The Proto-Munda Predicate and the Austroasiatic Language Family

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Introduction

The fact that most languages in the Munda branch of Austroasiatic have extensive verbal morphology has lead to the widespread assumption that proto-Munda itself had a morphologically complex verb. Pinnow (1966) as well as Norman Zide and Gregory Anderson (Zide & Anderson 2001, Anderson & Zide 2001, Anderson 2004, Anderson 2007) tried to reconcile the diversity of affixes and clitics and the abundance of morphological structures in modern Munda languages by reconstructing complex verbal morphology in the common ancestor. Reconstructions along these lines set proto-Munda apart from other Austroasiatic languages and from what we know of the history of the Austroasiatic family. Furthermore, a morphologically complex proto-Munda locates many crucial morphological developments in a pre-proto-Munda stage and has proto-Munda emerge as an exceptional Austroasiatic language apart from all other branches and with no explanation how and when it changed so dramatically.

My goal is to suggest an alternative hypothesis and restart the discussion of how the Munda branch developed and how it fits into the Austroasiatic language family.[1] The primary claim of this paper is that proto-Munda was a language with very few bound morphemes. In fact, all of these bound morphemes are well known from other branches of Austroasiatic – making proto-Munda a rather typical Austroasiatic language. The other side of this claim is that the extensive morphology found in Munda languages today can be shown to be a later development in branches of the Munda group and often even in individual languages. This paper argues that it is time to shift the focus of research from the static exceptionality of proto-Munda and the Munda languages towards the investigation of the process that made the Munda branch an exceptional group of Austroasiatic – an endeavour broadly in the spirit of Donegan & Stampe (1983, 2002, 2004) and Donegan (1993).

The approach advanced here also entails a shift in scope from a narrow view of historical morphology towards the predicate position of proto-Munda and its place in the syntactic and prosodic organization of the Munda languages. Recent works on individual Munda languages – especially Peterson (2011a, 2011b) and the papers in Anderson (2008a) – have contributed crucial data supporting a reconstruction of proto-Munda with a morphologically simple verb and a set of pre-verbal particles. The morphological diversity in modern Munda languages is a central problem for explanations positing a morphological complex proto-Munda. For the approach argued in this paper, the diversity of affixes and clitics and the abundance of

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[1] I would like to thank the anonymous reviewer wholeheartedly for their detailed and thoughtful comments. While I considered all of the points they raised carefully, I did not address all of them here, but I hope this paper evokes more detailed and thoughtful reactions like these. This would be the discussion we need for the history of the Munda languages and their role in the Austroasiatic family.

structures in Munda languages is not an inscrutable obstacle, but an integral part of the development of the sub-branches of Munda.

Some General Considerations

Any account of the development of verbal morphology in the Munda languages has to present a reconstruction of proto-Munda and show how it relates to what we know about the history of the Austroasiatic family. Previous accounts by Pinnow (1966) as well as Norman Zide and Gregory Anderson (Zide & Anderson 2001, Anderson & Zide 2001, Anderson 2004, Anderson 2007) have reconstructed a morphologically complex verb in proto-Munda and explained the structures and morphemes in modern Munda languages by substantial remodelling of the morphological structure in the development of the different languages. Although it has to be said that the structures reconstructed for proto-Munda became less and less complex, the resulting proposals developed a typologically unlikely picture of the morphological changes with constant loss and emergence of prefixes as well as suffixes and enclitics. The holistic shift proposal developed by Donegan & Stampe (1983, 2002, 2004) and Donegan (1993) offers a consistent model for the changes that it posits, but has problems to explain the particularities of Munda morphology and their development.

Although I believe Donegan and Stampe are ultimately right to look for an explanation in terms of prosodic and rhythmic patterns and their development, this abstract account cannot explain the considerable differences among the Munda languages, nor does it account for the diversity of specific developments in the various languages.

The challenge is to develop a model that accounts for the differences as well as similarities in the morphological templates of the individual Munda languages and posits a morphological and syntactic structure in proto-Munda from which the different structures developed. This paper constitutes a first step towards such a model. The underlying assumption of this paper is that morphology is "a reflection of the historical sequence of grammaticalization of affixes" (Mithun 2000, p. 232). For the templatic structures of the different Munda languages, the basic assumption is that these structures developed successively as morphemes closer to the verb root were bound earlier than more peripheral verbal markers. If we take the morphological structure of Gorum as an example and in particular focus on the suffix domain, the basic assumption states that the ventive suffix *-aj* developed later than the undergoer suffixes[2] represented in this example by the first person singular *-iŋ*, which in turn developed later than the tense markers, represented here by the past tense suffix *-r(u)*.

