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*The Dual Formative *tsi in Tibeto-Burman Languages*

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ABSTRACT

A pronominal dual formative derivable from *tsi, *ntsi, or *tsiŋ is attested sufficiently broadly across the Tibeto-Burman languages to require that these be reconstructed to the proto-language. In most of these languages only one of these forms occurs and combines with pronouns to form compositional duals. However, several languages show clear association of *tsi with inclusive dual, and *ntsi with second person dual; there is also some evidence for an originally exclusive value of *tsiŋ. This paper presents the comparative evidence for these, with evidence from various clades supporting the reconstructed person values of the three forms, and suggests a preliminary account of the developments which have resulted in the replacement in most languages of the original 3-term paradigm with compositional forms.

KEYWORDS

Trans-Himalayan, Sino-Tibetan, Tibeto-Burman, pronouns, dual

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1 Introduction

The dual category is variably marked or not in pronouns and verb agreement indexes across the Tibeto-Burman languages. There is some variation in pronominal dual forms, but a dual formative with a coronal affricate or fricative initial, which I reconstruct as *tsi, occurs across the family in pronominal forms, and is the only dual formative well-attested as a verbal index. The attestation of this form in many distinct Tibeto-Burman subbranches requires reconstruction of a dual grammatical formative to their common ancestor, whether this is conceived of as Proto-Tibeto-Burman (on the Sino-Tibetan hypothesis) or Proto-Trans-Himalayan. (Since there is no attestation of *tsi in Sinitic, for present purposes I will refer to the nearest common ancestor of all the languages discussed here as PTB.) Several scholars have reconstructed this form for the ancestral verbal indexation paradigm (Bauman 1975: 194-197; van Driem 1993a; LaPolla 2013; DeLancey 2023), but there has been less attention to pronominal forms. The purpose of this paper is to present evidence for reconstructing *tsi as a dual pronominal element.

Any survey of Tibeto-Burman pronoun paradigms, even at quite low cladistic levels, will turn up a number of diverse plural formatives. However, if there is a distinct dual formative it is almost always either something like /ni/ or /ɲi/, transparently derivable from the word for ‘two’ (PTB *g-ni-s), or a syllable with a coronal affricate or fricative onset and an open front vowel rime, i.e. /tsi/, /tɕi/, /si/, etc. These are comparable across the family, and allow us to reconstruct a dual pronominal formative *tsi.

This paper will discuss forms from distinct clades which correspond in form, function, and paradigmatic position, thus justifying reconstruction of this construction to their common ancestor. This section presents the broad case for *tsi. Relatable dual forms show inconsistency in voicing of the initials and in the presence or absence of a velar nasal coda; in §2 we will see that this variation reflects morphological indexation of person. In §3 I will present comparative evidence in considerably more detail, to see what we can learn about the history of *tsi from its distribution and development in the daughter clades. Finally, in §4 I will show how syntagmatic and paradigmatic differences in the structure of dual pronouns in the attested languages developed from the original paradigm.

Language and branch names in the family are not at all standardized. I will try to use familiar terms, except that I use Patkaian instead of Northern Naga (van Dam to appear), Barish instead of Bodo-Garo (DeLancey to appear), and Kali-Karnali instead of Raji-Raute (Pons 2022).

1.1 Overview of the evidence

In this section I will present sample data from across the family sufficient to demonstrate the depth to which dual *tsi must be reconstructed. First we must briefly discuss the syntagmatic position of *tsi reflexes in attested languages. In §2.2 we will see a few languages in which *tsi occurs alone as an inclusive dual pronoun. With these exceptions it always occurs combined with another element to form a compositional pronoun. In Gyalrongic and some Patkaian languages (§2.2.2) *tsi is the initial element in compositional pronouns, as in Japhug (Gyalrongic) in Table 1, but more commonly it is a number-marking second element, as in Chepang (Central Himalayan) in Table 2.

	SG	DU	PL
1	a-zo ~ a-j	tei-zo	i-zo
2	nɣ-zo ~ nɣ-j	ndzi-zo	nɯ-zo(-ra)
3	u-zo	zɣ-ni	za-ra

Table 1. Japhug pronouns (Jacques 2021)

	SG	DU	PL
1	ŋa	ni-tei	ni
2	naŋ	niŋ-dzi	niŋ
3	i/o	i/o(-mi)-nis-teak	

Table 2. Chepang pronouns (Pons 2022)

The comparability of the dual formatives is obvious, but we immediately see two problems: difference in voicing or prenasalization of the initial based on person, and the different syntagmatic position of the *tei* ~ (*n*)*dzi* dual element. These will be taken up in §2.

Table 3 presents a collection of compositional dual pronouns with a dual element which I take as evidence for *tsi. Here I am trying to represent the range of the phenomenon with select languages from each group; a more detailed clade by clade comparison will be presented in §3.

Branch	Subbranch	Language	1DU.EXC	2DU	3DU
Eastern	Gyalrongic	Japhug	tei-zo	ndzi-zo	zɣ-ni
	Qiangic	Mawo	qɑŋ ¹³ tʃr ³³	kuəŋ ¹³ tʃr ³³	than ⁵⁵ tʃr ⁵⁵
		Queyu	ŋa ¹³ ndze	nɛ ¹³ ndze	tse ¹³ ndze
	Naic	Shixing	ŋa ⁵⁵ -tsɿ ⁵⁵	ni ⁵⁵ -tsɿ ⁵⁵	thɜ ⁵⁵ -tsɿ ⁵⁵
	Ersuic	Ersu	ɑ=dzi	nə=dzi	tʰə=dzi
?	Prinmi	e ^L -dzā ^H	ɑ ^L -dzā ^H	ne ^L -dzā ^H	
Central	Mru-Hkongso	Hkongso	aŋ ³³ sʰiŋ ⁵⁵	ən ³³ sʰiŋ ⁵⁵	mi ⁵⁵ ja ⁵
	Aoic	Sangtam	iʔ-tʃəʔ	nəʔ-tʃəʔ	--
	Patkaian	Nokte	tʰə-ni	ne-tʰe	--
Western	Central	Chepang	ni-tei	niŋ-dzi	--
	Himalayan	Boli Raji	ŋʌ-dʒi	nʌŋ-dzi	--
	West	Tinan	i-ša	kə-nca	--
	Himalayan	Byangsi	in-ši	gan-ši	--

Table 3. Compositional dual pronouns with *tsi

This is not an exhaustive list, but it presents attestation across the family sufficient to constitute a prima facie case for reconstructing *tsi as a number element in the construction of compositional dual pronouns to the common ancestor of these languages, which, given the genealogical and geographic range represented, can only be Proto-Tibeto-Burman or Proto-Trans-Himalayan.

