘IMP.AV’ are still used as suffixes. They attach to words ending in a sibilant /s/, triggering resyllabification, for example, *kiusen* ‘seize (UVP)’ (Phuann 2015, #02E-368), *zekusi* ‘Lock the door!’, *dexesi* ‘spit!’ (see Lim 2016:127). However, the pitch these words exhibit is the same as those in which the original suffixes *-en* and *-i* have become clitics, namely, LHL. This is additional evidence of this change in progress.

To summarize, one major difference between affixes and clitics lies in their phonological characteristics, as the phonological patterns of clitics are different from those described in section 3 for suffixes. Table 6 illustrates these differences.

TABLE 6. PHONOLOGICAL DIFFERENCES BETWEEN SUFFIXES AND ENCLITICS.

			Resyllabification	Stress shift	Pitch
Suffixes	-an	depex-an	+ [də.pə.xan] *[də.pəx.ʔan]	+ ultima	+ [L.M.H] *[L.H.L]
Clitics	=‘en	ngazip=‘en	- [ŋa.zip.ʔən] *[ŋa.zi.pən] *[ŋa.zi.bən]	- penult	- [L.H.L] *[L.M.H]

There is a distinction in the use of *=en* ‘UVP’ and *=i* ‘IMP.AV/IMP.UVP’. The clitic *=en* always occur after the verb, as shown in (17a–c), and never attaches to another host; *=i*, on the other hand, can occur on the verb, as in (18a), and on the undergoer, as in (18b). The undergoer to which *=i* is cliticized can occur in sentence-initial position, as in (18c).

(17) KAXABU

- a. paka-sinaw=**=en** ni ina siatu=**lia**.
 finish-wash=UVP GEN mother clothes=COS
 ‘Mother has washed (all) the clothes.’
- b.* paka-sinaw ni ina siatu=**=en**=lia.
 finish-wash GEN mother clothes=UVP=COS
- c. siatu ka ina paka-sinaw=**=en**=lia.
 clothes TOP mother finish-wash=UVP=COS
 ‘Mother has washed (all) the clothes.’
- d.* siatu=**=en** ka ina paka-sinaw=**lia**.
 clothes=UVP TOP mother finish-wash=COS

(18) KAXABU

- a. meken=**=i** beleben!
 eat=IMP.AV banana
 ‘Eat a banana!’
- b. meken beleben=**=i**!²⁸
 AV.eat banana=IMP
 ‘Eat a banana!’
- c. beleben=**=i** meken!
 banana=IMP AV.eat
 ‘The banana, eat it!’

We have shown above that there are reasons to believe that the suffixes *-an* ‘LOC.NMLZ’, *-en* ‘UVP’, and *-i* ‘IMP.AV’ have become enclitics in Kaxabu, a phenomenon rarely attested in the languages of the world.

5.2. AFFIXES BECOMING WORDS. In Kaxabu, two affixes—one having a grammatical function and the other being a lexical affix—have become free morphemes/words while still being used as affixes. The bimorphemic prefix *pa-ka-* ‘causative of stative verbs’ has become *paka* ‘cause’ and *mati-* ‘to wear’ has changed into *mati* ‘to wear’. Chen (2016) was the first to show that the causative affix *pa-ka-* freely alternates between its canonical usage as a prefix and an applicative-like free morpheme. The syntactic distribution of *pa-ka-* versus *paka*, and *mati-* versus *mati* is summarized in table 7.

We discuss the deaffixation of *paka* and *mati* in turn below.

28. When *=i* is cliticized to the undergoer, it is interpreted as a deictic meaning ‘this’ by the consultant but such an interpretation, reported here to show the type of reanalysis that is made of the data, must be taken with caution, as we do not find:

(i) KAXABU

- a. * meken=**=i** beleben=**=i**.
 AV:eat=IMP banana=**=i**
- b. * meken=siw beleben=**=i**.
 AV:eat=2SG.NOM banana=**=i**

TABLE 7. SYNTACTIC DISTRIBUTION OF *paka* AND *mati* AS PREFIXES AND INDEPENDENT WORDS.