(1)	*aɖaʔ-r-iŋ-aj*
	thirsty-PST:ACT-1sU-VEN

 'I was thirsty.'

The assumption that the grammaticalization of person suffixes preceded the grammaticalization of the ventive *-aj* is supported by the fact that the ventive only occurs in the Sora-Gorum group, while object suffixes occur in several branches of Munda. The tense marker *-ru* can reconstructed to proto-Munda **lə*.

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[2] The undergoer suffixes mark object on transitive verbs, but in a small group of intransitive patientive verbs, these suffixes mark the only argument, mostly experiencers.

However, there are specific paths that result in new affixes appearing in positions closer to the root than older affixes. In particular, there is one supplementary mechanism that is crucial to explaining the diverse inventories of tense aspect affixes in Munda languages. This mechanism explains the different tense/aspect suffix inventories in the individual languages. Examples (2) and (3) illustrate this situation with word forms from Gutob.

(2)	*sui-tu-niŋ*
	plow-ACT.NPST-1SG

'I will plow.' (cf. Griffiths 2008, p. 643)

(3)	*pi-loŋ-niŋ*
	come-MID.NPST-1SG

'I will come.' (cf. Griffiths 2008, p. 660)

The active non-past suffix *-tu* in (2) has cognates in several Munda languages and can be reconstructed in proto-Munda. The middle voice non-past suffix *-loŋ* in (3) is only attested in Gutob. The suffix *-loŋ* is probably derived from a verbal root and the source construction for the current suffix in this position is a combination of a non-finite main verb – most likely the stem – followed by a finite auxiliary *loŋ*. Through this path, established templatic positions can become hosts for new affixes long after the initial grammaticalization of affixes in this location.

The Proto-Munda Predicate

The reconstruction presented in this paper differs substantially from previous accounts of proto-Munda. Most significantly, it focusses on the predicate position with particles and in relation to its position in the clause as opposed to the purely morphological approaches of Pinnow (1966), Zide & Anderson (2001) as well as Anderson (2004, 2007). The reconstructed structure consists of a morphological simple verb that could be augmented by a very small set of derivational pre- and infixes, allowed for reduplication and probably featured incorporation of monosyllabic nominal forms: DERIV-RDL:V-INC. This verb is set in a clausal structure that can be reconstructed as in Figure 1.

| [SUBJ] | MOD/ASP | NEG | RECIP | CAUS | [VERB](=) ASP:VOICE | [OBJ] |

Figure 1 Proto-Munda clause

The various syntactic positions of the predicate complex in proto-Munda could be occupied by a small set of markers. Some of these markers – such as the causative **Oˀp*, the reciprocal particle **kƏl* or the negators **əˀt* and **Um* – can be reconstructed with high certainty. The same is true for some of the aspect-voice formatives that occupied the postverbal position. The perfective **lə* and imperfective **tə* are well attested across the different Munda branches as is the middle voice marker **n* (see also Rau 2011 for a reconstruction of tense and voice in the proto-Munda predicate). The status of active voice **ˀt* as well as other aspect or voice markers is still problematic and needs further research. The most tentative part of the proto-Munda predicate is the pre-negator mood-aspect position that is based on reflexes in Gorum and Gutob, as well as its similarity to phenomena in Khasic and Palaungic languages. The resulting reconstruction can be represented as:

| MOD/ASP | NEG | RECP | CAUS | DERIV- | RDL: | ROOT | -INC | ASP | :VOICE |

*A	*ə̉t	*kƏl	*Ỏp	**bə-	*lə PERF	:*n MID
*O	*Um			**tA-	*tə IMPERF	:*ʔt ACT
*Vj				**A-		
*mO						