1.2 Phonological issues in comparison

The family-level Tibeto-Burman reconstruction presented in Matisoff 2003 and on-line at STEDT¹ is not worked out in sufficient detail to allow us to confidently identify regular reflexes of reconstructed forms at the lowest cladistic levels. The comparative status of the sibilant affricates and fricatives is particularly uncertain (Matisoff 2003: 30-33). Table 4 presents a few cognate sets which illustrate some of the complexities of trying to reconstruct PTB *ts.

	dual	fat	mortar	squeeze	sit	salt
PTB	*tsi	*tsow- #60	*tsum #2742	*(t)si/up #86	*m-tsu-ŋ #3591	*m-tsyi #2747
Ersu	dzi		tsu ³³ ŋ ⁵⁵		zɿ	tʃhɿ
Anong	si ³¹	su ⁵	dza ³¹ -	-dza ³¹ -	dzuu ³³	sɿ ³¹
Phong	tei-		tʰum	teip-	teŋ	sum
Thulung	ci	cheo	cium	cip	ciunciu	
Chepang	tei	teʌwʔ	tejumʔ		tejuŋ	te ^h eʔ

Table 4. Example correspondence sets for roots reconstructed with *ts- in STEDT

In Chepang and Thulung, very conservative languages phonologically as well as morphologically, the initials correspond well, although aspiration is not predictable. But the other languages in the table show remarkable inconsistency. If it were the case that some of the reconstructions were incorrect, i.e. if some but not all of these sets legitimately reflect *tsi, then we

¹ *The Sino-Tibetan Etymological Dictionary and Thesaurus*, <https://stedt.berkeley.edu/>.

would expect the same etyma to be irregular in each language. But in Ersu, ‘mortar’, ‘squeeze’, and ‘sit’ show three different onsets; in Phong, ‘squeeze’ and ‘sit’ correspond, while ‘mortar’ and ‘salt’ are idiosyncratic; and in Anong, ‘fat’ and ‘salt’ share one initial, ‘mortar’ and ‘squeeze’ another, and ‘sit’ a third. This is persistent across lexical sets and across languages: reflexes of *ts simply are often irregular, likely reflecting variation at the proto-level.

Therefore, in identifying pronominal forms as reflexes of *tsi, we have no choice but to accept approximate phonological correspondence as sufficient. I will use “plausibly regular” to mean that I have at least one set where the same initial found in the dual formative is found in another word reconstructed in STEDT with *ts. In Table 4 the Ersu form fails this test; Ersu correspondences will be discussed further in §3.1. I will throughout use “PTB” to indicate reconstructions taken from STEDT.

2 Variation in form, position, and function

Attested dual forms reflect three different sources, *tsi, *ntsi, and *tsiŋ. In a few languages, such as Japhug and Chepang in Table 3, we see a 1st person dual with a voiceless onset, and 2nd person dual with voiced or prenasalized onset. I will present evidence in §2.1 that the prenasalized form is originally *tsi combined with a 2nd person proclitic, and in §2.2 that in its earliest function *tsi was specifically an inclusive dual. The original function of *tsiŋ cannot be definitively inferred from its attested reflexes, but in the context of the evidence for *tsi as originally inclusive, a case will be made in §2.3 for *tsiŋ as the contrasting exclusive form. In a few languages originally dual *tsi has been reanalyzed as a plural, as we will see in §2.4. Finally, in §2.5 we will examine how these three forms have been incorporated into compositional pronouns.

2.1 *n-tsi ‘2nd person dual’

We have seen that in Japhug and Chepang a 1st person form with a voiceless onset contrasts with a voiced or prenasalized onset in the 2nd person form. This is consistent in the East Gyalrongic and Chepang-Bhujel clades, and evidence is also found in Tinan (West Himalayan) and in the Dimasa (Barish) plural forms (see §3.2 and §3.3). The evidence is summarized in Table 5.

Branch	Language	1DU	2DU	3DU
East Gyalrongic	Zbu	tɕə-ŋi	ⁿ dzə-ŋi	və-jéʔ ní
	Japhug	tɕi-zo	ndzi-zo	zɣ-ni
	Kyomkyo Situ	tʃə-no	nən-ɟo-ndʒ	DEM-ɟo-ndʒ
Chepang-Bhujel	Chepang	ŋi-tɕi	niŋ-dʒi	o-nis
	Bhujel	ŋi-ci	niŋ-ji	u-nis
Barish	Dimasa PLURAL	ziŋ	n-si	bu-si
W. Himalayan	Tinan	i-ša	kə-nca	do-ku

Table 5. 1DU *tsi and 2DU *ntsi in contrast

Notice that in Gyalrongic we see *tsi in 3rd person forms only in Kyomkyo -ndʒ; elsewhere dual is marked in 3rd person with *ni(s)* < ‘two’.

In other languages we find only one form, generalized across all persons. In some languages the voiced or prenasalized form has been generalized through the paradigm. Table 6 illustrates variation within low-level clades.

	INC.DU	1DU. EXC	2DU	3DU
Zhaba	fɿ̃ ³⁵ -tse ⁵³	ŋa ³⁵ -tse ⁵	na ⁵⁵ -tse ⁵³	tse ³⁵ -tse ⁵
Queyu	--	ǎ-ndzì	nǎ-ndzé	t ^h ǎ-ndzé
Shixing	ɔŋ ³³ -dzɿ ⁵⁵	ŋɐ ⁵⁵ -dzɿ ⁵⁵	ni ⁵⁵ -dzɿ ⁵⁵	thu ⁵⁵ -dzɿ ⁵⁵
Shuitian	o ⁵⁵ -tsɿ ⁵⁵ -nɿ ³¹	ŋa ⁵⁵ -tsɿ ⁵⁵ -nɿ ³¹	nu ³³ -tsɿ ³³ -nɿ ³¹	tʂhɿ ⁵³ -tsɿ ⁵⁵ -nɿ ³¹

Table 6. Some Qiangic and Naic dual pronouns

In one variety of Zhaba we see a voiceless, but in closely-related Queyu a prenasalized, reflex of *tsi in all dual forms. Similarly, Shuitian Laze has a voiced, and Shixing a voiceless, reflex, both probably belonging to the Naic clade. Assuming that there is no secondary voicing or devoicing process involved here, the evident conclusion is that both Proto-Qiangic and Proto-Naic had the same person opposition which is preserved in East Gyalrongic and Chepang-Bhujel, so that the generalization of one or the other form through the pronoun paradigm is a very recent development.

2.2 *tsi as an inclusive dual pronoun

In Jejara (classification uncertain, perhaps Aoic), we see a set of dual forms similar and structurally parallel to what I suggest was the PTB situation. A reflex of *tsi occurs alone as an inclusive dual, combined with the 2nd person pronoun for a 2nd person dual, and with the 1st person pronoun to form the exclusive dual, as we see in Table 7.