		Morphological unit	Syntactic distribution
pa-ka-	'causative of stative verbs'	prefix	[pa-ka-Verb _{STAT}] _v
paka	'let'	word	paka + Noun + Verb _{STAT/DYN}
mati-	'to wear'	prefix	[mati-BASE] _v
mati	'to wear'	word	mati + modifier + Noun

5.2.1. *paka* 'cause, make'. Zeitoun and Huang (2000) show that in Atayal, Seediq, Pazeh, Mantauran Rukai, and Paiwan, there is distinction between dynamic and stative verbs. Dynamic verbs, which are usually marked by <um> (or its variants across the Formosan languages), take the causative *pa-* prefix, while stative verbs, which are marked by *ma-* or \emptyset are prefixed by *pa-ka-* in their causative form. This is illustrated in (19) with a Pazeh example.

- (19) PAZEH (Blust 1999b:347–48)
- a. mu-dader 'choke on something' **pa-dader** 'cause to choke'
- b. ma-ngesen 'afraid' **pa-ka-ngesen** 'to frighten'

Identically, in Kaxabu, the prefix *pa-* attaches to dynamic verbs, as in (20a) and the bimorphemic prefix *pa-ka-* to a stative verb,²⁹ as in (20b,c).

- (20) KAXABU
- a. Atun **pa-idahin** yaku.
Atun CAUS-scare 1SG.NEUT
'Atun scared me.'
- b. yaku **pa-ka-maziah** imu=a umu.
1SG.NEUT CAUS-STAT-cooked 2PL.NEUT=LIG rice.cake
'I made your rice cake cooked.'
- c. yaku **pa-ka-tahayak**=a apu.
1SG.NEUT CAUS-STAT-tired=OBL grandfather
(i) 'I made grandfather tired.'
and by extension (ii) 'I thanked grandfather.'

The word *paka* 'cause, make' precedes a noun which encodes the causee as follows: *paka* + Noun + Verb.³⁰ Chen (2016:672) states that only stative verbs and resultative verbs (change-of-state verbs in her terms) occur after *paka* but

29. Note that verbs that are intrinsically dynamic starting with the syllable *ma*, as in the case of *mangit* 'cry (AV)', have been reanalyzed as stative by Kaxabu speakers. They take the bimorphemic prefix *pa-ka-* 'CAUS (STAT)' instead of the expected *pa-*.

(i) KAXABU
yaku=a mama ma-diak yaku=a suazi,
1SG.NEUT=LIG elder.brother STAT-dislike 1SG.NEUT=LIG younger.brother
pa-ka-mangit/**pa-mangit*.
CAUS-STAT-AV.CRY
'My elder brother dislikes my younger brother and made him cry.'

30. Unlike Kaxabu, Pazeh *pa-ka-* has not become an independent word, see (19b) above; see Blust (1999b:356–58), Lin (2000:70–71), and Zeitoun and Huang (2000).

the examples given in (21) show that there is no restriction on the type of verb that follows this free marker. The verb can be a stative verb, as in (21a,b), a resultative verb (21c), or a dynamic verb, as in (21d,e), and such distribution shows the degrammaticalization of the morpheme *paka*. Examples of these morphemes as words are shown below:

(21) KAXABU

- a. yaku **paka** nita umu *ma-ziah*.
 1SG.NEUT cause 1PL.INCL.GEN rice.cake STAT-ripe/cooked
 ‘I made our rice cake cooked.’ (Lim 2022:121)
- b. yaku ka **paka** apu *tahayak*.
 1SG.NEUT TOP cause grandfather tired
 ‘I made my grandfather tired.’
 and not (ii) **‘I thanked grandfather.’
- c. Adi **paka** naki=a siatu *mu-payak*.
 Adi CAUS 1SG.NEUT=LIG clothes RES-wet
 ‘Adi made my clothes wet.’ (Chen 2016:520)
- d. yaku=a mama ka **paka** yaku=a
 1SG.NEUT=LIG older.brother TOP cause 1SG.NEUT=LIG
 suazi *mangit*.
 younger.brother AV:cry
 ‘My elder brother is making my younger brother cry.’ (Lim 2022:265)
- e. yaku=a aba **paka** yaku *mu-kusa* me-depex.
 1SG.NEUT=LIG father cause 1SG.NEUT AV-go AV-study
 ‘My father allowed me to go study.’ (Lim 2022:266)

