

# Verbs with archaic first person inflection in Cariban languages

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# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Cariban verbal person marking and marker extensions</b>	<b>3</b>
2.1	Verbal person marking in Proto-Cariban . . . . .	3
2.2	Defining features and origins of the split-S system . . . . .	5
2.3	Person marker extensions in intransitive verbs . . . . .	8
<b>3</b>	<b>The innovative 1S<sub>A</sub> markers</b>	<b>12</b>
3.1	Proto-Pekodian * <i>k</i> - . . . . .	12
3.2	Proto-Waiwaian * <i>k</i> - . . . . .	16
3.3	Proto-Tiriyoan * <i>t</i> - . . . . .	18
3.4	Akuriyó <i>k</i> - . . . . .	20
3.5	Carijona <i>j</i> - . . . . .	21
3.6	Yukpa <i>j</i> - . . . . .	22
<b>4</b>	<b>Resistant verbs from a comparative perspective</b>	<b>23</b>
4.1	* <i>eti</i> and * <i>a</i> [ <i>p</i> ] ‘to be’ . . . . .	24
4.2	* <i>ka</i> [ <i>ti</i> ] ‘to say’ . . . . .	25
4.3	* <i>itə</i> [ <i>mə</i> ] ‘to go’ . . . . .	27
4.4	*( <i>ət</i> -) <i>jəpi</i> ‘to come’ . . . . .	27
4.5	* <i>ipitə</i> ‘to go down’ . . . . .	32
4.6	* <i>e-pi</i> ‘to bathe’ . . . . .	34
<b>5</b>	<b>Discussion</b>	<b>37</b>
5.1	Possible motivations for archaicity . . . . .	37
5.2	Conclusion . . . . .	39

## List of Figures

1	The Cariban language family . . . . .	2
2	Person marking extensions in Parukotoan, after Gildea (1998: 94) . . . . .	10

## List of Tables

1	Proto-Cariban Set I (main clause) person markers . . . . .	3
2	Participles of S <sub>A</sub> and S <sub>P</sub> verbs . . . . .	5
3	Nominalizations of S <sub>A</sub> and S <sub>P</sub> verbs . . . . .	6
4	Imperatives of S <sub>A</sub> and S <sub>P</sub> verbs . . . . .	6
5	Undersived Proto-Cariban S <sub>A</sub> verbs . . . . .	8
6	Some examples for completed extensions . . . . .	12
7	Regular Pekodian S <sub>A</sub> verbs . . . . .	13
8	Verbs preserving 1S <sub>A</sub> *w- in Proto-Pekodian . . . . .	15
9	Loss of *w in Ikpeng . . . . .	16
10	Regular Proto-Waiwaian verbs . . . . .	17
11	Verbs preserving 1S <sub>A</sub> *w- in Proto-Waiwaian . . . . .	18
12	Regular Proto-Tiriyoan S <sub>A</sub> verbs . . . . .	19
13	Verbs preserving 1S <sub>A</sub> *w- in Proto-Tiriyoan . . . . .	19
14	Regular Akuriyó 1S <sub>A</sub> markers . . . . .	21
15	Regular Carijona verbs . . . . .	21
16	Regular Yukpa verbs . . . . .	23
17	Reflexes of *ka[ti] ‘to say’ . . . . .	25
18	Reflexes of *itə[mə] ‘to go’ . . . . .	28
19	Reflexes of ‘to come’ . . . . .	29
20	Reflexes of *ipitə ‘to go down’ . . . . .	33
21	Comparison of intransitive and transitive ‘to bathe’ . . . . .	36
22	Overview of extensions and (un-)affected verbs . . . . .	38
23	Proportion of (un-)affected verbs accurately predicted by potential factors . . . . .	39

# **1 Introduction**

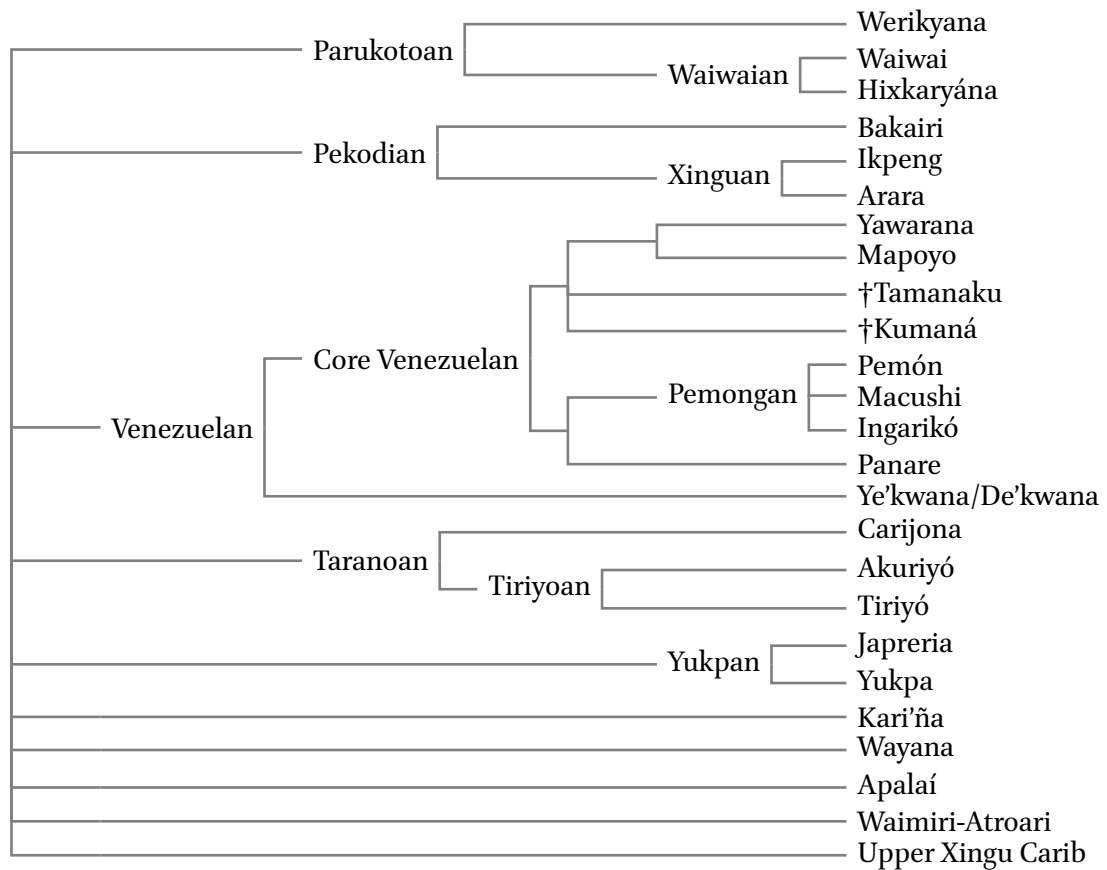


Figure 1: The Cariban language family

## 2 Cariban verbal person marking and marker extensions

The archaic first person markers investigated in this paper are the result of incomplete person marker extensions, i.e., modifications to the ancestral prefix system that did not affect the whole lexicon. To provide readers with the necessary background, we first introduce said ancestral system (Section 2.1), then the peculiarities of the Cariban split-S system (Section 2.2), and finally the concept of person marker extensions (Section 2.3).

### 2.1 Verbal person marking in Proto-Cariban

Proto-Cariban is reconstructed by Gildea (1998) as using a person paradigm called Set I in its independent verb forms, shown in Table 1.<sup>1</sup> The choice of person marker in transitive verbs can be characterized as being conditioned by a basic person hierarchy  $1/2 > 3$ .<sup>2</sup> The locuphoric markers had two forms, an A-oriented one for direct ( $SAP > 3$ ) scenarios and a P-oriented one for inverse ( $3 > SAP$ ) scenarios. There was a single aliophoric marker  $*n(i)-$ , which only surfaced in nonlocal ( $3 > 3$ ) scenarios, without morphologically expressed distinctions between different third person referents. Local scenarios were expressed in a non-transparent manner, by using the 1+2 prefix  $*k-$  in both cases.<sup>3</sup>

Formally identical or etymologically related markers occurred in intransitive verbs, which showed a split-S system (Table 1b). That is,  $S_A$  verbs took similar markers as the A-oriented ones in transitive verbs, with the exception of first person ( $1 > 3$   $*t(i)-$  vs  $1S_A$   $*w-$ ), as well as the

<sup>1</sup>We use standard IPA symbols in our transcription of Cariban languages, with the exception of coronal rhotics, which we simply represent with  $\langle r \rangle$ , rather than  $\langle \mathfrak{r} \rangle$  for Wayana or  $\langle \mathfrak{r} \rangle$  for Ye'kwana etc. In languages with strong morphophonological processes and/or subphonemic orthography we show the original transcription in an additional surface line when presented in an interlinearized glossed example. We follow Gildea (2018) in using  $\langle \mathfrak{a} \rangle$  for the proto-vowel reconstructed by Meira & Franchetto (2005), although it was likely more back (Gildea et al. 2010).

<sup>2</sup>Glossing abbreviations:

<sup>3</sup>The presence of a 1+2 person value implies that of a 1+3 value. This is usually expressed with a free pronoun combined with third person morphology in Cariban languages, so it is not represented in this table.

Table 1: Proto-Cariban Set I (main clause) person markers (Meira et al. 2010: 495; Gildea & Zúñiga 2016: 497)

(a) Transitive					(b) Intransitive		
A/P	1	2	1+2	3	$S_A$ $S_P$		
1		$*k-$		$*t(i)-$	1	$*w-$	$*u(j)-$
2	$*k-$			$*m(i)-$	2	$*m-$	$*\partial(j)-$
1+2				$*kit(i)-$	1+2	$*kit-$	$*k-$
3	$*u(j)-$	$*\partial(j)-$	$*k-$	$*n(i)-$	3	$*n-$	$*n(i)-$

absence of *\*i* after all  $S_A$  prefixes. On the other hand,  $S_P$  verbs took markers fully identical to the P-oriented ones. The third person marker in  $S_P$  verbs was identical to the one in  $3>3$  scenarios (*\*n(i)-*).

As in many other split-S systems found in languages of the world, the intransitive verbal lexicon was divided into two classes, with verbs inherently being members of the  $S_A$  or the  $S_P$  group. That is, while in transitive verbs, the choice of person marker had a crucial semantic contribution, it was predictable in intransitive verbs. This is illustrated with modern Kari’ña data in (1–2).

(1) Kari’ña

- a. *mi-kupi-ja*  
2>3-bathe-PRS  
‘You bathe him/her.’ (Hoff 1968: 160)
- b. *a-kupi-ja*  
3>2-bathe-PRS  
‘S/he bathes you.’ (Yamada 2011: 63)

In (1), the choice between the second person A- and P-oriented markers *mi-* and *a-* depends on the scenario: The transitive verb *kupi* ‘to bathe’ takes *mi-* in  $2>3$  scenarios (1a), but *a-* in  $3>2$  scenarios (1b). While intransitive verbs show the same (or very similar) person markers, they contribute no semantic difference here (2).

(2) Kari’ña

- a. *sipi tinka-ri m-ekema-non hen*  
net pull-NMLZ 2-be.afraid-PRS.UNCERT eh?  
‘You’re afraid to pull up the net, aren’t you?’ (Courtz 2008: 253)
- b. *aj-awoi-ja*  
2-get.up-PRS  
‘You are getting up.’ (Hoff 1968: 167)

Rather, *ekema* ‘to be afraid’ takes an A-oriented marker, since it is an  $S_A$  verb (2a), while the  $S_P$  verb *awomi* ‘to get up’ takes a P-oriented marker (2b).<sup>4</sup> What is more, the choice of prefix does not necessarily convey information about the semantics of the verb, since there are clear mismatches: ‘to be afraid’ with an “agentive” marker can hardly be considered a volitional act, while ‘to get up’ with a “patientive” marker must be considered volitional. These mismatches are not isolated cases, as will be discussed in Section 2.2.

<sup>4</sup>The root *awomi* ‘to get up’ is subject to syllable reduction and assimilation to the prefix-initial *j*.

Table 2: Participles of S<sub>A</sub> and S<sub>P</sub> verbs (Schuring n.d.: 39; Alves 2017: 118, 207; Meira 1999: 333, 334; Tavares 2005: 400; E. Koehn & S. Koehn 1986: 35, 1994: kuruaz-154; Hoff 1968: 430, 433; T. E. Payne & D. L. Payne 2013: 232, 244)

Language	S <sub>A</sub>	S <sub>P</sub>
Werikyana	<i>t-ehurka-fʃe</i> ‘fallen’	<i>ti-jaʔ-so</i> ‘burnt’
Arara	<i>t-o-ep-te</i> ‘come’	<i>t-oregrum-te</i> ‘sad’
Tiriyó	<i>ti-w-ɔturu-e</i> ‘talked’	<i>t-əpəə-se</i> ‘tired’
Wayana	<i>tə-w-epi-he</i> ‘bathed’	<i>t-onopi-he</i> ‘painted’
Apalaí	<i>t-o-ito-se</i> ‘gone’	<i>t-ihto-se</i> ‘gone down’
Kari’ña	<i>tu-w-oʔka-se</i> ‘come out’	<i>t-okari-se</i> ‘told’
Panare	<i>t-o-tatihpə-se</i> ‘wailed’	<i>ti-sirike-fʃe</i> ‘tired’

## 2.2 Defining features and origins of the split-S system

As seen in the previous section, the split-S system defined two inflectional classes for intransitive verbs within the Set I system. However, there were some other morphological criteria distinguishing S<sub>A</sub> from S<sub>P</sub> verbs in Proto-Cariban: a) presence vs absence of the S<sub>A</sub> marker \**w*-; b) absence vs presence of the second person prefix \**ə(j)*- in imperatives; and c) presence vs absence of a derivational detransitivizing prefix.