	SG	DU	PL
1	a	a-tzi	(a-)wai
INC		tzi	(a-)haw
2	nyai	nyai-tzi	ri
3	DEM	DEM-nqi	DEM-rai

Table 7. Jejara pronouns (Barkman 2012: 39)

Here the contrast between *tsi alone as the inclusive dual and *tsi combined with the 1st person pronoun to form the exclusive dual is clear. Note that we do not see *tsi combining with the demonstratives. Jejara does not preserve the original proto-system, as the 1st and 2nd person plural forms resemble nothing else in the family, and thus must be recent innovations. Still the paradigm is structurally close to what we will reconstruct for the family, with *tsi alone marking inclusive dual, modified by 1st and 2nd person prefixes to create exclusive and 2nd person duals.

Burling and Phom (1998: 30) report a similar paradigm for Phom (Southwest Patkaian), presented in Table 8.

	SG	DU	PL
1	ŋʌy ³³		hæm ³³ -phoŋ ³³
INC		çi ⁵⁵	
2	nuŋ ³³		æm ³³ -phoŋ ³³
3	bʌ ³³ -bæ ⁵⁵ bin ³³ -ñu ⁵⁵		çom ⁵⁵ -phoŋ ³³

Table 8. Phom pronouns (Burling & Phom 1998)

Since these are from a wordlist rather than a paradigm in a grammar it is not clear how to interpret the lack of dual forms other than the inclusive. In a different Phom variety,² presented in Table 9, dual is not distinguished, but we see a likely reflex of *tsiŋ (§2.3) in the 1PL form.

	SG	PL
1	ŋai	cin-p ^h oŋ
2	niŋ	am-p ^h oŋ
3	pəpə / piŋu	cɔm-p ^h oŋ

Table 9. Phom pronouns (Bano 2017)

In Hakhun (Table 10), belonging to the Northern subbranch of Patkaian, we see again an apparent reflex of *tsi which is limited to the inclusive dual, although it does not occur alone, but combines with another element whose function is not clear from the internal structure of the paradigm:

	SG	DU	PL
1	ŋà	nŋ-hi?	nŋ-rùm
INC		chə-ni?	nî-rùm
2	nŋ	nuʔ-ch ^h uʔ	nuʔ-rùm
3	atí	tâ-nî	tâ-rùm

Table 10. Hakhun pronouns (Boro 2017)

In closely-related Hawa Nokte (Table 11), clusivity has been lost, and we see an equivalent to the Hakhun inclusive dual form as the 1st person dual:

	SG	DU	PL
1	ŋa	tʃ ^h ə-ni	ni(-k ^h u)
2	nəŋ	ne-tʃ ^h e	ne(-k ^h u)
3	ətə	--	t ^h ə-nin

Table 11. Hawa Nokte pronouns (Mongchan 2015)

² Phom “has five different dialects and one dialect varies from the other dialects and there is also a common dialect, which is understood by all the speakers of the other dialects as well” (Bano 2008: 17). The forms in Table 9 represent the “common dialect” reported by Bano; the forms in Table 8 must represent one of the others.

The 2DU form has a 2nd person proclitic indicating person, and $-tʰe$ marking dual. But in the 1DU form $tʰə-$ is the initial element, followed by *ni* ‘1st person non-singular’.

In Sangtam (Aaic) in Table 12, the 2DU pronoun has the same structure as in Jejara, Hakhun and Nokte, but the 1DU form also has the same structure, with the pronoun followed by $-tʰəʔ$.

	SG	DU	PL
1	iʔ	iʔ-tʰəʔ	iʔ-sa
INC			iʔ-rə
2	nəʔ	nəʔ-tʰəʔ	nəʔ-rə
3	abu etc.		a-rə

Table 12. Sangtam pronouns (Imchen 2012)

These 2DU forms are structurally identical to our reconstructed PTB form, and could conceivably represent direct inheritance unchanged from PTB; the Jejara-Phom attestation of un-compounded *tsi as the inclusive dual is consistent with this hypothesis. Much of the divergence inclusivity, dual marking, and pronominal number more generally seems to be relatively recent across the family, so retention of some primordial structures in a few hidden languages is perhaps not inconceivable.

Further attestation of the intrinsically Inclusive sense of *tsi is found in Eastern Kiranti. Independent dual pronouns in Kiranti languages are always compositional. In Western Kiranti we generally see *tsi in both 1st person dual forms, with clusivity indicated by a vowel alternation (see Bauman 1975). In Eastern Kiranti dual pronouns use *tsi alone as the inclusive dual form, and add a 1st person singular or plural marker to create the exclusive. Examples are given in Table 13:

	1SG	1DU. EXC	INC.DU	2DU	3DU
Belhare	ŋka	ŋkeŋ-chiŋ	ŋke-ci	han-chik	un-chik
Athpare	aŋa	an-ci-ŋa	an-ci	khan-ci	un-ci
Puma	ŋa	ke-ci-ka	ke-ci	kha-na-ci	kho-ci
Proto-Upper Arun	*ka	*ka-ci-ga	*ka-ci	*ana-ci	*kho:-ci

Table 13. Some Eastern Kiranti dual pronouns

We see considerable variation in the person element, but consistently *tsi as 1st inclusive dual, and *tsi plus an explicitly 1st person element, either *ŋa or *ka, as 1st exclusive dual.

2.3 *tsi-ŋ as exclusive dual

In four presumably not closely-related³ languages, Hkongso, Prinmi, Duhumbi, and Tshangla, we have dual morphemes which look like *tsi with a velar nasal coda; these are presented in Table 14.

	INC.DU	1DU. EXC	2DU	3DU

³ None of the four has a definitive higher-order classification at present.

Prinmi	e ^L -dzā ^H	a ^L -dzā ^H	ne ^L -dzā ^H	ni ^H -dzā ^L
Hkongso	aŋ ³³ s ^h iŋ ⁵⁵	aŋ ³³ s ^h iŋ ⁵⁵	ən ³³ s ^h iŋ ⁵⁵	mi ⁵⁵ ja ⁵
Duhumbi	ga-zɪŋ		na-zɪŋ	wa-zɪŋ
Tshangla	a-chiŋ		na-chiŋ	ro-kt-shiŋ

Table 14. Dual *tsi-ŋ

There is no phonological reason for this to have been lost in the other languages, so we reconstruct a variable final: *tsi(ŋ). Unlike the prenasalization discussed in §3.2, the final nasal is either present or absent in a given language; I know of no pronominal paradigm where *tsi and *tsiŋ both occur. However, in the very low-level Mru-Hkongso clade Hkongso has only *tsiŋ, generalized to all persons, while Mru has only *tsi (Table 23, §3.3), suggesting that both were present in their quite recent common ancestor. In all of these languages, *tsiŋ is the only dual morpheme (except for a 3rd person dual form in Hkongso which is not related to *tsi), so we have no basis on which to assign it a more specific function, or to explain how it might have been distinct from *tsi.