We treat *paka* ‘cause, make’ in (21) as an independent word rather than an affix because it can be followed by a noun phrase. Note that the syntactic distribution of Kaxabu *paka* ‘make’ is similar to that of *kā* and *hōo*, which can occur together,³¹ as in (22), or separately, as in (23)–(24) in TSM (see Cheng et al. 1999; Tsao 2005; Lee 2009; Huang 2015; Lin 2015). The preposition *kā* ‘DISP’ introduces definite³² (23a) or indefinite (23b) object NPs carrying different theta roles, patient (or theme) (23a), or benefactive (23c). These NPs occur after the subject while the object usually occurs after the verb, as shown in (23d). The morpheme *hōo* has different functions, dative, as in (22), causative, as in (24a), and passive, as in (24b) (see Cheng et al. 1999; Lee 2009; Huang 2015).

(22) TSM

- guá **kā** in sann hiann-tī kau **hōo** lí.
 1SG KA 3PL three brother give HOO 2SG
 ‘I give the three brothers to you.’ (Lee 2009:27)

31. Lee (2009:43) distinguishes two major constructions, the first ditransitive and the second resultative but shows that they can be unified because they always involve a CAUSE predicate, as shown schematically below:

(i) Ditransitive: [CAUSE (x, (RECEIVE y, z))]
 (ii) Resultative: [CAUSE (x, (BECOME y, z))]

32. Lin (2015:118) mentions that the noun that follows the disposal marker *kā* in TSM is always definite if unmarked, as in (23a).

(23) TSM (Lin 2015)

- a. *thè guá k̄a thôo-kha sàu~sàu!*
 on.behalf 1SG KA floor RED~sweep
 ‘Clean the floor a little for me!’ (p. 67)
- b. *lâu-su k̄a n̄ng=ê hák-sing mē.*
 teacher KA two=POSS student scold
 ‘The teacher scolded two students.’ (p. 388)
- c. *lí sió-tsiá k̄a i=ê káu-á bé sann.*
 Miss.Li KA 3SG=CLF dog buy shirt
 ‘Ms Li bought clothes for her dog.’ (p. 591)
- d. *i lóng-phuá guá=ê pue-á.*
 3SG break 1SG=POSS cup
 ‘He/she broke my cup(s).’ (p. 244)

(24) TSM

- a. *gún a-bú hōo guá khuann khióng-pòo phinn.*
 my.mother HOO 1SG see horrible film
 ‘Mother made/allowed me to watch a horror film!’ (Lin 2015:414)
- b. *i kòo-ì hōo guá phah-siong=ah.*
 3SG intentionally HOO 1SG beat-wound=PART
 ‘He/she was wounded by me intentionally.’

(Based on Cheng et al. 1999:178)

It is most likely that the influence of TSM accounts for the prefix *pa-ka-* becoming an independent word in Kaxabu, as first hypothesized by Chen (2016), though the use of *paka* in Kaxabu corresponds to that of *k̄a* and *hōo* in TSM, as shown by the comparison of the Kaxabu examples given in (25a) (repeated from (21a)) and (25c) (repeated from (21b)), which correspond to the TSM sentences given in (25b) and (25d), respectively.

(25) a. KAXABU

- yaku paka nita umu ma-ziah.*
 1SG.NEUT cause 1PL.INCL.GEN rice.cake STAT-ripe/cooked
 ‘I made our rice cake cooked.’
- b. TSM³³
guá k̄a lán=ê kué tshòng hōo i sik.
 1SG.NEUT KA 1PL.INCL=POSS rice.cake make HOO 3SG ripe/cooked
 ‘I made our rice cake be cooked.’
- c. KAXABU
yaku ka paka apu tahayak.
 1SG.NEUT TOP cause grandfather tired
 ‘I made my grandfather tired.’
- d. TSM
guá hōo a-kong tsin thiám.
 1SG.NEUT HOO grandfather very tired
 ‘I made my grandfather tired.’