Many languages show an S<sub>A</sub> class marker in deverbalized forms, which can be reconstructed to Proto-Cariban as \**w*-.<sup>5</sup> With S<sub>A</sub> verbs, \**w*- occurred immediately between the possessive prefixes and the verb stem, while S<sub>P</sub> verbs took the bare prefixes. Reflexes of \**w*- in languages from different branches are illustrated in Tables 2 and 3 for participles and nominalizations.

The distinction between S<sub>A</sub> and S<sub>P</sub> is also borne out in imperatives. Here, S<sub>P</sub> verbs took the P-oriented second person prefix \**ə(j)*-, while S<sub>A</sub> verbs were unprefixed (both suffixed with \**-kə*). This is illustrated with reflexes in various modern languages in Table 4. As in the case of the S<sub>A</sub> marker \**w*- participles and nominalizations, some languages have lost the distinction between S<sub>A</sub> and S<sub>P</sub> verbs in imperatives, for example Panare.

There is one further property uniting most S<sub>A</sub> verbs, not based on inflectional morphology. As mentioned in Section 2.1, mismatches between the semantics of intransitive verbs and their A- or P-oriented inflectional morphology are common. However, the Cariban split-S system goes further than all other known such systems, in that its division of the verbal lexicon does not follow any discernible semantic criteria whatsoever. Meira (2000) takes a sizable corpus of intransitive verbs from Tiriyó, Kari’ña, Apalaí, and Wayana, and categorizes them by applying different criteria commonly encountered in split-S systems. He shows that neither (non)activities, (non-)agency, (in-)animacy, nor Aktionsart satisfactorily predict the

<sup>5</sup>See Meira (2000: 227), who identifies reflexes of this morpheme as having “no purpose other than being ‘class markers’, without any obvious semantic or functional load”.



Table 3: Nominalizations of S<sub>A</sub> and S<sub>P</sub> verbs (Schuring n.d.: 49, 74; Alves 2017: 97; Meira 1999: 246; Tavares 2005: 130, 409; E. Koehn & S. Koehn 1986: 90, 1994: 192-193; Hoff 1968: 135, 392; T. E. Payne & D. L. Payne 2013: 390; M.-C. Mattéi-Müller 1994: 23)

Language	S <sub>A</sub>	S <sub>P</sub>
Werikyana	<i>o-w-ehurka-tpiri</i> ‘your fall’	<i>o-onenmehi-tpiri</i> ‘your waking up’
Arara	<i>w-orik-tubo</i> ‘dancing place’	<i>ereym-tpo</i> ‘killing instrument’
Tiriyó	<i>ji-w-aturu-to</i> ‘(for) my talking’	<i>j-emamina-to</i> ‘(for) my playing’
Wayana	<i>i-w-aturu-topo</i> ‘my story’	<i>j-iniki-topo</i> ‘my object for sleeping’
Apalaí	<i>j-epi-topo</i> ‘my bathing place’	<i>j-enuru-topō-piri</i> ‘the place of my birth’
Kari’ña	<i>a-w-ekupi-ri</i> ‘your taking a bath’	<i>aj-ere?na-Ø</i> ‘your fainting’
Panare	<i>j-u-ffireema-n</i> ‘their eating’	<i>tj-arunkampati-n</i> ‘his hair standing on end’

Table 4: Imperatives of S<sub>A</sub> and S<sub>P</sub> verbs (Derbyshire 1965: 44, 89; Alves 2017: 161; Meira 1999: 323; Tavares 2005: 227; E. Koehn & S. Koehn 1986: 62, 1994: Mopo/20; Hoff 1968: 190; M.-C. Mattéi-Müller 1994: 5, 17)

Language	S <sub>A</sub>	S <sub>P</sub>
Hixkaryana	<i>omoh-ko</i> ‘come!’	<i>oj-okajim-ko</i> ‘go up!’
Arara	<i>odotpot-ko</i> ‘come back!’	<i>o-alum-ko</i> ‘jump!’
Tiriyó	<i>epi-kə</i> ‘bathe!’	<i>ə-eremina-kə</i> ‘sing!’
Wayana	<i>əməm-kə</i> ‘enter!’	<i>əw-eremi-kə</i> ‘sing!’
Apalaí	<i>otu?-ko</i> ‘eat!’	<i>o-ni?-ko</i> ‘sleep!’
Kari’ña	<i>o?ma?-ko</i> ‘stop!’	<i>aj-awon-ko</i> ‘get up!’
Panare	<i>ape-?</i> ‘flee!’	<i>ahpən-kə</i> ‘jump!’

class membership of intransitive verbs.

Rather, the reason for a verb to take the A- or P-oriented prefix is (at least diachronically) a morphological one. Meira (2000: 217–221) demonstrates that those intransitive verbs which (etymologically) have a detransitivizing prefix are treated as  $S_A$  verbs, while essentially all others are  $S_P$  verbs:

Almost all verbs in the  $S_A$  class are detransitized forms of transitive verbs, either synchronically (with still existing transitive sources) or diachronically (with reconstructible but no longer existing transitive sources)

(Meira 2000: 201)

Meira (2000: 221–223) also argues that the detransitivizing prefixes are indeed deriving  $S_A$  verbs, rather than being inflectional in nature: a) there are a few underived  $S_A$  verbs, with no detransitivizing prefix; b)  $S_A$  verbs can develop irregular semantics compared to their transitive counterparts; c) it is unpredictable whether the A or P argument of the underlying transitive verb becomes the S of the derived  $S_A$  verb; d) some originally derived  $S_A$  verbs have lost their transitive counterparts; and e) “basic” concepts are expressed as derivations of more complex concepts, like ‘to dance ( $S_A$ )’ from ‘to dance with (TR)’. He also notes that this leads to an inflectional split not based in meaning, but rather morphology:

Apparently, the morphological behavior of the  $S_A$  verb class is an accidental consequence of the fact that detransitivization, as far back as we can reconstruct, entails all the morphology described [...] as typical of  $S_A$  verbs. The alignment of person-marking prefixes appears not to be driven by any semantic forces in the language; it is as though they were being dragged by the evolution of the reflexive marker.

(Meira 2000: 226)

As for the form of this marker, Meira et al. (2010: 505–512) reconstruct two distinct prefixes for Proto-Cariban: reciprocal *\*ate-* and reflexive *\*e-*, although they have since merged into a single morpheme, apparently in all languages. Modern reflexes of *\*ate/e-* show a range of meanings, which can all be characterized as “detransitive”; this range is illustrated with Tiriyo examples in (3).

Table 5: Underived Proto-Cariban S<sub>A</sub> verbs (Gildea & D. Payne 2007: 30)

Form	Meaning
* <i>tə</i> [ <i>mə</i> ]	‘to go’
* <i>ətepi</i>	‘to come <sub>1</sub> ’
* <i>ka</i> [ <i>ti</i> ]	‘to say’
* <i>əmə</i> [ <i>mi</i> ]	‘to enter’
* <i>eti</i>	‘to dwell, be <sub>2</sub> ’
* <i>a</i> [ <i>p</i> ]	‘to be <sub>1</sub> , say’
* <i>əməki</i>	‘to come <sub>2</sub> ’

(3) Tiriyo (Meira 2000: 218–219, 1999: 128, 256)

<i>nonta</i> ‘abandon’	→	<i>e-nonta</i> , <i>əi-nonta</i>	‘abandon each other’ (reciprocal)
<i>suka</i> ‘wash’	→	<i>e-suka</i> , <i>əi-suka</i>	‘wash self’ (reflexive)
<i>pahka</i> ‘break (TR)’	→	<i>e-pahka</i>	‘break (INTR)’ (anticausative)
<i>puunəpi</i> ‘think about’	→	<i>əh-puunəpi</i> , <i>əi-puunəpi</i>	‘think, meditate’ (antipassive)

The morphological variation featured in ‘to abandon each other’ and ‘to wash self’ is due to the mentioned collapse between the two Proto-Cariban prefixes: *e-* is a reflex of the reflexive prefix \**e-*, while the form *əi-* originates in reciprocal \**əte-*. However, both can occur with either meaning – at least for these two verbs.

As mentioned, there are a few S<sub>A</sub> verbs that are not derived from transitive verbs, and do not have a reflex of \**əte/e-*, either. Meira (2000: 221) characterizes these as very old and exceptional, and counts between 5 and 7 verbs, depending on the language. Gildea & D. Payne (2007) identify 7 such underived S<sub>A</sub> verbs as reconstructible to Proto-Cariban, shown in Table 5. Many of these verbs will be discussed in Section 4.

### 2.3 Person marker extensions in intransitive verbs

The original Proto-Cariban split-S system has been subject to change in many languages, in some even to the point of total loss. Besides modifications like losing the S<sub>A</sub> class marker \**w-* or losing certain person values altogether, these changes have largely been due to person pre-

fixes being extended to new verbs.<sup>6</sup> There have been many such person marker extensions in Cariban languages, and some are still ongoing. This is shown by Gildea (1998), using the three Parukotoan languages as an example. We have reproduced his tables as a tree diagram in Figure 2, with adapted transcription – and in the case of Werikyana, the addition of  $\emptyset/j$ - as an alternative 1S<sub>P</sub> marker (Spike Gildea, p.c.). Apart from segmental changes to individual morphemes, the following restructuring innovations happened in the Set I paradigm in Parukotoan:

1. Proto-Parukotoan

- (a) 1S<sub>A</sub> \**w*- to 1>3
- (b) 1+2 \**k*- to 1S<sub>P</sub> (completed in Proto-Waiwaian, ongoing in Werikyana)
- (c) 1+2 \**kit*- to 1+2S<sub>P</sub> (completed in Proto-Waiwaian, ongoing in Werikyana)

2. Proto-Waiwaian

- (a) 1S<sub>P</sub> \**k*- to 1S<sub>A</sub>
- (b) innovative \**owiroj*- ‘1PRO LK’ for 1P

3. Waiwai

- (a) 2S<sub>A</sub> *m*- to 2S<sub>P</sub>

Hixkaryana has preserved split-S only in the second person prefixes, while Werikyana still shows variation in the first person and 1+2 prefixes. Waiwai, on the other hand, has lost the system entirely, which notably happened via distinct innovations at three different diachronic stages. In this case, the loss of the inflectional classes also entailed the loss of the other morphological traces of the split-S system. That is, the S<sub>A</sub> class marker \**w*- (Section 2.2) was lost in Waiwai, as evidenced by the contrast between the Waiwai and Werikyana deverbal forms in (4a) and (4b). Similarly, the 2S<sub>P</sub> prefix *a*- was extended to imperatives of (former) S<sub>A</sub> verbs (4c–d), but only C-initial ones (R. E. Hawkins 1998: 62).

(4)

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<sup>6</sup>In principle, one could also imagine a scenario in which verbs of one of the classes are gradually replaced with innovative verbs from the other class, as suggested for Panare by Meira (2000: 225). However, the verbs Meira sampled came from the A-section of M.-C. Mattéi-Müller’s (1994) dictionary (Spike Gildea, p.c.), and *at-/aff/as-* is a frequent reflex of \**ate/e-* in Panare, meaning that many S<sub>A</sub> verbs are *a*-initial, thus explaining the 80:40 S<sub>A</sub>:S<sub>P</sub> ratio in Meira’s sample. Thus, the hypothesis that Panare has largely replaced S<sub>P</sub> with S<sub>A</sub> verbs remains to be thoroughly tested. For the moment, the most likely scenario leading to the eventual loss of the split-S system involves markers being extended to new verbs.

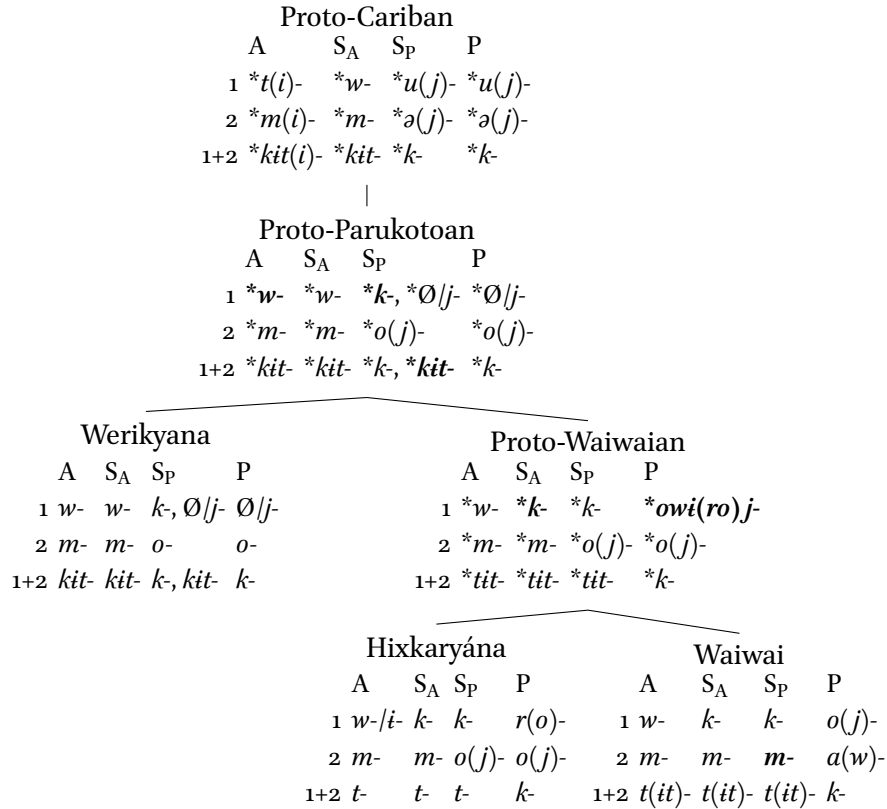


Figure 2: Person marking extensions in Parukotoan, after Gildea (1998: 94)

- |   |   |
|---|---|
| <p>a. Waiwai (R. E. Hawkins 1998: 98)<br/> <i>k-eḡirka-tḡhe</i><br/> 1+2-fall-ADVZ.after<br/> ‘after our fall’</p>              | <p>c. Waiwai (R. E. Hawkins 1998: 177)<br/> <i>a-mo-ko</i><br/> 2-come-IMP<br/> ‘come!’</p>                           |
| <p>b. Werikyana (Schuring n.d.: 49)<br/> <i>ku-w-ehurka-tpiri</i><br/> 1+2-S<sub>A</sub>-fall-NMLZ.PST.PERT<br/> ‘our fall’</p> | <p>d. Hixkaryána (Derbyshire 1985: 191)<br/> <i>m-omoki-no</i><br/> 2S<sub>A</sub>-come-IMM<br/> ‘You have come.’</p> |

While different cases of loss of split-S are discussed by Gildea (1998: 91–96), this paper focuses on a so far neglected aspect of the person marking extensions resulting in this loss. As a prerequisite for our story, we argue that they are executed via lexical diffusion, characterized as a type of extension by Harris & Campbell (1995: 106–115); this hypothesis is supported by three facts. First, the variation in first person and 1+2 prefixes described above for Werikyana is not completely free. Rather, some verbs only allow for example first person *k-*, but not *j-*, while others can occur with both, which is the expected pattern in a lexical diffusion scenario.