We see *tsiŋ also as a plural formative. Particularly interesting is its occurrence as the 1st person plural pronoun in several languages, none of which distinguish clusivity: Gongduk *ziŋ* (van Driem 1995: 236), Proto-Barish *ciŋ (Joseph & Burling 2006: 56), Phom *an-* (Table 13, §2.2.2), and Tutsa *siŋ* (Rekhung 1992: 14), all ‘1PL’. Phom and Tutsa are both Patkaian, of which Barish is the nearest cousin, so there is plausibly some genealogical effect here. Gongduk at present has not been shown to be particularly related to anything else. When these languages lost the dual category, they retained the original dual rather than the original plural as the new non-singular morpheme, and when they collapsed the clusivity distinction, they retained the exclusive as the new non-clusive plural.

The original Proto-Barish paradigm is closely reflected in Dimasa (Table 15).

	SG	PL
1	aŋ	ziŋ
2	niŋ	nsi
3	bu	bu-si ~ bu-nsi

Table 15. Dimasa pronouns (Evans & Langthasa 2024: 30)

Contrasting with 1PL *ziŋ* < *tsi-ŋ we see 2PL *nsi* < *n-tsi, exactly what we have reconstructed as dual forms for PTB. The 3PL form *-si* reflects unaffixed *tsi. While *ciŋ ‘1PL’ is present in almost all Barish languages, Dimasa provides the only Barish evidence for plural *-(n)si*.⁴

2.4 *tsi as a plural formative

Many TB languages do not mark the dual category. As we would expect, this usually means that a language will have no reflex of *tsi. However, in a handful of cases of loss of the dual/plural distinction, *tsi remains as the new plural. The examples that I have found are

⁴ Each of the other languages has its own innovative pronominal plural formative: Bodo *-pbwr*, Garo *-soŋ*, Koch-Rabha *-roŋ*, Atong *-təm*, etc., are added to the pronoun.

presented in Table 16. Na (Naic) and Khatso (Ngwi) are Eastern languages, Bunan is West Himalayan, Dimasa is Barish, Taruang and Monpa are not yet satisfactorily classified.

	1SG	1 PL	2SG	2PL	3SG	3PL
Na	ŋɑ ³	ŋɑ ³³ -sɾ ³³ ku ³	nɔ ³³	nɔ ³³ -sɾ ³³ ku ³¹	t ^h u ³³	t ^h u ³³ -sɾ ³³ ku ³
Khatso ⁵	ŋa ³³	ŋa ³³ -tshɾ ³³	nɛi ³³	nɛi ³³ -tshɾ ³³	i ³³	i ³³ -tshɾ ³³
Taruang	xɑŋ ⁴⁵	ŋ ⁵⁵ tɛu ²¹	ŋoŋ ⁴⁵	ɑ ²¹ ne ⁵⁵ tɛu ²	tee ⁵⁵	tɛe ⁵⁵ ɑ ²¹ luŋ ⁴⁵ tɛu ²¹
Dirang Monpa	jaŋ	a-shi	nan	na-shi	dan	da-shi
Bunan	gi	hiŋ(=ɛi)	han	han=ɛi	tal	tal=ɛi
Dimasa	aŋ	ziŋ	niŋ	n-si	bu	bu-(n)-si

Table 16. *tsi as a pronominal plural formative

Since these forms do not correspond precisely in function to the dual forms which we are considering, the phonological plausibility of connecting them with *tsi is especially important. Unfortunately, as discussed in §1.2, the phonological development of PTB coronal affricates is quite irregular in many languages. Na sɾ³³ is a plausibly regular reflex of *tsi, cp. su¹³ [si¹³] ‘lung’ < PTB *ts(u/i)-t (STEDT #458), although there are several apparent reflexes of *ts, and /s/ does not seem to be the commonest. The initial of Khatso tshɾ³³ is plausible, though the rime does not seem to be regular, cp. tshɾ³³ ‘lard’ < PTB *tsow-s ‘fat’ (STEDT #42). Again, other onsets are found in other words reconstructed with PTB *ts. Dirang /sh-/ can reflect *ts, e.g. sho ‘lung’ (see above). In none of these languages is the equation completely regular; all show several different reflexes of *tsi. Taruang /tɛ/ is too rare in the available data to allow any speculation as to its source. Bunan appears to have preserved PTB affricates, and if =ɛi in fact reflects *tsi, as I am assuming it does, it represents an irregular development. Dimasa -si is a regular reflex of *tsi (see §3.3).

2.5 The history of *tsi as a compositional element

We can easily identify the first element of *n-tsi as related to the 2nd person pronoun, probably proclitic *na. And if our identification of *tsi-ŋ as originally exclusive is correct, the coda must be related to 1SG *ŋa; in fact it is identical to the 1SG verbal index. So we can reconstruct a history for *tsi in which it begins as an inclusive dual, distinct from the rest of the pronominal paradigm, then gradually combines with 2nd, then 1st person forms, the latter producing an exclusive dual, finally spreading on to 3rd person forms. This is very much as predicted by Greenberg (1988). It is generally recognized that “[i]f only one person differentiates a dual, it will very likely be the 1st rather than the 2nd or 3rd” (Plank and Schlesinger 2000: 50). Indeed the dual has a special association not only with 1st person, but specifically inclusive: “the first person inclusive is a favored category among duals ... whenever there is a first person exclusive dual there is also a first person inclusive dual” (Greenberg 1988: 1-2). This has been described in the typological literature as common and almost predictable: “the extensions of duals tend to be in accordance with the hierarchy ... with pronouns ranking above nouns, with 1st person over 2nd over 3rd, [and] with inclusive over exclusive” (Plank & Schlesinger 2000: 51).

⁵The Khatso plural formative also has variant forms tshɛi³³ ~ tshɛi³¹; I take the front vowel forms as sufficient to include in our comparisons.

In most of the family the original **tsi*/**n-tsi*/**tsi-ŋ* paradigm was replaced by innovative compositional dual pronouns such as we saw in §1. It is also the case that most languages in the family replaced the original system of synthetic person-number plural pronouns with innovative compositional constructions (DeLancey 2019). It seems probable that the replacement of both the dual paradigm and the plural pronouns with compositional constructions were connected.