There are two things to note, however. First, while we believe that the influence of TSM on Kaxabu led to the degrammaticalization of *paka*, the

33. The orthographic system used for TSM in this paper is: *p* /p/, *t* /t/, *k* /k/, *ph* /p^h/, *th* /t^h/, *kh* /k^h/, *b* /b/, *g* /g/, *ts* /ts/, *tsh* /ts^h/, *m* /m/, *n* /n/, *ng* /ŋ/, *s* /s/, *j* /dz/, *l* /l/, *-h* /ɬ/, *a* /a/, *i* /i/, *u* /u/, *e* /e/, *oo* /ɔ/, and *o* /o/.

phonological similarity between *paka* in Kaxabu and *kā* in TSM is just a coincidence.³⁴ The Kaxabu word *paka* is not a loanword from TSM because it is a reflex of the prefix *paka-, which can be reconstructed for PAN (Zeitoun and Huang 2000; Blust 1999b, 2003a, 2013). Second, though both TSM *kā* ‘DISP’ and Kaxabu *paka* allow the occurrence of the object before the main verb, the function of TSM *kā* is different from that of Kaxabu *paka* (Lin 2015). In TSM, *kā* is a disposal marker, roughly equivalent to *ba3* in Mandarin Chinese (with some restrictions), and the occurrence of a causative morpheme (cf. TSM *tshòng* ‘make’) is necessary in the rest of the sentence. This is not the case in Kaxabu.

Chen (2016:673) also mentions a ditransitive construction schematized as follows NP_{AGENT} *paka* NP_{THEME} V_{TRANSFER} NP_{RECIPIENT} and illustrated in (26a), with a corresponding example in TSM given in (26b) to account for the similarity between Kaxabu *paka* and TSM *kā*.³⁵

- (26) a. KAXABU (Based on Chen 2016:674)
 yaku **paka** tulala baxa=lia atun.
 1SG.NEUT PAKA flower give=COS Atun
 ‘I gave the flowers to Atun.’
 b. TSM (Chen 2016:674)
 guá *(**kā**) hue (thê) hōo Atun.
 1SG KA flower (send) HOO Atun
 ‘I gave the flowers to Atun.’

When we tried to reconfirm (26a), our consultant (Ing-lik Phuann) refused this example, but accepted it after the TSM example was given to him. While (26a) is a calque from TSM, two different clauses in Kaxabu were obtained. In the first, *ni* is used as a dative (27a); in the second, the coverb *saanu* ‘for’ introduces the recipient (27b).

- (27) KAXABU
 a. yaku baxa tulala **ni** Atun.
 1SG.NEUT take[AV] flower DAT Atun
 ‘I gave flower(s) to Atun.’
 b. yaku m-aa tulala **saanu** Atun.
 1SG.NEUT AV-take flower for Atun
 ‘I gave flower(s) to Atun.’

The development of *saanu* ‘for, use for, in order to’ is interesting and again shows intertwined relations between a Formosan language—which thus reflects certain characteristics inherited from PAN and/or the proto-language it descends from—and TSM. The function of *saanu* in Kaxabu is similar to *anu/auun* ‘for’ in Pazeh, which introduces a recipient, as shown in (28) (see Li and Tsuchida 2001:30–31).

34. This claim somehow goes against Chen (2016), who implies that the phonological similarity alone might account for this morphosyntactic change.

35. Chen (2016) argues quite correctly that the inability of the causative prefix *pa-* to be used freely as *paka* makes it more difficult to identify Mandarin Chinese as the source for calque.

- (28) PAZEH (Li and Tsuchida 2001:30–31)

aba mu-tahan paray **aunu** rakihan.
 father AV-earn money for child
 ‘Father earns money for the child.’

Note that in Kaxabu *saanu* can also precede a verb to encode the instrument, as shown in (29), and must have originally been used to replace the loss of circumstantial voice.

- (29) KAXABU (Lim 2022:228)

imini ka **saanu** sii~sinaw buxu.
 this TOP use.for RED~wash body
 ‘This is used to wash the body.’