In addition, this is speaker-dependent (Spike Gildea, p.c.), which is what one would expect from a change in progress. Second, while there is no detailed diachronic scenario for the switch of  $1>3$   $*t$ - and  $1S_A$  in the Tiriyoan languages (Section 3.3), Meira (1998: 111–112) argues that it must have happened gradually rather than instantaneously, and entailed both markers spreading at the same time. Whether this gradual switch was along ordered lines or not, lexical diffusion must have played a role. Finally, the process of lexical diffusion is seen most clearly where it was incomplete. Not all person marker extensions spread through the entire lexicon, but rather stopped short of some verbs. This is illustrated for Tiriyo first person forms of  $S_A$  verbs in (5); regular  $S_A$  verbs take phonologically determined allomorphs  $s$ - ( /  $\_e$ ) and  $t$ - ( /  $\_ə$ ), but *tən* ‘to go’ takes an “archaic” or “irregular” prefix *wi*-; it was not affected by the spread of innovative  $t$ -/ $s$ - and therefore preserves the old prefix.

(5) Tiriyo  $1S_A$  verbs (Meira 1999: 292, 294)

<i>s-epi</i>	‘I bathed’
<i>s-entapo</i>	‘I yawned’
<i>t-əturu</i>	‘I talked’
<i>t-əəniki</i>	‘I slept’
<i>wi-tən</i>	‘I went’

These incomplete extensions and the verbs that were not affected by them are the central topic of this paper.

That is, apparently ongoing changes like the situation discussed above for Werikyana will not be investigated in detail. The same is true for extensions that affected the entire verbal lexicon, although we will briefly comment on them. We have investigated the 19 person marker extensions we are aware of, but only 6 of them left a group of irregularly or archaically inflected verbs. Interestingly, these verbs are always  $S_A$  verbs, and the irregular marker is always a first person one. While there have been extensions for other person values as well, they never affect  $S_A$  verbs, only  $S_P$  ones, and they always affect the entire lexicon, at least based on the attested data. Illustrative examples for extensions affecting the entire lexicon are shown in Table 6: the extension of  $1+2S_A$   $s(i)$ - (<  $*kit$ -) in Apalaí (Table 6a), of  $2S_A$   $m(i)$ - in Panare (Table 6b),<sup>7</sup> or the extension of the entire  $S_A$  set in Waimiri-Atroari (Table 6c).

The remainder of this paper is structured as follows: In Section 3, we discuss each of these six incomplete extensions individually, discussing all attested unaffected verbs, and reconstructing proto-paradigms where necessary. In Section 4, we take a comparative look at the verbs that were not affected by these extensions. Finally, we search for factors motivating the resistance of these verbs, discuss the findings and put them in a general context of language change and morphology in Section 5.

<sup>7</sup>The presence of the third person marker  $n$ - for  $1+2$  is due to the wholesale loss of that inflectional value.

Table 6: Some examples for completed extensions (Gildea 1998: 90–92)

(a) Apalaí			(b) Panare			(c) Waimiri-Atroari		
	S <sub>A</sub>	S <sub>P</sub>		S <sub>A</sub>	S <sub>P</sub>		S	
1	Ø/ <i>i</i> -	<i>i</i> -/ <i>j</i> -	1	<i>w(i)</i> -	Ø/ <i>j</i> -	1	<i>w(i)</i> -/ <i>i</i> -	
2	<i>m(i)</i> -	o-	2	<i>m(i)</i> -		2	<i>m(i)</i> -	
1+2	<i>s(i)</i> -		1+2	<i>n(i)</i> -		1+2	<i>h(i)</i> -	
3	<i>n(i)</i> -		3	<i>n(i)</i> -		3	<i>n</i> -/Ø	

### 3 The innovative 1S<sub>A</sub> markers

As stated in Section 2.3, the person marker extensions which did not spread through the entire lexicon all have in common that they feature innovative first person markers on verbs that are (at least historically) members of the S<sub>A</sub> class. There are six attested such innovations, three of which can be reconstructed to intermediate proto-languages. The new 1S<sub>A</sub> prefix is formally identical to the 1+2 marker (Proto-Cariban *\*k*-) in three cases, to the 1S<sub>P</sub> marker (Proto-Cariban *\*u(j)*-) in two cases, and to the 1>3 marker (Proto-Cariban *\*t*-) in one case. Section 3.1 investigates the innovation of *\*k*- in Proto-Pekodian, reflected in the three daughter languages Arara, Ikpeng, and Bakairi. Section 3.2 takes a closer look at the extension of *\*k*- in Proto-Waiwaian, which was briefly shown in Section 2.3. Section 3.3 concerns the extension of *\*t*- in Proto-Tiriyoan (or Proto-Taranoan), reflected in modern Tiriyo and Akuriyo. Sections 3.4 to 3.6 look at innovative first person markers which are only attested in single modern languages: *k*- in Akuriyo, and *j*- in Carijona and Yukpa.

#### 3.1 Proto-Pekodian *\*k*-

The Pekodian branch was suggested by Meira & Franchetto (2005), as the result of fieldwork on Bakairi by Meira and the availability of more material on Ikpeng. It consists of closely related Arara and Ikpeng, with Bakairi as a more distant member. Meira & Franchetto (2005) focused on phonological and lexical properties, so no reconstructive work on Proto-Pekodian morphosyntax can be found in the literature. All three Pekodian languages have a regular 1S<sub>A</sub> marker *k*-, as evidenced by the paradigms in Table 7.<sup>8</sup> We can thus reconstruct a Proto-Pekodian 1S<sub>A</sub> marker *\*k*-.

For Arara, Alves (2017) describes six<sup>9</sup> S<sub>A</sub> verbs which have a first person marker *w(i)*- rather than *k*-, listed in (6). From a comparative view this list is not quite complete, as there is also a reflex of the copula *\*a[p]*, serving syntactically as a postposition introducing adverbial

<sup>8</sup>In Table 7 and the remainder of this paper, we omit any possible TAM suffixes from the attested forms in the literature, since a) our focus lies on the prefixes and stems, and b) full paradigms containing the same TAM suffix are rarely found.

<sup>9</sup>Seven under her analysis, which sees the two meanings of *iffi* ‘to be, to lie down’ as different verbs.

Table 7: Regular Pekodian S<sub>A</sub> verbs (Meira 2003a: 4; Alves 2017: 150; Pachêco 2001: 52)

	Bakairi ‘to go up’	Arara ‘to dance’	Ikpeng ‘to run’
1	<i>k-əku-</i>	<i>k-origu-</i>	<i>k-aranme-</i>
2	<i>m-əku-</i>	<i>m-origu-</i>	<i>m-aranme-</i>
1+2	<i>kɪd-əku-</i>	<i>kud-origu-</i>	<i>kw-aranme-</i>
3	<i>n-əku-</i>	<i>Ø-origu</i>	<i>Ø-aranme-</i>

clauses meaning ‘if’ or ‘when’ (Alves 2017: 199–201). However, its inflectional morphology features verbal Set I prefixes, including first person *w-* (7).

- |  |   |
|--|---|
| <p>(6) Arara (Alves 2017: 153)</p> <p><i>wi-geɪ</i> ‘I said’</p> <p><i>w-ɪfɪni</i> ‘I was, lied down’</p> <p><i>w-ebini</i> ‘I came’</p> <p><i>w-ibini</i> ‘I bathed’</p> <p><i>w-iptɔɲri</i> ‘I went down’</p> <p><i>w-idoli</i> ‘I went’</p> | <p>(7) Arara (Alves 2017: 200)</p> <p>1 <i>w-aptam</i> ‘when/if I was’</p> <p>2 <i>m-od-aptam</i></p> <p>1+2 <i>kud-aptam</i></p> <p>3 <i>Ø-aptam</i></p> |
|--|---|

In his brief discussion of Bakairi verbal person marking, Meira (2003a) reports the existence of two subclasses of S<sub>A</sub> verbs, one taking first person *w-*, and one *k-*. The verb used to illustrate the first group is *i* ‘to bathe’ (8), contrasting with regular *əku* ‘to go up’ in Table 7 above.

- (8) Bakairi (Meira 2003a: 4)
- w-i-də*
- 1S<sub>A</sub>-bathe-IMM
- ‘I bathed’

Of course, ‘to bathe’ is also found in the *w*-list for Arara. While Meira (2003a: 4) does list *ge* ‘to say’, *tə* ‘to go’, and *æ(wi)* ‘to come’ as examples of S<sub>A</sub> verbs, he does not indicate whether they belong to the class of S<sub>A</sub>-1 verbs, with first person *k-*, or the S<sub>A</sub>-2 verbs, with *w-*.<sup>10</sup> Luckily, while von den Steinen (1892) did not accurately record all phonemic distinctions in Bakairi (Meira 2005), he does provide inflected forms of cognates to the Arara verbs in (6). We present them in (9) according to our current understanding of Bakairi phonology and verbal morphology, based on Wheatley (1969), Meira (2003a, 2005), and Franchetto & Meira (2016).

<sup>10</sup>It should be noted at this point that Meira (2003a) indicates that the same verbs which take first person *w-* in Bakairi also take a 1+2 marker *k-*. However, this marker is only illustrated for ‘to bathe’, both by Meira (2003a) and von den Steinen (1892). Given the lack of data for other verbs, we will not further discuss this potential additional pattern. If the characterization by Meira is accurate, then the pattern is fully parallel to the distribution of the first person prefixes.



## (9) Bakairi (von den Steinen 1892: 131, 397, 76, 137, 374, 130)

- |   |  |
|---|--|
| <p>a. ⟨u-yépa⟩<br/> <i>u-ge-pa</i><br/> 1S<sub>A</sub>-say-NEG<br/> ‘I don’t say.’</p>        | <p>d. ⟨kχ-itaké-he⟩<br/> <i>k-itagi-se</i><br/> 1S<sub>A</sub>-go.down-NPST?<br/> ‘I go down.’</p>           |
| <p>b. ⟨wi-táki⟩ / ⟨wi-tági⟩<br/> <i>w-i-taki</i><br/> 1S<sub>A</sub>-be-INT<br/> ‘I was.’</p> | <p>e. ⟨úta⟩ / ⟨uúta⟩<br/> <i>u-tə</i><br/> 1S<sub>A</sub>-go<br/> ‘I go.’</p>                                |
| <p>c. ⟨kχaewí-le⟩<br/> <i>k-əewi-li</i><br/> 1S<sub>A</sub>-come-IMM<br/> ‘I came.’</p>       | <p>f. ⟨töre-w-akine⟩<br/> <i>təɾə w-a-kine</i><br/> there 1S<sub>A</sub>-be-PST.CONT<br/> ‘I was there.’</p> |

All available descriptions of the third Pekodian language, Ikpeng, list *k-* as the only 1S<sub>A</sub> marker (Pachêco 1997: 55; Campetela 1997: 105; Pachêco 2001: 64; Alves Chagas 2013: 205). However, most Ikpeng cognates of the Arara verbs with 1S<sub>A</sub> *w-* actually do not take *k-*, but rather *i-* or Ø, as shown in (10). The exception is ‘to go’, which has *k-* (11). There is a formally identical Ikpeng cognate of Arara *iptonj* ‘to go down’, but no first person forms are attested (Angela Chagas, p.c.). Further, while there are reflexes of *\*a[p]* ‘to be’ in Ikpeng, only *\*eti* reflexes seem to occur with first person inflectional prefixes (Gildea 2018: 401).

## (10) Ikpeng

- a. *i-ge-li*  
1-say-REC  
‘I said.’ (Pachêco 2001: 209)
- b. Ø-*effi-li*  
1-be-REC  
‘I was.’ (Pachêco 2001: 139)
- c. *afɣagotpop* Ø-*ip-fɣi*      *ik-gwa-kfɣi*  
always      1-bathe-NPST      river-LOC.aquatic-ALL  
‘I always bathe in this river.’ (Pachêco 1997: 68)

## (11) Ikpeng (Pachêco 2001: 80)

- k-aran-fɣi*  
1-go-NPST  
‘I’m going.’