If the source of all **tsi* forms is **(n)tsi* standing alone, we have an explanation for the ordering variations which we observed in §1: **tsi* can be an initial element in Japhug *tɕi-zo* ‘1DU’ and the second element in Chepang *ni-tɕi* ‘1DU’, and even in one language the initial element of Hawa Nokte 1DU *tʰə-ni* and the final element of 2DU *ne-tʰe*, because in the common ancestor of these languages – which can only be PTB – **tsi* occurred alone as an independent 1DU pronoun, and the Japhug and Chepang variations represent independent innovations from that common state. Indeed the sources of these innovations are quite clear: Japhug *-zo* is an originally intensive-reflexive form which now occurs in several pronominal forms, and Chepang *ni* is originally the 1st person plural pronoun, now reinterpreted as 1st person non-singular.

3 **tsi* across the family

We have seen pronominal dual, and occasionally plural, **tsi* widely attested across the family. In this section we will review the evidence clade by clade, to give a more systematic sense of the body of comparative evidence which supports reconstructing the form to the proto-language. Classification of the Tibeto-Burman languages remains uncertain, but the distribution of the form is sufficiently broad that this is not a significant problem for reconstruction.

3.1 **tsi* in the Eastern or Burmo-Qiangic branch

The mid-level subclassification of the Eastern languages is very unsettled. The cladistic status of Gyalrongic group at the northern end of the Eastern continuum and of Burmese-Ngwi at the southern are uncontroversial, but there is not yet consensus on exactly how the various Qiangic and Naic languages in between are related to each other and to Gyalrongic and/or Burmese-Ngwi. For expository purposes I adopt here the hypothesis of an Eastern or Burmo-Qiangic branch (see Jacques & Pellard 2021). Dual **tsi* is reconstructable for Gyalrongic, and we see reflexes in dual pronouns in several other Qiangic languages. The only potential evidence for **tsi* in Burmese-Ngwi is the Khatso plural form mentioned in §2.4 (Table 16).

We have seen several Gyalrongic paradigms in previous sections. I will now present a more systematic comparison of the evidence for **tsi* in several representative varieties. The West Gyalrongic languages generally mark dual with forms derived from ‘two’; I have no clear evidence for pronominal **tsi* in West Gyalrongic,⁶ but the East Gyalrongic languages provide some of the strongest and clearest evidence for the antiquity and history of **tsi*. These languages are almost unique in having **tsi* consistently as the 1st element in compositional forms; as noted in §2.4, this is because East Gyalrongic languages form compositional pronouns by combining a person-number element with an originally intensive-reflexive pronominal formative, and in such a construction **tsi*

⁶ There are possible reflexes of **tsi* in some verb indexation paradigms, but here I am discussing only evidence from pronominal forms.

functions as the person-number element. Thus these compositional forms attest to the fact that in the original paradigm *tsi occurred uncompounded.

Comparative East Gyalrongic paradigms are presented in Table 17.

Subgroup	Language	INC.DU	1DU. EXC	2DU	3DU
rDzong-‘bur	Tshobdun	tsə-gjə-ni?	tsə-gjə	ⁿ dzə-gjə-ni?	gjə-ni?
	Zbu	teə-nî		ⁿ dzə-nî	və-jé? nî
Situ	Bhola	tʃhi-dʒo	ji-ɲo-dʒis	nə-dʒo-dʒis ~ dʒi-dʒo	wu-dʒo-dʒis
	Bragbar	teə-nó	tsə-ʒê	ndzə-ʒê	mə-n-ʒê
	Kyomkyo	tʃə-ʒo		nə-n-ʒo-ndʒ	DEM-ʒo-ndʒ
Japhug	Japhug	tei-zo		ndzi-zo	zɣ-ni

Table 17. East Gyalrongic dual pronouns

The only obstacle to simply reconstructing *tsi is the fact that in a majority of the varieties – but, importantly, not all – we see a palatal initial. Note that this distinguishes the two rDzong-‘bur varieties; similarly, Jacques notes that two Japhug dialects “differ mainly in the presence of alveolo-palatal affricates in Kamnyu Japhug in the dual, while dental affricates are found in Tatshi” (2021: 612), so this variation is fairly shallow. I reconstruct the alveolar on the grounds that starting from there we can easily explain the palatalization in the majority of daughter languages as conditioned by the originally following *i, while if we reconstruct the palatal, there is no obvious explanation for the shift to alveolar articulation in Tshobdun.

Many of the other Eastern languages have innovative ‘two’ duals. I have found only a few languages with evident reflexes of *tsi or *ntsi; these are presented in Table 18:

	INC.DU	1DU	2DU	3DU
Longxi Qiang	vú-nì nḗ-teḗ	qà-ní nḗ-teḗ	vú-ní nḗ-teḗ	tsḗ-ní nḗ-teḗ
Taoping Qiang	tsu-ndzuə ¹		tey-ndzuə ¹	ʔü-ndzuə ¹
Queyu	ŋa ¹³ ndze		n̥e ¹³ ndze	tsɛ ¹³ ndze
Shixing	ŋa ⁵⁵ -tsɿ ⁵⁵		ni ⁵⁵ -tsɿ ⁵⁵	thɜ ⁵⁵ -tsɿ ⁵⁵
Ersu	a=dzi		nə=dzi	t ^h ə=dzi
Wadu Pumi	iŋ-dzæŋ	ɐ-dzæŋ	niŋ-dzæŋ	tə-dzæŋ

Table 18. Pronominal dual *tsi in some Eastern languages

The regular Ersu reflex of PTB *ts- is /ts-/ (Yu 2012), as for example *tsu³³ŋ⁵⁵* ‘mortar’ < PTB *tsum (Yu 2012: 38, STEDT #2742), *tsu⁵⁵* ‘dye’ < PTB *m-tsəw (STEDT #5814), sometimes aspirated, as in *ts^br* ‘salt’ < PTB *tsa, so dual =dʒi must reflect *ntsi. None of these languages show the person distinction which we saw in Gyalrongic; each has generalized one of *tsi, *ntsi, or *tsiŋ throughout the paradigm. Different languages have made different choices, with Longxi Qiang and Shixing retaining the basic voiceless form, while Taoping Qiang, Queyu, and Ersu have generalized the originally 2nd person *ntsi. This indicates that loss of the distinction postdates the breakup of the nearest common ancestor of these languages.

3.2 *tsi in Western languages

Dual *tsi is independently reconstructable for Kiranti, Central Himalayan, and West Himalayan, and thus for their nearest common ancestor. Kiranti and Central Himalayan probably belong to a lower-level clade, but West Himalayan is usually grouped with Bodish at the lowest level, so that ancestor would be the proto-language of the entire Western branch.