The development of *saanu* ‘use for, for, by’ in Kaxabu is, at the same time, calqued on the TSM preposition *hōo* ‘PREP’, illustrated in (30b). It was shown above that *hōo* is used to encode the passive and *saanu*, which is calqued on this construction, is used by extension in pseudo-passive constructions, introducing the agent, as in (30a). Note that we treat sentences as those in (30a) as pseudo-passive constructions because while the patient becomes the subject, the verb is still marked as AV.

- (30) a. KAXABU

yaku=a akhéhén **saanu** takat mu-tuting.
 1SG.NEUT=LIG child for teacher AV-beat
 ‘My child was beaten by the teacher.’
 Lit. ‘My child (is) for the teacher to beat.’

- b. TSM

guá=ê gín-a **hōo** lāu-su phah.
 1SG=POSS child HOO teacher beat
 ‘My child was beaten by the teacher.’
 Lit. ‘My child (is) for the teacher to beat.’

5.2.2. *mati* ‘to wear’. Teng (2014) examines the development of the reflex of *Si- in Puyuma from its original meaning ‘wear, carry’ to that of possessive, existential, and instrumental and reconstructs *Si- and *si- ‘wear, carry’ in PAN, as shown in table 8.

There are two things to note. First, there is a prefix *masi-* ‘wear (AV)’ which is found both in Pazeh³⁶ and Kaxabu, cf. Pazeh *masi-rukus* ‘to wear pants’ (Li and Tsuchida 2001:13), Kaxabu *masi-ukus* (Phuann 2015:202) ‘to wear pants’. Second, there is another prefix *mati-* ‘wear (AV)’ in both dialects, cf. Pazeh *mati-kuribu* ‘wear a skirt (AV)’ (Li and Tsuchida 2001:13), Kaxabu *mati-kuibu* ‘to wear a skirt (AV)’ (Phuann 2015:62). However, while the reflex of PAN *S is *s* in Pazeh–Kaxabu and *masi-* can be treated as a reflex of PAN *Si-, the reflex of PAN *s in both dialects is *z-z-t*, cf. PAN *siku > *ziku* ‘elbow’, PAN *wasu > *wazu* ‘dog’, PAN *Cangis > *m-angit* ‘cry (AV)’. In other words, *-t*, as a reflex

36. As mentioned in Teng (2014:149), there is a monomorphemic prefix *si-* with the meaning ‘to have’ in Pazeh, for example, *si-pazeng* ‘to have thorns’. It is not found in Kaxabu.

TABLE 8. REFLEXES OF PAN *S and *s IN FORMOSAN LANGUAGES
(BASED ON TENG 2014:151).[†]

	Reflex of *S	Reflex of *s	Reflex of affix		Gloss
			*Si-	*si-	
Puyuma	∅	s	i-	—	‘to wear; to have’
P-Rukai	s	θ	si-	—	‘to wear’
Paiwan	s	t	si-	—	‘to carry’
Pazih	s	z/t	si-	—	‘to have’
Seediq	s	h	se-/s-	—	‘to grow; to have’
Saisiyat	sh	h	shi-	—	‘to wear’
Kavalan	s	s	si-	—	‘to wear; to have’
Amis	s	c/s	si-	—	‘to wear’
Pazeh (Kaxabu)	s	z/t	si-	—	‘to carry; to wear’

[†] This reconstruction of the proto-phonemes is based on Blust (1999a).

of *s occurring only in final position, *mati-* ‘wear (AV)’ cannot be treated as a reflex of PAN *si-.

It is worth noting that the independent word *mati* ‘to wear’ usually precedes a noun phrase with a modifier element, and can even occur independently, as shown in (31a,b), supporting its analysis as a verb rather than a prefix, as in (31c,d).

- (31) KAXABU
- a. **mati** [made=a]_{modifier} kakumus
wear hard=LIG hat
‘to wear a crash helmet (lit. hard hat)’ (Phuann 2015:39)
- b. **mati**=lia.
wear=COS
‘(I) have worn (it).’ (Lim 2022:122)
- c. yaku **mati-kakumus**=lia.
1SG.NEUT AV.wear-hat=COS
‘I have worn a hat.’
- d. ohoni=a daali imisiw **mati-kuibu**.
now=LIG day 3SG.NEUT AV.wear-skirt
‘Today, she wears a skirt.’