Table 8: Verbs preserving 1S<sub>A</sub> \**w*- in Proto-Pekodian (Alves 2017: 153, 200; Pachêco 2001: 42, 80, 139, 209; von den Steinen 1892: 76, 130, 131, 137, 374, 397; Pachêco 1997: 68; Meira 2003a: 4; p.c., Angela Fabíola Alves Chagas)

	Proto-Pekodian	Arara	Ikpeng	Bakairi
‘say’	* <i>wi-ge-</i>	<i>wi-ge-</i>	<i>i-ge-</i>	<i>u-ge-</i>
‘bathe’	* <i>w-ipi-</i>	<i>w-ibi-</i>	Ø- <i>ip-</i>	<i>w-i-</i>
‘be-1’	* <i>w-ap-</i>	<i>w-ap-</i>	–	<i>w-a-</i>
‘be-2’	* <i>w-effi-</i>	<i>w-iffi-</i>	Ø- <i>effi-</i>	<i>w-i-</i>
‘come’	* <i>w-epi-</i>	<i>w-ebi-</i>	<i>k-arep-</i>	<i>k-æwi-</i>
‘go down’	* <i>w-iptə-</i>	<i>w-ipton-</i>	?- <i>ipton-</i>	<i>k-itəgi-</i>
‘go’	* <i>w-itən-</i>	<i>w-ido-</i>	<i>k-aran-</i>	<i>u-tə-</i>

Table 8 gives an overview of the first person forms of the seven verbs under discussion, along with our Proto-Pekodian reconstruction. The presence and distribution of the Ikpeng 1S<sub>A</sub> marker *i*-/Ø suggests that it is cognate with Arara 1S<sub>A</sub> *w(i)*-. Indeed, Proto-Xinguan \**w* is attested as sometimes being lost in Ikpeng, as evidenced by the correspondences in Table 9. While it is by no means a regular sound change, it allows us to securely connect the two prefixes. Similarly, the supposed change of \**wi* to Bakairi *u* is found in other correspondences, like *udo* (Meira & Franchetto 2005) from Proto-Cariban \**witoto* ‘person’ (Gildea & D. Payne 2007: 4). Thus, we reconstruct a 1S<sub>A</sub> prefix \**w(i)*- to Proto-Pekodian, identical to the Arara one in form and distribution.

As for the forms of the verb stems, a few comments are necessary: For ‘to be’, Ikpeng *e* is very likely the original vowel, given the Proto-Cariban form \**eti* (Section 4.1). For ‘to go down’, we reconstruct \**i* as the initial vowel rather than \**i*, see Section 4.5. Further, the forms are not fully cognate; Meira & Franchetto (2005) make no mention of a regular correspondence between Bakairi *gi* and Ikpeng *η*. However, the addition of a final *η* in Proto-Xinguan is attested elsewhere,<sup>11</sup> and based on the fact Bakairi has generally lost much segmental material, we suggest that both *η* and *gi* are later additions to a root \**iptə*.

The forms for ‘to come’ are not fully cognate, either: Ikpeng and Bakairi both show a reflex of the Proto-Pekodian detransitivizer \**əd*- in combination with a root reconstructible as \**epi*. In contrast, the Arara first person form is directly based on this root \**epi*. However, reflexes of \**əd-epi* can be found elsewhere in the Arara paradigm (12).

<sup>11</sup> a) Proto-Cariban \**əne* ‘to see’, Arara and Ikpeng *enēη*; b) Proto-Cariban \**əta* ‘to hear’, Arara *taη*, Ikpeng *iray*; and c) Proto-Cariban \**ənə* ‘to eat meat’, Arara *onon* ‘to bite’ (Gildea & D. Payne 2007: 8; Alves 2017: 56, 144, 57; Pachêco 2001: 25, 270).

Table 9: Loss of *\*w* in Ikpeng (de Souza 1993: 44, 70; Alves Chagas 2013: 118; Alves 2017: 143; Pachêco 2001: 21, 164; de Souza 2010: 9; Campetela 1997: 40)

Meaning	Arara	Ikpeng
‘to defecate’	<i>watke</i>	<i>atke</i>
‘DAT’	<i>wina</i>	<i>ina</i>
‘dog’	<i>wokori</i>	<i>akari</i>
‘capuchin monkey’	<i>tawe</i>	<i>tae</i>
‘to sleep’	<i>winki</i>	<i>inki</i>

- (12) Arara (Alves 2017: 150)  
*m-odebi-ni*  
 2S<sub>A</sub>-come-REC  
 ‘You came.’

On the other hand, both Ikpeng and Bakairi show reflexes of *\*ad-ebi* throughout the whole paradigm. Following the line of reasoning used by Meira (1998: 114) (see also Section 3.3) for a similar pattern in the three Taranoan languages, we suggest that the idiosyncratic pattern in Arara is reconstructible to Proto-Pekodian, and that Bakairi and Ikpeng independently regularized the paradigm to only use *\*ad-epi*.

The V-initial nature of ‘to go’ is evidenced in its Xinguan forms, while Bakairi *\*wi* → *u* muddled the morpheme boundary; other forms are V-initial (Section 4.3). The Ikpeng form *aran* is compatible with our reconstruction *\*itən* when considering that Ikpeng *a* is an attested outcome of *\*ə*.<sup>12</sup> This attested change of *\*ə* to *a* need only be preceded by a assimilatory lowering of initial *\*i* to *\*ə*, to yield the form *aran* from *\*itən*. Other Ikpeng reflexes of ‘to go’ offer evidence for the suggested intermediate stage *\*ətən*: *ero-li* ‘s/he went’ (Pachêco 2001: 25).

Summing up, an innovative 1S<sub>A</sub> marker *\*k-* is reconstructible to Proto-Pekodian. Seven verbs can be reconstructed as having resisted this innovation, and preserving 1S<sub>A</sub> *\*w(i)-* in Proto-Pekodian. In later, individual developments, Bakairi extended *k-* to ‘to go down’, and Ikpeng to ‘to go’. Further, both languages regularized the paradigm of ‘to come’ to *\*ad-epi*, accompanied by the extension of *k-*.

### 3.2 Proto-Waiwaian *\*k-*

This extension was briefly discussed in Section 2.3; the new 1S<sub>P</sub> prefix *\*k-*, already innovated at the Proto-Parukotoan stage, was later extended to 1S<sub>A</sub> in Proto-Waiwaian. For regularly inflected verbs, this created a unified 1S category, reflected in both Hixkaryána and Waiwai

<sup>12</sup>a) *akari* ‘dog’ in Table 9 above; b) *anma* ‘path’ (Pachêco 2001: 24) from Proto-Cariban *\*atema* (Gildea & D. Payne 2007: 12); and c) *jaj* ‘tree’ (Pachêco 2001: 98) from Proto-Cariban *\*jaje*.

Table 10: Regular ‘to fall’ (S<sub>A</sub>) and ‘to sleep’ (S<sub>P</sub>) in Proto-Waiwaian (Howard 2001: 150; W. N. Hawkins & R. E. Hawkins 1953: 209, 211; Derbyshire 1985: 189, 190, 196; R. E. Hawkins 1998: 30)

	Proto-Waiwaian		Hixkaryána		Waiwai	
	‘to fall’	‘to sleep’	‘to fall’	‘to sleep’	‘to fall’	‘to sleep’
1	* <i>k-eφurka-</i>	* <i>ki-winiki-</i>	<i>k-ehurka-</i>	<i>ki-niki-</i>	<i>k-eφirka-</i>	<i>ki-winiki-</i>
2	* <i>m-eφurka-</i>	* <i>o-winiki-</i>	<i>m-ehurka-</i>	<i>o-wniki-</i>	<i>m-eφirka-</i>	<i>mi-winiki-</i>
1+2	* <i>t-eφurka-</i>	* <i>tit-winiki-</i>	<i>t-ehurka-</i>	<i>ti-niki-</i>	<i>tʃ-eφirka-</i>	<i>tit-winiki-</i>
3	* <i>n-eφurka-</i>	* <i>ni-winiki-</i>	<i>n-ehurka-</i>	<i>ni-niki-</i>	<i>n-eφirka-</i>	<i>ni-winiki-</i>

(Table 10). Not all verbs were affected by this extension, though: Waiwai *ka* ‘to say’ does not take *ki-*, but rather conservative *wi-* (13a). Its Hixkaryána counterpart has a prefix *i-* (13b), a potential reflex of 1S<sub>A</sub> \**w(i)-*. A formally identical prefix occurs in 1>3 scenarios in Hixkaryána (13c), which regularly corresponds to Waiwai *w(i)-* (13d).

- (13) a. Waiwai (R. E. Hawkins 1998: 71)  
*wiikekne*  
*wi-ka-jakne*  
 1-say-PST  
 ‘I said.’
- b. Hixkaryána (Derbyshire 1985: 124)  
*roxehra nay hami Kaywerye ikekoni*  
*ro-ʃe-hira n-a-je hami kajwerie i-ka-jakoni*  
 1-DES-NEG 3-be-NPST.UNCERT EVID K. 1S<sub>A</sub>-say-REM.CONT  
 ‘I said (to myself), “Kaywerye evidently doesn’t like me.”’
- c. Hixkaryána (Derbyshire 1985: 191)  
*i-koroka-no*  
 1>3-wash-IMM  
 ‘I washed him.’
- d. Waiwai (R. E. Hawkins 1998: 192)  
*wiyesî*  
*wi-jo-jasi*  
 1>3-boil-NPST  
 ‘I will boil it.’

This correspondence allows us to establish Hixkaryána *i-* a reflex of \**w(i)-*, similar to Ikpeng (Section 3.1). Notably, Derbyshire (1985) does not see this *i-* as an irregular 1S<sub>A</sub>, but as the regular 1>3 marker, because he considers Hixkaryána *ka* ‘to say’ to be transitive, an issue which will be discussed in Section 4.2.

Table 11: Verbs preserving 1S<sub>A</sub> \*w- in Proto-Waiwaian (Derbyshire 1979: 4; R. E. Hawkins 1998: 71, 85; Derbyshire 1985: 70, 197, 198; p.c., Spike Gildea)

	Proto-Waiwaian	Hixkaryána	Waiwai
‘say’	*wi-ka-	i-ka-	wi-ka-
‘be-1’	*w-ah-	w-ah-	w-a-
‘be-2’	*w-efi-	w-efe-	w-eefi-
‘go’	*wi-tom-	i-to-	kiw-tom-

There are three more verbs which did not take innovative \*k- in Proto-Waiwaian, shown alongside \*ka ‘to say’ in Table 11. The two roots for ‘to be’ are straightforwardly reconstructible, whereas ‘to go’ is somewhat of a special case. While Hixkaryána has the expected *i-*, Waiwai seems to have combined innovative *k-* with the old \*w-, an etymological analysis also considered by Gildea (1998: 90). Alternatively, this form might have been influenced by deverbalized forms of ‘to go’, where a reflex of the S<sub>A</sub> class marker \*w- has become fossilized (14).

(14) Waiwai reflexes of the S<sub>A</sub> class marker \*w-

- a. *o-wto-topo-nho* ‘my trip’ (R. E. Hawkins 1998: 92)
- b. *o-wto-fthe* ‘after I went’ (R. E. Hawkins 1998: 165)
- c. *ki-wto-me* ‘for us to go’ (R. E. Hawkins 1998: 204)

In any case, Hixkaryána ‘to go’ was clearly not affected by the extension of \*k-, allowing us to reconstruct a Proto-Waiwaian first person form \*wi-tom-.

Summing up, we reconstruct the four verbs \*efi and \*a[h] ‘to be’, \*ka[s] ‘to say’, and \*[i]to[m] ‘to go’ as preserving the old 1S<sub>A</sub> marker \*w- in Proto-Waiwaian, while the rest took on innovative \*k-.

### 3.3 Proto-Tiriyóan \*t-

The Taranoan languages were already grouped together by Girard (1971), consisting of closely related Tiriyó and Akuriyó (subsumed here under the moniker Tiriyóan), and the more distant member Carijona. Meira (1998) provides an extensive phonological, morphological, and lexical reconstruction of Proto-Taranoan. The Set I paradigms of Tiriyó and Akuriyó contain an interesting puzzle: Proto-Cariban 1>3 \*t- and 1S<sub>A</sub> \*w- seem to have switched places. This resulted in a regular 1S<sub>A</sub> marker of the form \*t̃- / e, \*t- / ə (Table 12); the latter allomorph was subsequently replaced by *k-* in Akuriyó (Section 3.4).

The question of how this switch happened in detail (Meira 1998: 107–112) still has no answer, although it seems necessary to assume a scenario whereby both \*t- and \*w- for a

Table 12: Regular Proto-Tiriyoan S<sub>A</sub> verbs (Meira 1999: 292, 294; Gildea 1994: 87)

‘to bathe (INTR)’			‘to sleep’			
	Proto-Tiriyoan	Tiriyó	Akuriyó	Proto-Tiriyoan	Tiriyó	Akuriyó
1	<i>*ʃ-epi-</i>	<i>s-epi-</i>	<i>ʃ-epi-</i>	<i>*t-əəniki-</i>	<i>t-əəniki-</i>	<i>k-əəniki-</i>
2	<i>*m-epi-</i>	<i>m-epi-</i>	<i>m-epi-</i>	<i>*m-əəniki-</i>	<i>m-əəniki-</i>	<i>m-əəniki-</i>
1+2	<i>*ke-epi-</i>	<i>ke-epi-</i>	<i>ke-epi-</i>	<i>*kit-əəniki-</i>	<i>kit-əəniki-</i>	<i>kəʔ-əəniki-</i>
3	<i>*n-epi-</i>	<i>n-epi-</i>	<i>n-epi-</i>	<i>*n-əəniki-</i>	<i>n-əəniki-</i>	<i>n-əəniki-</i>

Table 13: Verbs preserving 1S<sub>A</sub> \**w-* in Proto-Tiriyoan (Meira 1999: 292, 294, 339, 1998: 112, 113, 114, 115, 165)

	Proto-Tiriyoan	Tiriyo	Akuriyó
‘go’	* <i>wi-təmi-</i>	<i>wi-tən-</i>	<i>ə-təmi-</i>
‘say’	* <i>wi-ka-</i>	<i>wi-ka-</i>	<i>wi-ka-</i>
‘come’	* <i>w-əʔepi-</i>	<i>w-əepi-</i>	<i>Ø-eepti-</i>
‘be-1’	* <i>w-a-</i>	<i>w-a-</i>	<i>Ø-a-</i>
‘be-2’	* <i>w-eʔi-</i>	<i>w-ei-</i>	<i>?-eʔi-</i>

time occurred on both transitive and intransitive verbs (Meira 1998: 112).<sup>13</sup> As for intransitive verbs unaffected by the spread of \**t-*, Meira (1998) reconstructs the first four items in Table 13 as taking \**w-* in Proto-Taranoan; we offer our reconstructed Proto-Tiriyoan forms. To this list, we add the other copular root \**eʔi* (Proto-Taranoan \**effi* [Meira 1998: 165]), which has first person *w-*, at least in Tiriyo.