The Kiranti languages are quite diverse, to the point where it is not entirely clear that there is a Kiranti clade as such (Gerber & Grollmann 2018). Moreover, all the subgroups seem to have undergone several layers of secondary differentiation in their pronominal paradigms. I will make no effort here to explain everything that we observe with respect to dual marking in Kiranti; the forms in Table 19 are selected because their relevance to our present inquiry is obvious without further analysis.

Subbranch	Language	INC.DU	1DU. EXC	2DU	3DU
Eastern Kiranti	Athpare	an-ci	an-ci-ŋa	khan-ci	in-ci
	Kulung	ka-s	ka-s-ka	an-ci	ŋkə-s
	Puma	ke-ci	ke-ci-ka	khʌn-na-ci	kho-ci
Western Kiranti	Dumi	in-tsi	an-tsi	an-tsi	im-tsi
	Bahing	gó-si	gó-sú-kú	ga-si	--
	Thulung	gu-tsi	gu-ku	ga-tsi	gu-tsi

Table 19. Dual pronouns in Kiranti languages

The pattern to note is that *tsi alone indicates inclusive dual, and the exclusive is *tsi plus something – in Eastern Kiranti, a 1st person index *ŋa or *ka, while in Western Kiranti we see several possibilities, including an *u formant (Bauman 1975) in Dumi, *u plus *ka in Bahing, and complete replacement of *tsi by *ka-u in Thulung. Note also that Kulung distinguishes -ci ‘2DU’ and -s ‘1/2DU’, which looks like a reflection of the person distinction discussed in §2.1, although it is not clear that the phonological correspondence is what it should be.

In the Central Himalayan branch, the dual category is not marked in pronouns in Magar or Dura, and has unique secondary expression in Kham,⁷ but *tsi is preserved in Chepang-Bhujel and some Kali-Karnali languages, as we see in Table 20.

	1DU	2DU	3DU
Chepang	ni-tsi	niŋ-dzi	DEM-nis-teak
Bhujel	ŋi-ci	niŋ-ji	DEM-nis
Boli Raji	ŋʌ-dzi	nʌŋ-dzi	DEM-giŋ

Table 20. Central Himalayan dual pronouns with *(n)tsi

The initials are regular reflexes of PTB *ts-, e.g. Chepang *tɛʌwʔ* ‘fat’ < PTB *tsow-s (STEDT #42), Chepang *tɛ^heʔ* ‘salt’ < PTB *m-tsyi (STEDT #2747). As in Gyalrongic, the

⁷ Kham pronouns show no evidence for *tsi, but it is preserved in the verbal indexation paradigm. Watters (2002) and Rempt (1994) both reconstruct *-ci for the dual index.

2DU is *na-tsi; these languages do not distinguish the inclusive, and the 1DU is formed by combining an initial 1st person element with *tsi as the number element, by analogy with the 2DU. Note that the 3DU is not part of the same paradigm, as duality is marked by a different morpheme.

West Himalayan pronominal paradigms show considerable variation; in some ways they all seem to descend from a drastically reduced and reorganized version of a typical Kiranti paradigm. While a majority of WH languages show no trace of *tsi, we can still trace it to Proto-WH on the basis of the few that do. We see a reflex of *tsi in the pronominal dual formative -*ɛi*, as in Tinan and Byangsi, representing the Western and Eastern subgroups of WH. Bunan (Eastern WH) has lost the dual category, and -*ɛi* has extended its function to general non-singular. The paradigms are compared in Table 21:

	INC.DU	1DU. EXC	2DU	3DU
Tinan	ñi-ši	i-ša	kə-nca	do-ku
Byangsi		n-ši	gan-ši	u-ni-ši
Bunan PLURAL	e-raŋ=ɛi	hiŋ=ɛi	han=ɛi	tal=ɛi

Table 21. West Himalayan dual pronouns with *(n)tsi

In Tinan *tsi occurs only in 1st and 2nd person; in Bunan and Byangsi it has extended to 3rd person. Note that Tinan retains the plain 1DU vs. prenasalized 2DU pattern.

3.3 *tsi in Sal subgroups

The ‘Sal’ group, consisting of Jinghpaw, Patkaian, and Barish, has not been formally demonstrated (see Matisoff 2013), but a connection between Patkaian and Barish is fairly clear, at least on lexical grounds. While several Jinghpaw varieties show innovative dual marking in pronouns, none of these forms can be connected with *tsi, but it is attested in both Patkaian and Barish. I will also discuss Mru-Hkongso in this section, for reasons which will be obvious.

Many Patkaian languages, for example Standard Konyak and Wancho, do not distinguish dual in the pronouns, while others, for example Chen Konyak and Muklom, have a dual element derived from ‘two’. Nevertheless dual *tsi is reconstructable for Proto-Patkaian, as argued by van Dam and Muheim (2023). Several Patkaian paradigms were discussed in §2.2; the directly relevant forms are compared in Table 22. Forms from Wolam, representing a distinct subbranch of Patkaian, are added from van Dam and Muheim (2023), who note that the dual form reflects an original affricate.

Subbranch	Language	INC DU	1EXC DU	2DU	3DU
Northern	Nokte		tʃ ^h ə-ni	ne-tʃ ^h e	--
	Hakhun	c ^h ə-niʔ	nɣ̃ ^h -hiʔ	nuʔ-c ^h u	tâ-nî
	Phong		tei-k	tei-t	ni
	Muklom	hi ⁴ -ni ³	i ² -ni ³	nim ¹ -ni ³	niŋ ² ni ³
Southwest	Chang	sə-ti	kə-si	ka-si	hao-si
	Phom	či ⁵⁵	--	--	--
Southeast	Wolam		te < *tse	a-te	ŋə-ne

Table 22. *tsi in Patkaian pronoun paradigms

In general the initials are regular reflexes of *ts, note Hawa Nokte *tʰa*, Hakhun *cʰà* ‘child’ (Mongchan 2015; Boro 2017) < *tsa (STEDT #2727), Phong *teaj* ‘sit’ < *m-tsu-ŋ (STEDT #3591), *teip-phe* ‘squeeze’ < *tsip (STEDT #86). Closely-related Nokte and Hakhun preserve original 2DU *na-tsi, but show innovative 1st person forms, showing that the inherited paradigm was INCDU *tsi, 2DU *nV-tsi. Note that in Chang, the dual formative is the initial element of inclusive *sə-ti*, but the final element in all other persons.⁸ In Nokte and Hakhun Tangsa, as in Kyomkyo Gyalrong (Table 17, §3.1), *tsi is the initial element in 1st person and final in the 2nd person form. In Chang it is initial only in the inclusive. The source of the person-indexing final consonants in the Phong 1st and 2nd person forms is unclear, and therefore the significance of their position relative to *tsi is as well.