The syntactic distribution of Kaxabu *mati* ‘wear’ is similar to that of the TSM verb *tì* ‘to wear’, as a result of calque. Compare (31) and (32).

- (32) TSM (Lim 2022:123)
- a. **tì** [tĩng=ê]_{modifier} bō-á
wear hard=POSS hat-PART
‘to wear a hard hat’
- b. **tì**=ah.
wear=COS
‘(I) have worn (it).’
- c. guá **tì** bō-á=ah.
1SG wear hat-PART=COS
‘I have worn a hat.’

TABLE 9. COMPARISON OF THE DISTRIBUTION OF THE MORPHEME ‘WEAR’ BETWEEN KAXABU, TSM, AND PAZEH.

	Kaxabu	TSM	Pazeh
	mati	ti	mati-
The modifier can be inserted between verb and its object	+	+	–
Can be independent	+	+	–

The similarity in pronunciation between Kaxabu *mati* and TSM *ti* is just a coincidence, but this similarity may actually have helped the deaffixation of this obsolete prefix. Table 9 presents a comparison of the distribution of the morpheme ‘wear’ in Kaxabu, TSM and Pazeh.

6. TOWARD INCREASING AUTONOMY. Though Sapir (1921:68) warns against making overly strong claims and characterizing languages as being of only one type, from a typological perspective, three main types of languages are recognized according to their morphological characteristics: isolating, agglutinative, and fusional. The difference between isolating languages and synthetic languages is that in isolating languages, all the words are invariable and syntactic relationships are primarily shown by word order (Crystal 2008; Aikhenvald 2007:3ff). In synthetic languages, words typically contain more than one morpheme and typically contain a linear sequence of morphs. Synthetic languages are further divided into two types: agglutinative and fusional. The difference between these two types is that in fusional languages, there is no one-to-one correspondence between the morphemes and the linear sequence of morphs the words contain.

In Kaxabu, words typically contain more than one morpheme and typically contain a one-to-one correspondence between morphemes and the linear sequence of morphs. Therefore, Kaxabu can be classified as an agglutinative language. However, Kaxabu uses syntactic processes more, and morphological processes less than other Formosan languages. The two phenomena examined in this paper, affix fossilization and deaffixation, show that Kaxabu is changing from an agglutinating to a more isolating language. There are at least two reasons for such a change. The first is language contact, which has led to language shift. The western and southwestern plains of Taiwan started to be populated by Chinese immigrants about four centuries ago, and many indigenous populations have shifted to TSM, a typical isolating language. Kaxabu communities are no exception, where, as mentioned in the introduction, TSM has become the language of daily communication. Kaxabu speakers are used to calquing expressions on TSM, and these innovated morphosyntactic structures have become more productive than the morphological processes which were once productive but have now become obsolete. A second reason, related to the first, is language attrition, defined by Thomason (2001:227) as “a gradual process in which a language recedes as it loses speakers, domains and ultimately structure.”

7. CONCLUSION. This paper has discussed morphological change in Kaxabu, focusing on two issues: affix fossilization (which is part of a grammaticalization process) and deaffixation (which is part of degrammaticalization process) (Jeffers and Zwicky 1980; Nevis 1986; Viti 2015). Some of its grammatical affixes have become fossilized and Kaxabu uses other productive strategies such as lexical and syntactic processes to express similar concepts. From a typological perspective, this study reports an unusual morphological change, viz. deaffixation, where two phenomena are observed: affix-to-clitic (when an affix is monosyllabic) and affix-to-word (when an affix is disyllabic) clines, which have not been reported in other Formosan languages and are not common in the languages of the world.

Bound morphemes have become clitics or independent words in Kaxabu, exemplifying what Brinton and Traugott (2005:61) have proposed as the “increasing autonomy” type of lexicalization, demonstrating that Kaxabu is currently in the process of changing from an agglutinating to a more isolating language.

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