We agree with Meira’s (1998: 113) identification of the idiosyncratic Akuriyó first person prefix *ə-* on ‘to go’ as a reflex of \**wi-*. Both components of the irregular change \**wi-* > *ə-* – loss of \**w* and lowering of \**i* to *ə* – are found in other person prefixes (15).

- (15) a. Akuriyó (Gildea 1994: 86)  
       (*w*)*i-toka*  
       1>3-hit  
       ‘I hit him/her.’  
   b. Akuriyó (Meira 1998: 114)

<sup>13</sup>In fact, even the issue of *when* this happened is open. It could have happened at the Proto-Taranoan stage, but the subsequent introduction of *j-* in Carijona (Section 3.5) would have erased any traces of such an innovation. Accordingly, Meira (1998) hesitates to assign this extension to a specific proto-language. We take a conservative stance and reconstruct it to Proto-Tiriyoan only, but acknowledge the possibility of it happening already in Proto-Taranoan.

*kəʔ-eepi*  
 1+2-come  
 ‘We came.’

For ‘to come’, Meira (1998: 114–115) reconstructs Proto-Taranoan *\*æpi* for first person, and *\*eepi* for the other person values, based on an idiosyncratic paradigmatic pattern in Tiriyo and the vowel length in Akuriyó. Akuriyó (and Carijona) then levelled this original distribution, similar to what we have suggested for Pekodian (Section 3.1). We agree with this scenario, with the exception that Tiriyo *æpi* is clearly a reflex of *\*æt-epi* (Section 4.4), meaning that the Proto-Tiriyoan form would have been *\*əʔepi*.

In addition, Gildea (1994) recorded four more Akuriyó verbs seemingly not affected by innovative *\*t-* (16a), all *e*-initial movement verbs. We have only found a Tiriyo cognate for *erama* ‘to return’, which behaves like a regular *S<sub>A</sub>* verb in taking *s-* (16b). Further, these verbs are not mentioned by Meira (1998), who was also working with Gildea’s (1994) data. Given that this data potentially has strong Tiriyo and/or Wayana influence (Gildea 1998: 253) and the lack of support by Meira’s data, we cannot reconstruct these verbs as not being affected by the extension of Proto-Tiriyoan *\*t-*.

- (16) a. Akuriyó 1*S<sub>A</sub>* *\*w-* (Gildea 1994: 84–86)  
           ‘return’   Ø-*erama-*  
           ‘get up’   Ø-*eokahtə-*  
           ‘jump’   *w-ejahka-*  
           ‘go out’   *w-ekirika-*  
       b. Tiriyo *s-erama-* (Meira 1999: 301)

### 3.4 Akuriyó *k-*

After the split-up of Proto-Tiriyoan, when *\*t-* had largely replaced *\*w-*, Akuriyó innovated yet another 1*S<sub>A</sub>* marker: *k-*. It seems to have replaced *\*t-* only in specific environments, with the two markers showing a clear phonologically conditioned distribution in the Akuriyó data available to us (Gildea 1994), with all relevant verbs shown in Table 14. Meira (1998: 107) largely confirms the distribution shown here, but mentions “several cases of first person *t-* in Akuriyó” (on *ə*-initial verbs), albeit without any examples. He also suggests that *k-* might be more recent, with which we agree; since the distribution *\*t-* / *ə* / *\*tʃ-* / *ə* is reconstructible to Proto-Tiriyoan, the most likely scenario is *k-* replacing *\*t-* but not *\*tʃ-*. The few *t-* mentioned by Meira (1998) were then either reintroduced under Tiriyo influence, or are the last remnants of the replacement of *\*t-*. Since there are no examples of or information about *ə*-initial verbs with *t-*, we cannot discuss these cases.

All verbs in Table 13 above did of course not introduce *k-*, either; we do not know the first-person form of the copular verb *eʔi*. In addition, there is an *S<sub>A</sub>* verb *i(h)tə* ‘to go down’, which

Table 14: Regular Akuriyó 1S<sub>A</sub> markers (Gildea 1994: 77, 79, 82, 84, 85, 86, 87)

first person <i>k</i> -	first person <i>fj</i> -
<i>æempa</i> - ‘to learn’	<i>epi</i> - ‘to bathe (INTR)’
<i>ææfena</i> - ‘to cry’	<i>ekirika</i> - ‘to stay back’
<i>æiwa</i> - ‘to tremble’	<i>entapo</i> - ‘to yawn’
<i>æmæmi</i> - ‘to enter’	<i>etonema</i> - ‘to lie down’
<i>ætajiŋka</i> - ‘to run’	<i>ewai</i> - ‘to sit down’
<i>æturu</i> - ‘to talk’	<i>ehpa</i> - ‘to bathe (INTR)’
<i>æniki</i> - ‘to sleep’	

Table 15: Regular Carijona verbs (Meira 1998: 106; Robayo Moreno 2000: 173)

	‘to arrive’	‘to dance’
1	<i>ji-tuda</i> -	<i>j-eharaga</i> -
2	<i>mi-tuda</i> -	<i>m-eharaga</i> -
1+2	<i>kisi-tuda</i> -	<i>kis-eharaga</i> -
3	<i>ni-tuda</i> -	<i>n-eharaga</i> -

has an irregular first person marker *p*- in Akuriyó, also reconstructible to Proto-Tiriyoan (17). It was not affected by the extension of Akuriyó *k*-, but whether it existed when Proto-Tiriyoan \**t*- was extended is unclear (see Section 4.5).

- (17) First person forms of ‘to go down’ (Meira 1999: 294; Gildea 1994: 84)
- |         |                 |
|---------|-----------------|
| Tiriyo  | <i>p-ihta</i> - |
| Akuriyó | <i>p-itə</i> -  |

### 3.5 Carijona *j*-

As discussed by Meira (1998: 105–107), Carijona has extended the 1S<sub>P</sub> marker *j(i)*- to S<sub>A</sub> verbs.<sup>14</sup> This, in combination with the extension of 2S<sub>A</sub> *m*- and 1+2S<sub>A</sub> *kit*-/*kis*- to S<sub>P</sub> verbs, results in a single unified S category (Table 15). Although the split-S system has been lost entirely, former S<sub>A</sub> verbs can be identified by taking a detransitivizer, like *ehinəhi* ‘to fight’, derived from *hinəhi* ‘to kill’ (Robayo Moreno 2000: 179), shown in (18).

<sup>14</sup>Since all affected S<sub>A</sub> verbs are V-initial, only the /\_V allomorph *j*- occurs in that context.



- (18) Carijona (Koch-Grünberg 1908: 79)  
*hɛnɛ(x)tónoko-máɾɛ y-ɛ-hɛnɛ(x)yaj*  
*hinəhtono-ko=marə j-e-hinəhi-jai*  
 enemy-PL=with 1-DETRZ-kill-NPST.CERT  
 ‘I fight with the enemies.’

As noted in Section 3.3, this extension also erased any traces of a potential Proto-Taranoan 1S<sub>A</sub> marker \**t-*. However, it did not fully eclipse the old 1S<sub>A</sub> marker \**w-*, which is attested as being preserved in the verbs *tə* ‘to go’ (19a) and *a* ‘to be’ (19b).

- (19) Carijona (Guerrero-Beltrán 2016: 5, 42)
- a. *wi-tə-e=rehe*  
 1-go-NPST=FRUST  
 ‘I almost go (but I am not going to go).’
- b. *aji-marə-ne w-a-e*  
 2-with-PL 1-be-NPST  
 ‘I am with you all.’

In addition, the verb *ka* ‘to say’ has a zero-marked first-person form (20). Based on other C-initial verbs like *tə* ‘to go’ or *tuda* ‘to arrive’, one would either expect *wi-* or *ji-*. We analyse this  $\emptyset$  as a reflex of \**wi-*, primarily based on the (albeit more regular) loss of \**w* in Ikpeng and Hixkaryána, and the presumed higher propensity of an irregular marker for idiosyncratic phonological erosion. Further, one may suggest the difference between C-initial *ka* ‘to say’ and *tə* ‘to go’ to result from the latter’s earlier V-initial nature (Section 4.3).

- (20) Carijona David Felipe Guerrero-Beltrán (p.c.)  
*dēmēmara kae ɛwī iya*  
*n-tə-mə=marə Ø-ka-e əwi i-ja*  
 3-go-PST=DUB 1-say-NPST.CERT 1PRO 3-OBL  
 ‘“Did s/he leave?”, I say to him.’

### 3.6 Yukpa *j-*

Yukpa has lost most of its Set I constructions, mostly employing innovative ones (Meira 2006). It preserves the Set I prefixes in the immediate past, where the 1S<sub>P</sub> marker appears to have been extended to S<sub>A</sub> verbs, as evidenced by the paradigms in Table 16. The loss of split-S in favor of the 1S<sub>P</sub> marker is accompanied by the 2S<sub>A</sub> marker *m(i)-* extending to S<sub>P</sub> verbs, and 1+2 being lost as an inflectional value.

Table 16: Regular Yukpa verbs (Largo 2011: 72, 76; Meira 2006: 139)

	‘to fall’	‘to sleep’	‘to wash self’
1	<i>j-ata-</i>	<i>ji-ni-</i>	<i>j-otum-</i>
2	<i>m-ata-</i>	<i>mi-ni-</i>	<i>m-otum-</i>
3	<i>n-ata-</i>	<i>ni-ni-</i>	<i>n-otum-</i>

The normal intransitive first person marker is *j(i)-*, including those with clear reflexes of the detransitivizer *\*ate/e-*, like *otum* ‘to wash self’ in Table 16. The analysis that this is a reflex of the 1<sub>SP</sub> marker *\*u(j)-* is supported by the same form occurring in 3>1 scenarios (21a).

(21) Yukpa (Meira 2006: 139)

- a. *aw j-esare*  
1<sub>PRO</sub> 3>1-see  
‘S/he saw me.’
- b. *aw Ø-esare*  
1<sub>PRO</sub> 1>3-see  
‘I saw it.’

On the other hand, 1>3 scenarios are zero-marked (21b). Since Proto-Cariban 1<sub>SA</sub> *\*w(i)-* was extended to 1>3 scenarios in most languages (Gildea 1998: 81–82), and since it is prone to phonological erosion across the family (Sections 3.1 and 3.2), we argue that the zero in 1>3 scenarios is in fact the Yukpa reflex of *\*w-*.

In intransitive verbs, this first-person zero marking is attested only for *to* ‘to go’ (22). It contrasts with regular C-initial verbs taking *ji-*, like ‘to sleep’ in Table 16. Thus, we conclude that the extension of *j-* in Yukpa stopped short of *to* ‘to go’, which preserves a phonologically reduced reflex of *\*wt-*.

(22) Yukpa (Meira 2006: 139)

- aw Ø-to*  
1<sub>PRO</sub> 1<sub>SA</sub>-go  
‘I went.’

## 4 Resistant verbs from a comparative perspective

In Section 3, we introduced six distinct extensions of personal prefixes into 1<sub>SA</sub> territory, and identified verbs resistant to each innovation. The set of unaffected verbs was rather small in most cases, and (proto-)languages show a considerable degree of overlap in what verbs

are unaffected. In this section, we present these verbs from a comparative perspective. Section 4.1 treats both roots of the copula *\*eti/a[p]* ‘to be’, Section 4.2 *\*ka[ti]* ‘to say’, Section 4.3 *\*itə[mə]* ‘to go’, and Section 4.4 *\*(ət)jəpi* ‘to come’; these are all verbs that Gildea & D. Payne (2007) reconstruct as S<sub>A</sub> verbs that were not derived from transitive verbs. Section 4.5 takes a look at *\*ipitə* ‘to go down’, which is resistant in Proto-Tiriyoan and Proto-Pekodian, and Section 4.6 investigates *\*e-pi* ‘to bathe’, of which the Proto-Pekodian reflex *\*i-pi* resisted the extension of *\*k-*. The *e*-initial verbs not affected by the extension of *\*k-* in Akuriyó (Section 3.4) will not be discussed here, as they are a large and phonologically coherent group.

#### 4.1 *\*eti* and *\*a[p]* ‘to be’

For a comprehensive comparative overview for this verb, we refer the reader to Gildea (2018: 375–382), who reconstructs two distinct roots serving as verbs ‘to be’ in modern Cariban languages. One is the older copula *\*a[p]*, which can be reconstructed as already having various irregularities in Proto-Cariban. The other is a root *\*eti* reconstructed by Meira & Gildea (2009) and Gildea (2018) as originally meaning ‘to dwell, live’, but serving as a copula in Proto-Cariban.<sup>15</sup> Various modern languages use reflexes of these two roots in a suppletive manner, conditioned by person and/or TAM value. Both roots preserved 1S<sub>A</sub> *\*w-* in Proto-Pekodian, Proto-Waiwaian, and Proto-Tiriyoan (Sections 3.1 to 3.3). Akuriyó *a* was not affected by the extension of *k-* (Section 3.4), while *e?i* is not attested in a first-person form. Carijona innovated *j-*, but only in the *effi* root allomorph (23); the *a* root preserves *w-* (Section 3.5). Yukpa innovated *j-* for reflexes of both *\*a[p]* and *\*eti*, which are preserved as encliticized auxiliaries in certain constructions (24).

- (23) Carijona (Robayo Moreno 1989: 177)  
*iretibə effinəme gərə jeffi*  
*ireti-bə effi-nə=me gərə j-effi-i*  
 then-from be-INF=ATTRZ still 1-be-PFV  
 ‘Then I was already grown up.’