The Barish group shows broad evidence for *tsi(ŋ), as do both Mru and Hkongso; within Barish, Dimasa has retained much of the original dual paradigm, although reanalyzed as plural. For present purposes I will consider the pronominal similarities between Mru-Hkongso and Barish as evidence for a cladistic connection; if this is incorrect, then the resemblances must have a deeper connection. The dual and plural forms in Mru, Hkongso, and Dimasa are compared in Table 23:

	1	2	3
Mru DUAL	a-chi	en-chi	ka-i-üa
Hkongso DUAL	aŋ ³³ sʰiŋ ⁵⁵	ən ³³ sʰiŋ ⁵⁵	mi ⁵⁵ ja ⁵
Dimasa PLURAL	ziŋ	n-si	bu-(n)si

Table 23. Dual pronouns in Mru-Hkongso and corresponding Dimasa plurals

In each of the three languages we see the original 2DU construction *na-tsi; Mru-Hkongso have innovated analogous compositional 1DU forms. The Dimasa 1st person plural reflects Proto-Barish *ciŋ (Joseph & Burling 2004, Debnath 2014), but the plural element *-si* in 2nd and 3rd person is not found elsewhere in the branch. Dimasa *-si* is a regular reflex of *tsi; Proto-Barish *s/*sh⁹ < PTB *ts, as in *sha¹ ‘pain’ < PTB *tsa-t (STEDT #1844), *sal¹ ‘sun’ < PTB *tsyar (STEDT #2753), etc. However, /z-/ also sometimes reflects *tsi, e.g. *zi* ‘ten’ < PTB *tsyay (STEDT #2748). Other Barish languages have distinct plural formatives in 2nd and 3rd person; significantly, these are different in different languages, and none of them is reconstructable for Proto-Barish. Thus, Dimasa shows the original paradigm (lacking the Inclusive), allowing us to reconstruct *tsi(ŋ) for Proto-Barish, probably perhaps already in plural function.

3.4 *tsi in other Central clades

The attestation of *tsi in the Central languages is thin and scattered. In §3.3 we examined the evidence from Patkaian and Barish-Mru-Hkongso; we will now consider evidence from Aoic, Kho-Bwa, Kaman-Meyor, and Nungish. Although these represent a minority of the Central clades, there is no imaginable classification on which these are more closely related to one another than any of them is to Jinghpaw, or Angami, or South Central, where we find no evidence for *tsi. Neither is there any plausible affiliation of all or any of them

⁸ Chang *-si* is a plausible reflex of *tsi, cp. *-si* ‘pus’ < *tswəy, *-sen* ‘nail, claw’ < *m-tsyal, although PTB *ts is more often reflected as *sh*: *shem* ‘mortar’ < *tsum, *-shang* ‘jaw’ < *tsyŋ, *shat* ‘ill’ < *tsat, *shung* ‘navel’ < *ts(y)u:ŋ, etc.

⁹ Joseph and Burling reconstruct a distinct sibilant initial *sh on the basis of Tiwa, but the validity of this is dubious (see Joseph & Burling 2006: 54-55).

with any of the Eastern or Western groups, so there is no way to group all of the clades attesting *tsi into a single higher-order group.

We have discussed the Sangtam and Jejara paradigms already (§2.2.1); the dual forms are summarized in Table 24.

	INC.DU	1DU. EXC	2DU
Sangtam		iʔ-tʃəʔ	nəʔ-tʃə
Jejara	tzi	a-tzi	nyai-tzo

Table 24. Dual forms in two Aoic languages

Jejara *tzi* apparently reflects *n-tsi, cp. *tza* ‘eat’ < PTB *m-dz(y)a- (STEDT #36).

There is an apparent reflex of *tsi in Thangal, or Khoirao, a member of the small low-level Zeliangrong clade. The Thangal paradigm is given in Table 25.

	SG	DU	PL
1	hei	hei-ji	n-rummi
INC			hei-rummi
2	nang	nang-ji	nang-rummi
3	pai	pai-ji	pai-rummi

Table 25. Thangal pronouns (McDonough 2020: 76)¹⁰

The only other documented Zeliangrong variety which distinguishes dual pronouns is Liangmai, and there the dual formative is *-nai*, obviously related to *nia* ‘two’ (Widinibou 2009).

These are the only examples that I have from any of the ‘Kuki-Naga’ clades; to date *tsi is not attested in any Angami-Pochuri, Tangkhulic, or South Central language, or in Meitei or Karbi.

In the Eastern Himalayan region *tsi is attested only two small clades, Kaman-Meyor and Kho-Bwa, as shown in Table 26:

		1DU	2DU	3DU
Kaman-Meyor	Zha	ke ³⁵ -tei ⁵⁵	i ³⁵ -tei ⁵⁵	wu ⁵⁵ -tei ⁵⁵ -kə ³¹ -nəi ⁵⁵
	Kaman	ku ³¹ -tein ³⁵	no ⁵³ -tein ³⁵	ui ⁵³ -tein ³⁵
Kho-Bwa	Puroik	gu ³³ -sai ⁵⁵	na ³³ -sai ⁵⁵	va ³³ -sai ⁵⁵
	Duhumbi	ga-zij	na-zij	wa-zij

Table 26. *tsi in Kaman-Meyor and Kho-Bwa

For Zha *-tei⁵⁵*, cp. *te⁵⁵* ‘ten’ < PTB *tsyay (STEDT #2748); for Puroik *-sai⁵⁵*, cp. *sað* ‘burn, roast’ < *PTB tsyow (STEDT #2749). As in Mru-Hkongso (§3.3), so in Kho-Bwa we see *tsi in Puroik, but *tsij in closely-related Duhumbi, and in Kaman-Meyor *tsi in Zha, but *tsij in closely-related Kaman.¹¹

¹⁰ Thangal orthographic <j> represents a voiced coronal fricative which “may actually be the palatal affricate found in Manipuri ... or an alveolo-palatal fricative [z]” (McDonough 2020: 22).

¹¹ The Kaman /-n/ coda is irregular, as Kaman retains the *ij rime, e.g. *teij⁵⁵* ‘tree, wood’, PTB *sij, but lacking any other evident source, I take this syllable as reflecting *tsij.

All the Nungish languages have a reflex of *tsi as a dual suffix in the verbal indexation paradigm, but it is retained in the pronominal paradigm only in Anong, as seen in Table 27. All other Nungish languages have replaced *tsi with ‘two’ in their dual pronouns.