- (24) Yukpa (Meira 2006: 143–144)
- |   | NPST             | PST          |
|---|------------------|--------------|
| 1 | = <i>j-a(-s)</i> | = <i>j-e</i> |
| 2 | = <i>mak(o)</i>  | = <i>m-e</i> |
| 3 | = <i>mak(o)</i>  | = <i>n-e</i> |

<sup>15</sup>Such a stative, locative source is also suggested by the existence of *iffi* ‘to lie down’ in Arara (Alves 2017: 196).

Table 17: Reflexes of *\*ka[ti]* ‘to say’ (Meira 2003a: 4; Franchetto 2008: 48; Pachêco 2001: 209; Alves 2017: 153; Derbyshire 1985: 182; Meira 1998: 113; E. Koehn & S. Koehn 1986: 107; R. E. Hawkins 1998: 26; Camargo & Tapinkili 2010: 66; Abbott 1991: 59; Swiggers 2010: 123; Courtz 2008: 430; Caesar-Fox 2003: 125; M.-C. Mattéi-Müller 1994: 102; p.c., Spike Gildea)

Language	Form
Werikyana	<i>ka[s]</i> k a s
Hixkaryána	<i>ka[h]</i> k a h
Waiwai	<i>ka[s]</i> k a s
Arara	<i>ke</i> k e
Ikpeng	<i>ke</i> k e
Bakairi	<i>ke</i> k e
Tiriyó	<i>ka</i> k a
Akuriyó	<i>ka</i> k a
Carijona	<i>ka</i> k a
Wayana	<i>ka[i]</i> k a i
Apalaí	<i>ka[ɨ]</i> k a ɨ i
Kari’ña	<i>ka</i> k a
Kapón	<i>ka</i> k a
Pemón	<i>ka</i> k a
Macushi	<i>ka</i> k a
Panare	<i>ka[h]</i> k a h
Upper Xingu Carib	<i>ki</i> k i

#### 4.2 *\*ka[ti]* ‘to say’

Most reflexes of this verb are simply *ka*, but a fleeting syllable *\*ti* is reconstructed by Gildea & D. Payne (2007), best visible in the imperative forms of some languages (25).

- (25) Apalaí  
*kafi-ko* ‘say!’  
 (E. Koehn & S. Koehn 1986: 35)

A comparison of the longest forms attested in each language is shown in Table 17. Segments of cognate forms in this and other tables were aligned automatically with LingPy (List et al. 2021), for easier recognition of correspondences. This verb was not affected by any of the extensions found in Proto-Pekodian, Proto-Waiwaian, Proto-Tiriyóan, Akuriyó, or Carijona (Sections 3.1 to 3.5). We do not know the first person prefix of its Yukpa reflex *ka*.

As briefly mentioned in Section 3.2, Derbyshire (1985) analyzes this verb as transitive in Hixkaryána. This analytical choice is not only motivated by avoiding an idiosyncratic intransitive first person prefix *i-*: Hixkaryána *ka* also behaves like a transitive verb in other ways,

for instance by showing the complementary distribution of the third person marker *n-* and preceding objects – in this case direct speech or ideophones (26).

(26) Hixkaryána

- a. *oni wyaro nkekoni biryekomo, tiyoni wya*  
*oni wjaro n-ka-jakoni birjekomo ti-joni wja*  
 this like 3-say-REM.CONT boy COR-mother OBL  
 ‘This is what the boy said to his mother.’ (Derbyshire 1985: 36)
- b. *moro ha, ketxkoná hatá.*  
*moro ha ka-jafjkoni hati*  
 MED.DEM.INAN INTS say-REM.CONT.PL HSY  
 ‘‘That one there’’ they said.’ (Derbyshire 1965: 14)

In (26a), the prefix *n-* occurs because there is no preceding object (‘he said it like this’). In (26b), it does not occur, because ‘they said’ is preceded by direct speech. This complementary distribution is otherwise only found with transitive verbs (Gildea 1998: 59–60). The verb shows the same pattern, albeit inconsistently, in Tiriyo (Carlin 2004: 267).

Further comparative evidence also points to *\*ka[ti]* ‘to say’ showing transitive traits: Tiriyo *ka* is characterized as the only intransitive verb being able to take the causative suffix *-po* and the agentive nominalizer *-ne* (Meira 1999: 263, 169). The exceptionality of *ka* ‘to say’ taking *-po* ‘CAUS.TR’ has also been noted for Kari’ña (Courtz 2008: 82) and Wayana (Tavares 2005: 258). The agent nominalizer *\*-ne* gave rise to the Panare gnomic verbal suffix *-je* on transitive verbs (Gildea 1998: 184–185). The occurrence of *-je* on *ka* has led to differing categorizations as transitive (T. E. Payne & D. L. Payne 2013: 214) or intransitive (M.-C. Mattéi-Müller 1994: 102). Reflexes of another transitive causativizer *\*-metipo* (Gildea 2015) are found with *ka* in Apalaí (E. Koehn & S. Koehn 1986: 51) and Waiwai (R. E. Hawkins 1998: 52).

Our classification of ‘to say’ as an intransitive verb is supported primarily by prefix patterns: Kari’ña offers a minimal pair between transitive *ka* ‘to remove’ and intransitive *ka* ‘to say’, *sikai* ‘I took it away’ vs *wikai* ‘I said’ (Courtz 2008: 288, 45).<sup>16</sup> Similarly, ‘to say’ in Pekodian languages has a reflex of 1S *\*w-* (Section 3.1), and not 1>3 *s-* (Bakairi) or *\*ini-* (Proto-Xinguan). Additionally, the *S<sub>A</sub>* class marker *w-* occurs on nominalizations in Kari’ña (27), and it is probably reflected in vowel length in the Tiriyo (Meira 1999: 333) and Wayana (Tavares 2005: 196) participles.

<sup>16</sup> Interestingly, the Kari’ña causativized form *kapo* ‘to make say’ does not have the regular 1>3 prefix *s(i)-*, but irregular *w(i)-* (Courtz 2008: 430).

- (27) Kari'ña (Courtz 2008: 202)  
*Ômakon wà oti ywykàpo kaiko.*  
*o-ʔma-kon ʔwa oti i-wi-ka-ʔpo kai-ko*  
 2-child-PL OBL greeting 1-S<sub>A</sub>-say-PST.NMLZ say-IMP  
 'Pass my greetings to your children.'

Summing up, this verb could be reconstructed as being intransitive based on its prefixes, but transitive based on some suffixes. Hixkaryána has lost the main intransitive criteria, making its reflex look more like a transitive verb. It is not attested as being affected by any of the person marker extensions under discussion.

### 4.3 \*itə[mə] 'to go'

This verb is reconstructed by Gildea & D. Payne (2007) as \*tə[mə], like \*ka[tɪ] 'to say' with a fleeting second syllable. It is true that many reflexes are clearly *t*-initial, for example Hixkaryána *ntoje* 'he went' (Derbyshire 1985: 27), Tiriyo *təkə* 'go!' (Meira 1999: 246), or Wayana *kuptəm* 'we went' (Tavares 2005: 195). However, once one considers all forms of the various reflexes of this verb (Table 18), an initial vowel \**i* must clearly be reconstructed – in contrast to unambiguously C-initial \*ka[tɪ] 'to say'.<sup>17</sup> This verb was not affected by any of the extensions discussed in Section 3.

### 4.4 \*(ət-)jəpi 'to come'

This verb is reconstructed as \*ətepi by Gildea & D. Payne (2007: 30), but an inspection of all the attested reflexes (Table 19) suggests a somewhat more complex story. Crucially, the \*ət part of their reconstruction is not reflected in the majority of forms, and many languages ostensibly have reflexes of \*əpi, \*jepi, or \*jəpi for the \*epi part. We analyze these forms as going back to a Proto-Cariban verb of the form \*(ət-)jəpi, morphologically segmentable into a detransitivizer and a root \*jəpi.

Evidence for the originally \**j*-initial nature of the root is found in the Pemongan languages and Werikyana, although the simultaneous presence of *oohi* in Werikyana raises the question of whether the *j* is part of the root in *johi*. This form only occurs in the Progressive (28a), and indeed *j*(-) may be a reflex of \**i-w*- '3-S<sub>A</sub>-', as the S<sub>A</sub> class marker \**w*- is present with other person values (28b). However, while C-initial verbs do show a clear reflex of third person \**i*- (28c), regular V-initial S<sub>A</sub> verbs do not show *j*-, but Ø (28d). Thus, we are confident that this *j* is indeed part of the root, rather than an outcome of \**i-w*-, which in turn allows us to reconstruct \**j* back to Proto-Cariban.

<sup>17</sup>As indicated by the brackets in Table 18, there are many languages where the initial vowel is only present in some forms. Also, the prefix-verb boundary in many inflected forms like e.g. Tiriyo *witənnə* or Arara *widoli* 'I went' (Meira 1999: 43; Alves 2017: 153) is ambiguous, since an epenthetic *i* breaks up potential CC clusters.

Table 18: Reflexes of *\*itə[mə]* ‘to go’ (Cruz 2005: 291; Meira 1999: 292; Tavares 2005: 195; Gildea 1994: 87; Alves 2017: 153; Derbyshire 1985: 27, 248; R. E. Hawkins 1998: 45, 62; Pachêco 2001: 54, 80; von den Steinen 1892: 112, 374; Cáceres 2011: 181, 216; Meira 1998: 112; Hoff 1968: 168; Meira 2006: 139; Cáceres & Gildea 2018: 4; M. C. Mattéi-Müller 1975: 74; M.-C. Mattéi-Müller 1994: 198; Abbott 1991: 48, 50; García Ferrer 2006: 172; Franchetto 2002: 6; Camargo 2002: 99; p.c., Spike Gildea)

Language	Form				
Werikyana	<i>to[mo]</i>	t	o	m	o
Hixkaryána	<i>[i]to</i>	i	t	o	
Waiwai	<i>[e]to[m]</i>	e	t	o	m
Arara	<i>ido</i>	i	d	o	
Ikpeng	<i>aran</i>	a	r	a	n
Ikpeng	<i>ero</i>	e	r	o	
Bakairi	<i>[i]tə</i>	i	t	ə	
Tiriyó	<i>tə[n]</i>		t	ə	n
Akuriyó	<i>[ə]tə[mí]</i>	ə	t	ə	m i
Carijona	<i>təmə</i>		t	ə	m ə
Wayana	<i>[i]tə[m]</i>	i	t	ə	m
Apalaí	<i>ito</i>	i	t	o	
Kari’ña	<i>to</i>		t	o	
Kari’ña	<i>[i]?</i>	i	?		
Ye’kwana	<i>itə[mə]</i>	i	t	ə	m ə
Ingarikó	<i>ətə</i>	ə	t	ə	
Pemón	<i>[e]tə</i>	e	t	ə	
Macushi	<i>[a]ti</i>	a	t	i	
Panare	<i>tə[n]</i>		t	ə	n
Yawarana	<i>tə</i>		t	ə	
Mapoyo	<i>tə</i>		t	ə	
Upper Xingu Carib	<i>[e]te</i>	e	t	e	
Yukpa	<i>to</i>		t	o	

Table 19: Reflexes of ‘to come’ (Abbott 1991: 32; Álvarez 2000: 102; Caesar-Fox 2003: 125; Cruz 2005: 299, 415; Cáceres 2011: 438; Robayo Moreno 2000: 178; Meira 1998: 168; M. C. Mattéi-Müller 1975: 74; Meira 1999: 294; Alves 2017: 150; E. Koehn & S. Koehn 1986: 37; Pachêco 2001: 265; Stegeman & Hunter 2014: 160; Meira 2003a: 4; T. E. Payne & D. L. Payne 2013: 65; Méndez-Arocha 1959: 68; Courtz 2008: 429; Meira & Franchetto 2005: 182; p.c., Spike Gildea)

Language	Form						
Werikyana	<i>oohi</i>				oo	h	i
Werikyana	<i>johi</i>				j	o	h i
Werikyana	<i>ehi</i>				e	h	i
Arara	<i>odebi</i>	o	d	-	e	b	i
Arara	<i>ebi</i>				e	b	i
Ikpeng	<i>arep</i>	a	r	-	e	p	
Bakairi	<i>æwi</i>	ə		-	e	w	i
Tiriyó	<i>æpi</i>	ə		-	e	p	i
Tiriyó	<i>epi</i>				e	p	i
Akuriyó	<i>eepi</i>				ee	p	i
Carijona	<i>ehi</i>				e	h	i
Apalaí	<i>oepti</i>	o		-	e	p	i
Kari’ña	<i>opi</i>				o	p	i
Ye’kwana	<i>ehə</i>				e	h	ə
Akawaio	<i>əsipi</i>	ə	s	-	i	p	i
Akawaio	<i>jepi</i>				j	e	p i
Ingarikó	<i>jə</i>				j	ə	
Ingarikó	<i>jepə</i>				j	e	p ə
Patamona	<i>jepi</i>				j	e	p i
Patamona	<i>jəpi</i>				j	ə	p i
Pemón	<i>jepi</i>				j	e	p i
Panare	<i>əpi</i>				ə	p	i
Yawarana	<i>əpi</i>				ə	p	i
Mapoyo	<i>epi</i>				e	p	i
Upper Xingu Carib	<i>ee</i>				ee		



(28) Werikyana Spike Gildea (p.c.)

- a. *johi-ri*  
3.come-PROG  
'S/he is coming.'
- b. *o-w-ohi-ri*  
2-S<sub>A</sub>-come-PROG  
'You are coming.'
- c. *i-nki-ri*  
3-sleep-PROG  
'S/he is sleeping.'
- d. *Ø-osone-ri*  
3-dream-PROG  
'S/he is dreaming.'

Most forms corresponding to Gildea & D. Payne's (2007) *\*atepi* do not show evidence for this *\*j*. However, we interpret the *i* in the Akawaio form *asipi* as additional evidence of the sequence *\*ja*, which has the same outcome *i* in the Macushi reflex of bare *\*japi*, *ipi*.

Turning to the many forms apparently reflecting *\*api* and *\*epi*, we find that both are distributed widely in the family, sometimes even co-occurring in the same language. A unifying account of these forms requires the root *\*japi* to undergo two major sound changes: a) *\*j*-loss; and b) *\*a*-umlaut after *\*j*. Both phenomena are found in other contexts throughout the family (Meira et al. 2010). For this particular verb, these sound changes appear to have applied irregularly, and not always in the same order. For example, the Kari'ña form *opi* can only be explained if *\*j* was lost before the umlaut of *\*a* to *\*e*, which would have been triggered by *\*j*. On the other hand, forms like Ye'kwana *eha* must be the result of *\*a* → *\*e* / *\*j*\_, with subsequent loss of *\*j*. The Akuriyó form *eepi* looks like a reflex thereof as well, but the length is unexpected, and is analyzed by Meira (1998) as reflecting an earlier diphthong *\*ae*.

Our interpretation of the *\*at* portion as a detransitivizer is primarily based on its form, as well as its paradigmatically conditioned occurrence in some languages. Although the semantics of combining a detransitivizer with an intransitive verb do not really make sense, some historical S<sub>P</sub> verbs are attested as adding the detransitivizer to become S<sub>A</sub> verbs. For example, the Proto-Cariban S<sub>P</sub> verb *\*winiki* 'to sleep' becomes Tiriyo *aaniki* (Meira 1999: 252) and Kari'ña *aʔniki* (Courtz 2008: 429), both S<sub>A</sub>. Also, Waiwai 'go to sleep' can be *winik* (R. E. Hawkins 1998: 30) or *et-winik* (W. N. Hawkins & R. E. Hawkins 1953: 204). The parallels to 'to sleep' end here, since bare *\*japi* 'to come' apparently already was an S<sub>A</sub> verb, as evidenced by its status in Werikyana, Kari'ña, Panare (29), Arara, and Tiriyo.

- (29) Panare (T. E. Payne & D. L. Payne 2013: 65)

*ju-w-əpi-n ka=m kano?*  
 3-S<sub>A</sub>-come-NSPEC Q=2.AUX rain  
 ‘Do you think it is gonna rain?’

While these sound changes and the addition of *\*ət-* do account for the majority of the forms in Table 19,<sup>18</sup> the distribution within the family is rather chaotic. Apart from the distribution of *\*əpi* and *\*epi*, forms with and without *\*ət-* can be found within the same language, usually conditioned by different prefixes. This was briefly discussed in Section 3.1 for Arara and in Section 3.3 for Tiriyo (and Proto-Tiriyoan and Proto-Taranoan). To illustrate, the Tiriyo Set I paradigm shows a reflex of *\*ətepi* (< *\*ətjəpi*) for first, but of *\*epi* (< *\*jəpi*) for the other persons (30).<sup>19,20</sup>

- (30) Tiriyo (Meira 1999: 294)

1 *w-əpi*  
 2 *mən-epi*  
 1+2 *ke-epi*  
 3 *n-epi*

Summing up, this verb is highly irregular, both from a synchronic and diachronic perspective. It seems that reflexes of the detransitivizer *\*ət(e)-* were optionally added to an S<sub>A</sub> verb root *\*jəpi*, which further underwent umlaut and loss of *\*j*, but in no systematic manner, resulting in the chaotic picture in Table 19.

As discussed in Section 3.1, innovative *\*k-* was introduced on the Ikpeng and Bakairi reflexes of *\*ətjəpi*, but not on the Arara reflex of *\*jəpi*. Both reflexes of *\*ətjəpi* (Tiriyo) and of *\*ətjəpi* and/or *\*epi* (Akuriyo) resisted the introduction of *\*t-* in Proto-Tiriyoan. Carijona *ehi* shows innovative *j-*, rather than conservative *w-* (31). It is unknown whether there is a Yukpa reflex of this verb, and it was fully replaced in Proto-Waiwaian by *\*omoki* ‘to come’ and was thus not a potential target of innovative *\*k-*.

- (31) Carijona (Guerrero Beltrán 2019: 102)

*əji-wa-e j-eh-i*  
 2-search-SUP 1-come-PFV  
 ‘I came looking for you.’

<sup>18</sup> Apart from aforementioned Akuriyo *eepe*, another irregular form is Apalaí *oepe*, where the detransitivizer would have the reflex *os-* (Meira et al. 2010: 506). While *oepe* would be a regular outcome of *\*ə-jəpi*, the /\_C allomorph of the detransitivizer is *e-* in Apalaí. The form may be due to borrowing from Tiriyo, which has lost intervocalic *\*t* to create *əpe*. Alternatively, Apalaí *oepe* could be a fossilized loan from Wayana, which has replaced its reflex of *\*ətjəpi*, but where regular sound changes would also have resulted in the loss of intervocalic *\*t* (Tavares 2005: 63).

<sup>19</sup> While the 1+2 form is a regular outcome of *\*kit-epi*, the second person form is mysterious.

<sup>20</sup> It should be noted that the paradigmatic distributions of forms with and without *\*ət-* in different languages share no discernible patterns.

#### 4.5 \**ipitə* ‘to go down’

Reflexes of this verb were not affected by the extensions of \**k*- in Proto-Pekodian (Section 3.1) and *k*- in Akuriyó (Section 3.4). The resistance against the former extension was subsequently overcome in Bakairi; its fate in Ikpeng is unknown. When Akuriyó extended *k*-, the verb already had an irregularly inflected first person form with *p*-, inherited from Proto-Tiriyoan.

At first sight, it may seem that it also was affected by the independent extensions of *j*- in Carijona (32a) and Yukpa (32b).

- (32) a. Carijona (David Felipe Guerrero, p.c.)  
*irə wafɪnakano tae j-ehitə-e*  
 INAN.ANA body.of.water along.bounded 1-go.down-NPST  
 ‘...I go down through that guachinacán.’
- b. Yukpa (Meira 2003b)  
*aw yéwtu*  
*aw j-ewuhtu*  
 1PRO 1-go.down  
 ‘I went down.’

However, a look at the comparative picture suggests a much more complicated situation. Table 20 shows all attested forms, including verb class membership where applicable; parenthesized forms indicate uncertainty about cognacy status. It turns out that while a form \**ipitə* can be reconstructed to Proto-Cariban, different (proto-)languages do not agree about the class of this verb. Its reflexes in languages that preserve the split-S system are split fairly evenly between *S<sub>A</sub>* and *S<sub>P</sub>*.

In one language, Wayana, the verb shows traits of both classes, leading us to consider it a “mixed” verb in our synchronic analysis of Wayana. It takes the first and second person *S<sub>P</sub>* markers *j*- and *əw*- (Tavares 2005: 200), but the 1+2*S<sub>A</sub>* marker *kut*- (Tavares 2005: 206). It also shows the *S<sub>A</sub>* class marker *w*- in nominalizations (33a), but behaves like an *S<sub>P</sub>* verb in taking a second person prefix in imperatives (33b).

- (33) Wayana (Tavares 2005: 200)
- a. *iwiptëë*  
*i-w-iptə-ri*  
 1-*S<sub>A</sub>*-go.down-NMLZ  
 ‘my going down’
- b. *əw-iptə-k*  
 2-go.down-IMP  
 ‘Go down!’

Table 20: Reflexes of \**ipitə* ‘to go down’ (Meira 2003b; Derbyshire 1979: 196; R. E. Hawkins 1998: 55; Guerrero Beltrán 2019: 118; Camargo & Tapinkili 2010: 44; Camargo 2002: 99; Courtz 2008: 263; Cáceres 2011: 450; Stegeman & Hunter 2014: 139; Álvarez 2008: 139; Abbott 1991: 34; M.-C. Mattéi-Müller 1994: 88; Méndez-Arocha 1959: 68; Bruno 1996: 58; Gildea 1994: 84; Alves 2017: 153; von den Steinen 1892: 137; Meira 1998: 116; p.c., Angela Fabíola Alves Chagas, Spike Gildea)

Language	Form	Class							
Proto-Parukotoan	* <i>ipito</i>	S <sub>P</sub>		i	ɸ	i	t	o	
Werikyana	<i>ihito</i>	S <sub>P</sub>		i	h	i	t	o	
Hixkaryána	<i>hto</i>	?			h		t	o	
Waiwai	<i>hto</i>	–			h		t	o	
Proto-Pekodian	* <i>iptə</i>	S <sub>A</sub>		i	p		t	ə	
Arara	<i>ipton</i>	S <sub>A</sub>		i	p		t	o	- ɲ
Ikpeng	<i>ipton</i>	?		i	p		t	o	- ɲ
Bakairi	<i>itagi</i>	S <sub>A</sub>		i			t	ə	- g i
Proto-Tiriyóan	* <i>ih̥tə</i>	S <sub>A</sub>		i	h		t	ə	
Tiriyó	<i>ih̥tə</i>	S <sub>A</sub>		i	h		t	ə	
Akuriyó	<i>ih̥tə</i>	S <sub>A</sub>		i	h		t	ə	
Carijona	<i>ehitə</i>	–		e	h	i	t	ə	
Wayana	<i>iptə</i>	S <sub>A</sub> / S <sub>P</sub>		i	p		t	ə	
Apalaí	<i>ih̥to</i>	S <sub>P</sub>		i	h		t	o	
Kari’ña	<i>oniʔto</i>	(S <sub>A</sub> )	o - n -	i	ʔ		t	o	
Ye’kwana	<i>əʔtə</i>	S <sub>P</sub>		ə	ʔ		t	ə	
Kapón	<i>(uʔtə)</i>	–							
Pemón	<i>(uʔtə)</i>	–							
Macushi	<i>(auti)</i>	–							
Panare	<i>əhtə</i>	S <sub>A</sub>		ə	h		t	ə	
Yawarana	<i>əhtə</i>	–		ə	h		t	ə	
Yukpa	<i>(ewuhtu)</i>	–							
Waimiri-Atroari	<i>iti</i>	–		i			t	i	

Its causativized form is *ipta-ka* (Tavares 2005: 255); the restriction of *\*-ka* to *S<sub>P</sub>* verbs in Proto-Cariban (Gildea & Cáceres in preparation) points to *S<sub>P</sub>* membership. These patterns lead us to posit the hypothesis that the verb was a regular member of the *S<sub>P</sub>* class in pre-Wayana, but partially switched to the *S<sub>A</sub>* class. This in turn implies that all reflexes of this verb with *S<sub>A</sub>* status at some point switched from the *S<sub>P</sub>* class.

Wayana-external comparative evidence supports this hypothesis: The Arara causativized form is *enipton* (Alves 2017: 66), and Kari’ña has a cognate form *eni?to* (Courtz 2008: 263); *oni?to* ‘to go down’ in Table 20 is a detransitivized form thereof, lit. ‘to get oneself down’. Both causativized forms contain a reflex of the transitivizer *\*en-*, which was usually found with *S<sub>P</sub>* verbs (Gildea & Cáceres in preparation). Besides the irregular first person *p-*, Tiriyo *ih̃ta* shows other irregularities, in particular in its causativized forms (Meira 1999: 263). Thus, it seems that this verb was originally *S<sub>P</sub>*, but then switched its class in four and a half languages of the family, for so far unknown reasons.

These circumstances make it impossible to answer the question of whether ‘to go down’ was affected by the extensions in Proto-Waiwaian, Proto-Tiriyoan, Carijona, and Yukpa. For Proto-Tiriyoan, we cannot establish a relative chronology of the verb class change, the introduction of the idiosyncratic marker *\*p-*, and the extension of *\*t-*. For Proto-Waiwaian, we lack knowledge not only about the first person form, but even about class membership (in Hixkaryána). For Carijona and Yukpa, we cannot know whether the verb potentially switched class before the breakdown of the entire split-S system. While there is no language-internal evidence for such a switch, ‘to go down’ does have an inclination for class switches; in the case of Carijona, that could have already happened at the Proto-Taranoan stage. In all four cases, it is possible that the verb had *S<sub>A</sub>* status at the time of the extension, resisting and keeping its old marker, but it is also possible that it was not even a potential target due to its *S<sub>P</sub>* status. On the other hand, the class change must have happened before the split-up of Tiriyo and Akuriyo, and therefore this verb resisted the extension of Akuriyo *k-*. Likewise, it seems very likely that the class change took place before the extension of Proto-Pekodian *\*k-*. Otherwise, the newly-turned-*S<sub>A</sub>* verb would have taken on archaic and lexically heavily restricted *\*w-*, either in Proto-Taranoan, Proto-Xinguan, or Arara.

#### 4.6 *\*e-pi* ‘to bathe’

This verb resisted extensions in Proto-Pekodian (Section 3.1) and Akuriyo (Section 3.4), but is a regularly inflected *S<sub>A</sub>* verb elsewhere. Verbs for intransitive ‘to bathe’ are usually detransitivized derivations of transitive roots in Cariban languages, which are reflexes of *\*pi*, or *\*kupi* in some Venezuelan languages (Table 21). As we have shown in Section 3.1, Proto-Pekodian can be reconstructed as having the pair *\*ipi* (INTR) / *\*ip(i)* (TR). Thus, while Proto-Pekodian ‘to bathe (TR)’ has perfectly regular cognates in other languages of the family, intransitive ‘to bathe’ is divergent in this branch, changing *\*e-* to *\*i-*. The reasons for this are entirely mysterious; we are not aware of *\*i-* as a reflex of the detransitivizer in Pekodian, see also Meira et al. (2010: 506). However, it should be noted that other languages also show unexpected devel-

opments in this verb, considering the apparent glide insertion in Waiwaian or the chaotic distribution of *\*pi* and *\*kupi* in Venezuelan languages.