	SG	DU	PL
1	ɑ ³¹ -io ³¹	ɑ ³¹ -iuŋ ⁵⁵ -si ³¹	ɑ ³¹ -iuŋ ⁵⁵
INC	ŋɑ ³¹	ŋɑ ³¹ -iuŋ ⁵⁵ -si ³¹	ŋɛ ³¹ -ni ³⁵
2	ŋɑ ³¹	ŋɛ ³¹ -ŋuŋ ⁵⁵ -si ³¹	ŋɛ ³¹ -ŋuŋ ⁵⁵
3	ŋ ³¹	ŋ ³¹ -ŋuŋ ⁵⁵ -si ³¹	ŋ ³¹ -ŋuŋ ⁵⁵

Table 27. Anong pronouns (Sun & Liu 2009: 72)

Anong /s-/ is a plausibly regular reflex of *ts-, cp. Anong *su*⁵⁵ ‘fat’ < PTB *tsow-s (STEDT #42); *sɿ*³¹ *lan*⁵⁵ ‘salt’, < PTB *m-tsyi (STEDT #2747). (Although there are other Anong forms where PTB *ts is reflected as an affricate). The syntagmatic position of -si following a plural formative is problematic. Still, since *tsi as a verbal index is securely reconstructable for Nungish (see e.g. Perlin 2020), this is sufficient evidence to reconstruct it also for the pronominal paradigm.

4 On the history of *tsi

In §2 I suggested that *tsi might have originated as a specifically inclusive dual, which was not part of larger a dual paradigm. Greenberg (1988) suggests that this is the ordinary origin for dual marking. In this story the initial stage, where *tsi occurs only alone, must have been early in the development of the proto-language, for *tsi, *ntsi, and *tsiŋ, and the person values of *tsi and *ntsi, all must have been present when the language diverged into its first daughter branches. We can confidently reconstruct *tsi and *ntsi, and evidently also *tsiŋ, to the nearest common ancestor of East Gyalrongic and Qiang-Naic, Kiranti, Central Himalayan, and West Himalayan, and Patkaian and Barish-Mru-Hkongso, and thus to the common ancestor of all these plus Nungish, Aoic, Kaman-Meyor, and Kho-Bwa, all of uncertain higher affiliation. This can only be the common ancestor of all the Tibeto-Burman languages. This common ancestor had the pronominal paradigm shown in Table 28.

	SG	DU	PL
1	*ŋa	*tsi-ŋ	*ka
INC		*tsi	*i
2	*naŋ	*n-tsi	*ni

Table 28. A reconstructed PTB pronominal paradigm

But the overwhelming majority of languages instead have a regular paradigm in which pronouns, usually singular, combine with one of the three forms of *tsi as a general dual suffix. The path from the reconstructed paradigm to the commonly attested pattern appears to start with the extension of one of the duals to 3rd person. The 3DU form is then Demonstrative + *tsi or *ntsi.¹² Next the two 1st person forms are replaced by PRO + *tsi(ŋ) by analogy to 2nd and 3rd person. Once

¹² In some languages, e.g. Kyomkyo (Prins 2016: 144) and Ersu (Zhang 2013: 292) this dual marker has subsequently been extended to use with some or all nouns.

person is encoded in all forms in the initial pronominal element, the dual formative is regularized to one of the three possibilities.

This reorganization must postdate the breakup of the proto-languages, to explain the diversity in choice of which of the original dual forms is generalized. There is some reason, as we have seen, to think that (some of) this dates to the time(s) of divergence of some of the mid-level clades. Thus Proto-Gyalrongic had the original paradigm, and East Gyalrongic regularized it by adding the contrastive-reflexive element to the 1st person form. Starting from Proto-Qiang-Gyalrongic, we see that Gyalrongic and Qiangic restructured the paradigm independently. Likewise, we clearly reconstruct the original paradigm to Proto-Brahmaputran, retained to some degree into both Proto-Barish and Proto-Patkaian.

The fact that we see the same 1PRO + *tsi construction across the family, but with different pronominal elements (*ŋa in Qiangic, *ŋi in Central Himalayan, *i in Tinan and Sangtam, *ka in Chang, Puroik, and many Kiranti languages) is further evidence that these paradigms developed independently in the various subbranches after the divergence of PTB. During (very broadly) the same stages of divergence, we see the original synthetic plurals being replaced by compositional PRO + NUM constructions (DeLancey 2019), just as with the dual series, and it is likely that these were, for the most part, part of the same structural reorganization.

There is evidence for considerable variation and confusion in the recognition and coding of clusivity in late PTB and early stages of the branches (DeLancey 2019; 2022; 2025). As the reorganization of the dual category also in some way involved a clusivity distinction between *tsi and *tsinj, it is more than likely that all of these shifts in pronominal systems were connected or interacted in some way. At our present stage of understanding it is difficult to say much more than this, and this present exercise should be seen as one necessary step toward a complete understanding of the changes in pronoun systems in the family.

Sources for data in tables: Anong, Sun and Liu 2009; Athpare, Ebert 1997; Bahing, Hodgson 1880; Belhare, Bickel 2017; Bhola, Nagano 2021; Bhujel, Regmi 2007; Boli, Khatri 2020; Bragbar, Zhang 2020; Bunan, Widmer 2017; Byangsi, Sharma 2007; Chang, Chang 2013; Chepang, Pons 2022; Dirang Monpa, Das Gupta 1968; Duhumbi, Bodt 2020; Dumi, van Driem 1993b; Ersu, Zhang 2013; Hakhun, Boro 2019; Hkongso, Wright 2009; Japhug, Jacques 2021; Jejara, Barkman 2014; Kaman, Li 2002; Khatso, Donlay 2015; Kulung, Tolsma 2006; Kyomkyo, Prins 2016; Longxi Qiang, Zheng 2017; Mawo Qiang, H. Sun 1981; Na, Lidz 2017; Nokte, Mongchan 2015; Phom, Bano 2017; Phong, Dutta 2022; Prinmi, Ding 2014; Proto-Upper Arun, Gerber 2023; Puma, Sharma et al. 2005; Puroik, Lieberherr 2017; Queyu, Guan 2024; Taoping Qiang, Huang and Zhou 2006; Sangtam, Imchen 2012; Shixing, Huang and Wangmu 1991; Shuitian, Huang 2009; Taruan, H. Sun et al. 1980; Thulung, Lahaussais 2004; Tinan, Saxena 1997; Tshangla, Andvik 2010; Tshobdun, J. Sun and Blogros 2019; Wadu Pumi, Daudey 2014; Wolam, van Dam and Muheim 2023; Zbu, Gong 2018; Zha, Li and Jiang 2001; Zhaba, Gong 2007, Huang 1991

ABBREVIATIONS

DEM	demonstrative	PL	plural
DU	dual	PRO	pronoun
EXC	exclusive	PTB	Proto-Tibeto-Burman
INC	inclusive	SG	singular

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