Table 21: Comparison of intransitive and transitive ‘to bathe’ (Derbyshire 1979: 198; R. E. Hawkins 1998: 192, 203; Alves 2017: 150, 162; Pachêco 1997: 103; Campetela 1997: 123; Meira 2003a: 4, 2005: 285, 1999: 697; Gildea 1994: 87; Camargo & Tapinkili 2010: 24, 52; Meira 2000: 218; Courtz 2008: 304; Cáceres 2011: 439, 454; Stegeman & Hunter 2014: 37; de Armellada 1944: 34, 129; M.-C. Mattéi-Müller 1994: 8, 294; p.c., Spike Gildea)

(a) Reflexes of <i>*e-pi</i> ‘to bathe (INTR)’					
Language	Form				
Werikyana	<i>eehi</i>	ee	-	h	i
Hixkaryána	<i>ewehi</i>	e	w	e	- h i
Waiwai	<i>ejeɸu</i>	e	j	e	- ɸ u
Arara	<i>ibi</i>	i	-	b	i
Ikpeng	<i>ip</i>	i	-	p	
Bakairi	<i>i</i>	i			
Tiriyó	<i>epi</i>	e	-	p	i
Akuriyó	<i>epi</i>	e	-	p	i
Wayana	<i>epi</i>	e	-	p	i
Apalaí	<i>epi</i>	e	-	p	i

(b) Reflexes of <i>*e-kupi</i> ‘to bathe (INTR)’					
Language	Form				
Kari’ña	<i>ekupi</i>	e	-	k	u p i
Ye’kwana	<i>eʔhi</i>	e	-		? h i
Kapón	<i>ekuʔpi</i>	e	-	k	u ? p i
Pemón	<i>ekupi</i>	e	-	k	u p i

(c) Reflexes of <i>*ə-kupi</i> ‘to bathe (INTR)’					
Language	Form				
Panare	<i>akupi</i>	a	-	k	u p i

(d) Reflexes of <i>*(i)pi</i> ‘to bathe (TR)’					
Language	Form				
Werikyana	<i>ihhi</i>	i	h	i	
Hixkaryána	<i>ihhi</i>	i	h	i	
Waiwai	<i>pi</i>		p	i	
Arara	<i>ip</i>	i	p		
Ikpeng	<i>ip</i>	i	p		
Bakairi	<i>i</i>			i	
Tiriyó	<i>pi</i>		p	i	
Akuriyó	<i>pi</i>		p	i	
Wayana	<i>upi</i>	u	p	i	
Apalaí	<i>pi</i>		p	i	
Ye’kwana	<i>ihhi</i>	i	h	i	
Pemón	<i>pi</i>		p	i	
Panare	<i>iphi</i>	i	p	i	

(e) Reflexes of <i>*kupi</i> ‘to bathe (TR)’					
Language	Form				
Kari’ña	<i>kupi</i>	k	u		p i
Kapón	<i>kuʔpi</i>	k	u	ʔ	p i
Panare	<i>kupi</i>	k	u		p i

## 5 Discussion

In Section 4, we reconstructed the verbs which were unaffected by the incomplete extensions discussed in Section 3. Table 22 shows what verbs were affected by which extensions, except for the *e*-initial Akuriyó verbs unaffected by the extension of *k*-. In a few cases we do not know the first person form, in others we have reason to believe that the verb does not occur at all or at least not inflected for first person, and in the case of ‘to go down’ we do not know whether or when the switch to  $S_A$  happened. The patterns in this table make clear just how pervasive the tendency for certain verbs to resist innovative markers is. Every  $\times$  stands for a language in which this particular  $S_A$  verb has an archaic first person form, while regularly inflected  $S_A$  verbs have an innovative form.

These patterns suggest that there is some strong motivation for these verbs to not be affected by innovative markers. To illustrate: the first three verbs all retained their old marker in at least five individual innovations. The question arises what properties unite these verbs and make them so conservative. We will discuss possible answers to this question in Section 5.1, using Bybee’s (1985) network model of morphology.

### 5.1 Possible motivations for archaicity

The most well-known contribution regarding irregularity in the lexicon is Bybee (1985) with her network model of morphology, which seems well-suited for the data at hand. It aims “to account for cross-linguistic, diachronic and acquisition patterns in complex morphological systems” (Bybee 1995: 428). It does so by modeling shared morphological properties such as inflectional patterns as emerging from connections of differing strength between related words in the mental lexicon. For example, a large group of connected “strong” English verbs with *strɪŋ*–*strʌŋ* at its center and pairs like *rɪŋ*–*rʌŋ*, *spɪn*–*spʌn*, or *stɪk*–*stʌk* at its periphery is attracting new verbs in certain dialects: *sni:k*–*snʌk* or *brɪŋ*–*brʌŋ* (Bybee 1985: 129–130). These verbs are recruited based on the lexical connection they form with prototypical members of the group, and accordingly develop “irregular” past tense forms.

For the causes of these lexical connections, Bybee (1985: 118) suggests the criteria of semantic, phonological, and morphological similarity – the English strong verbs are an example for a phonologically motivated network. Another important factor in the model is frequency, since more frequent words have a higher lexical strength (Bybee 1985: 119). This higher lexical strength results in less influence from other lexemes, meaning that irregular forms are more likely to be preserved in high-frequency items. Thus, from the diachronic perspective on Cariban we are taking here, the prediction is that a) semantically/phonologically/morphologically similar verbs will be affected by person marker extensions, and b) high-frequency verbs will tend to resist them and thus remain archaic.

When considering the verbs that resisted any of the extensions investigated (Table 22), a salient morphological property emerges: Most of the verbs lack a reflex of the detransitivizer *\*əte/e-*, which normal  $S_A$  verbs do possess (Section 2.2). This was already noted by Meira



Table 22: Overview of extensions and (un-)affected verbs

	<i>*ka[ti]</i> 'say'	<i>*itə[mə]</i> 'go'	<i>*a[p]</i> 'be-1'	<i>*eti</i> 'be-2'	<i>*(ət-)jəpi</i> 'come'	<i>*ipitə</i> 'go down'	<i>*e-pi</i> 'bathe'
Proto-Waiwaian <i>*k-</i>	×	×	×	×	–	N/A	✓
Hixkaryána	×	×	×	×	–	N/A	✓
Waiwai	×	(✓)	×	×	–	N/A	✓
Proto-Pekodian <i>*k-</i>	×	×	×	×	×	×	×
Arara	×	×	×	×	×	×	×
Ikpeng	×	✓	–	×	✓	?	×
Bakairi	×	×	×	×	✓	✓	×
Proto-Tiriyoan <i>*t-</i>	×	×	×	×	×	N/A	✓
Tiriyó	×	×	×	×	×	N/A	✓
Akuriyó	×	×	×	?	×	N/A	✓
Akuriyó <i>k-</i>	×	×	×	?	×	×	×
Carijona <i>j-</i>	×	×	×	✓	✓	N/A	?
Yukpa <i>j-</i>	?	×	✓	✓	–	N/A	–

✓ affected; × not affected; ? unknown first person prefix; – does not occur; (✓) affected with surviving old marker; N/A not meaningfully answerable

(1998) for the group of Proto-Taranoan verbs taking irregular first person *\*w-*:

This category includes a small number of stems, among which ‘to go’, ‘to come’, ‘to say’, [...] <sup>21</sup> and the copula. These are basically the verbs that are not synchronically or diachronically detransitivized, yet belong to the A conjugation. (Meira 1998: 112)

A further common property is phonological in nature, since regular  $S_A$  verbs all have reflexes of *\*əte/e-*, they all begin with reflexes of *\*ə* or *\*e*. Finally, at least the first four verbs in Table 22 are very likely the most frequent  $S_A$  verbs. The correlation between the absence of a detransitivizer and frequency has e.g. been noted for Kari’ña by Courtz (2008: 75): “It is difficult [...] to imagine an intransitive or transitive origin for some of the most frequent middle verbs”. There are no semantic patterns that would be obvious, which is not unsurprising given the lack of semantic patterns in the split-S system overall (Section 2.2). This leaves us with three possibly relevant factors: phonology, morphology, and frequency.

To test these factors, we defined a test for each to see what fate it would predict for a given verb. The morphological criterion was of course the presence or absence of a detransitivizer, which predicted affectedness or unaffectedness, respectively. The phonological pat-

<sup>21</sup>The original list includes ‘to go down’ and ‘to defecate’. While these verbs are indeed underived  $S_A$  verbs in Tiriyó, no irregular first person *\*w-* can be reconstructed. As their inclusion in the list was most likely an error, we have omitted them here.

Table 23: Proportion of (un-)affected verbs accurately predicted by potential factors

	morphological	phonological	frequency
Proto-Waiwaian <i>*k-</i>	5/5 (100%)	4/5 (80%)	5/5 (100%)
Proto-Pekodian <i>*k-</i>	7/7 (100%)	5/7 (71%)	4/7 (57%)
Proto-Tiriyoan <i>*t-</i>	5/6 (83%)	4/6 (67%)	5/6 (83%)
Akuriyó <i>k-</i>	5/6 (83%)	6/6 (100%)	3/6 (50%)
Carijona <i>j-</i>	3/5 (60%)	5/5 (100%)	4/5 (80%)
Yukpa <i>j-</i>	1/3 (33%)	3/3 (100%)	1/3 (33%)

tern uniting regular derived  $S_A$  verbs is *e-* and *a/o-*initialness, so we checked whether the initial segment of each verb stem fit that criterion. To increase the accuracy of prediction, we then changed the criteria on the initial segment for some languages, based on the patterns we noticed, see below. A major obstacle to investigating frequency effects was that we are not aware of frequency counts of individual lexemes for any Cariban language. In absence of such data, we simply categorized the verbs based on the following assumptions: a) ‘to say’, ‘to go’, and ‘to be’ are the most frequent  $S_A$  verbs; and b) ‘to come’, ‘to go down’ and ‘to bathe’ are much less frequent. The prediction was then that the four frequent verbs would retain their old marker, and the three infrequent ones would innovate, but it should be kept in mind that any statements about frequency effects are based on assumptions.

Finally, we compared the information about (un-)affectedness of verbs (Table 22) with the predictions and established the proportion of verbs whose behavior was correctly predicted, by each factor, for each extension. The results of that comparison are shown in Table 23. As can be seen, there are quite a few combinations of factor and extension where 100% of the behavior was correctly predicted. However, it is important to understand that the proportions shown in that table only refer to the group of seven verbs in Table 22, i.e. those that are attested as resisting at least one extension. For each extension, there are many run-of-the-mill  $S_A$  verbs which are regularly inflected. The morphological and phonological criteria would in each case correctly predict 100% of these regular verbs; if our assumptions about frequency were indeed accurate, so would this criterion.

The extent of the extensions in both Proto-Waiwaian and Proto-Pekodian is fully predicted by the presence or absence of a detransitivizer. In Proto-Waiwaian, only the four undervived  $S_A$  verbs were not affected, while all other  $S_A$  verbs (with *\*ate/e-*) have regular *\*k-*. The case for a morphologically conditioned lexical network is even stronger in Proto-Pekodian, where all seven unaffected verbs have no detransitivizing prefix, contrasting with a plethora of derived  $S_A$  verbs with *\*k-*. Note that it is necessary for this analysis to assume that the idiosyncratic evolution of *\*e-pi* ‘to bathe (INTR)’ to *\*ipi* effectively removed the transparent derivational prefix. Not seen in Table 23 are subsequent evolutions in the daughter languages: First, we argued that both Ikpeng and Bakairi regularized the paradigm to use forms with de-

transitivizer for first person, which in both languages led to an introduction of *k*.<sup>22</sup> Second, the subsequent introduction of *k*- to Ikpeng *aran* ‘to go’ (< *\*itən*) potentially suggests a re-analysis of *ar* as a detransitivizer.

Three extensions are fully predicted by phonological criteria, those in Akuriyó, Carijona, and Yukpa. We have already discussed Akuriyó *k*- (Section 3.4), which only appears on *ə*-initial verbs. In Carijona, the extension of *j*- affected *e*- and *ə*-initial verbs, including *eh* ‘to come’ or *effi* ‘to be’, which do not have a detransitivizing prefix. Only *ka* ‘say’, *təmə* ‘go’, and *a* ‘be-1’ did not take on *j*-. Similarly, the extension of Yukpa *j*- can succinctly be characterized as affecting all vowel-initial verbs; the only verb attested as unaffected is C-initial *to* ‘to go’. It may be worth noting that the three extensions which we do not reconstruct to a proto-language (i.e., which are more recent) seem to be phonologically conditioned.

There is one extension where our model of frequency correctly predicted 100% of (un-)affected verbs, in Proto-Waiwaiian. The four unaffected *S<sub>A</sub>* verbs are the ones we assume to be the most frequent. Incidentally, they are also the only ones without a detransitivizer, so both factors predict the same outcome. This brings us to the cases where not all outcomes were correctly predicted; in many cases, the proportion is still quite high. For example, the morphological criterion accounts for the behavior of 5/6 verbs in the case of Proto-Tiriyoan; the one divergent verb is *\*əʔepi* ‘to come’, where the synchronic presence of a detransitivizer is debatable. Similarly, frequency correctly predicts the behavior of 4/5 verbs in the extension of Carijona *j*-; the only incorrect one is *effi* ‘to be’. Or consider the “most” resistant verb, which is not attested as having taken on a new first person marker in any language, *\*ka[tɪ]* ‘to say’. It is at the same time: a) one of the few *S<sub>A</sub>* verbs without a reflex of *\*ət(e)-/e-*; b) the only C-initial *S<sub>A</sub>* verb in Proto-Cariban; and c) highly frequent. That is, one would expect it to resist morphological innovation based on all three factors: morphological makeup, phonological form, and frequency. Thus, while Bybee’s (1985) model for the most part correctly predicts the patterns, it is not always clear which is the decisive conditioning factor, as they are strongly interrelated in Cariban *S<sub>A</sub>* verbs.

## 5.2 Conclusion

- why are the most irregular verbs all underived *S<sub>A</sub>* verbs? **something** is there
- ultimately plays into the mystery of how the hell the split-S system actually came into being
- not surprising that more frequent *S<sub>A</sub>* verbs have no *\*ət-*, but definitely surprising that ‘say’, ‘go’, and ‘be’ are *S<sub>A</sub>* verbs in the first place!

<sup>22</sup>If one instead assumes that first person *\*w-ebi-* and *\*k-əd-ebi-* already co-existed in Proto-Pekodian, the clear correlation remains.

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