Figure 2 The syntactic positions and reconstructed morphemes

The existing evidence allows us to form a hypothesis about the prosodic structure of the proto-Munda predicate. The verb itself consists of a predominantly monosyllabic root that can be reduplicated or can incorporate a monosyllabic nominal combining form. Proto-Munda had a strong quantitative bias for mono- and bisyllabic stems. The pre-verbal particles were simple freestanding phonological words. This situation still found in a slightly different way in Kharia (Peterson 2011a, 2011b) as well as in many other Austroasiatic languages. The causative *Ỏp immediately preceded the stem. Although all reflexes of *Ỏp are bound morphemes in modern languages. The lack of any lexicalized reflexes in North Munda suggests that it was not yet bounded to the stem in proto-Munda. The stem was immediately followed by a combined aspect-voice marker that was monosyllabic. Although, the evidence from modern Munda languages suggests that this marker could have been already closely bound at a proto-Munda stage, this poses new challenges for any account of the developement, as it has been generally assumed that the prefixes predate any suffixes. We can thus posit the following prosodic structure for the predicate complex of proto-Munda:

(ω)	ω	ω	ω	ω		(ω)
(σ)	σ	σ	σ	[[(σ)	σ]	σ]
(MOD/ASP)	NEG	RECP	CAUS		ROOT	(=)ASP:VOICE
				ROOT	INC	
				RDL	ROOT	
				DERIV	ROOT	

Figure 3 The proposed prosodic structure assocoated with the predicate

The structure reconstructed here is similar to modern languages in other branches of Austroasiatic. The crucial difference are the fused aspect-voice post-stem position and the potential boundedness of this post-stem syllable in proto-Munda. The details, evidence, and consequences of this reconstruction are discussed in the following sections.

Previous Accounts

The complexity of Munda verbal morphology is exceptional both in the Austroasiatic family and in South Asia. This has led to a considerable interest in historical verbal morphology of Munda. The seminal treatment of verbal morphology in Pinnow (1966) is still highly relevant and shows some similarity to the reconstruction argued for in this paper.

Pinnow sums up his analysis with the statement that "only the simple and compound verb stem with the primary affixes [i.e. RECP, CAUS, and REFL, F.R.] and with the aspect affixes partially expanded by -ed, -en- -ug [i.e. RECP, CAUS, and REFL, F.R.], can be considered an old and genuine verb complex." (Pinnow 1966, p. 180) This results in the following structure:

NEG SUBJ [RECP/CAUS:ROOT(:INC)-REFL-ASP:(IN)TRANS] OBJ

Figure 4 Pinnow's reconstruction of the proto-Munda predicate/clause

Pinnow also reconstructs morphemes for the different morphological positions. Besides the pronouns, he reconstructs the negators *kwam/kwom* and *adro*. The reciprocal *qəl-* as well as the causative *əb-* or *ab-*, and a reflexive *-dom*. Additionally, Pinnow reconstructs six aspect suffixes which he groups in two categories: imperfective – called infective in Pinnow (1966, p. 179) – and perfective. The imperfective suffixes are the progressive *-ta*, habitual *-e*, and durative *-ia*. His perfective suffixes are the resultative *-oka*, and non-resultative *-le*. These suffixes were closely joint with transitivity markers: transitive forms were zero marked or featured the suffix *-ed*, intransitives were marked by *-en*, and passive forms were marked by *-ug*. Although some forms such as the reciprocal *qəl-*, the causative *əb-/*ab-*, and the non-resultative perfective *-le* are virtually identical to the reconstructions proposed here, other forms seem difficult to justify for proto-Munda with our current understanding of the development of the different languages.

Another remarkable reconstruction was presented by Zide & Anderson (2001). They not only explicitly claim that proto-Munda had a complex verbal morphology, but also that parts of this morphology represent archaisms that have to be reconstructed for proto-Austroasiatic (Zide & Anderson 2001, p. 517). Their account of the proto-Munda verb assumes the most complex verbal morphology with bound subject and object markers as well as a negative prefix along with causative, reciprocal as well as voice and tense morphology. Following Zide & Anderson (2001, p. 518), the resulting morphological structure of the proto-Munda verb comprises eight morphological positions and can be represented as:

SUBJ-NEG-[CAUS/RECIP-RDPL-ROOT-PASS/INTR]-TRANS/TENSE-OBJ

Figure 5 Zide & Anderson's 2001 reconstruction of the proto-Munda verb

The proto-Munda verb, as proposed by Zide & Anderon (2001), requires extensive loss, re-grammaticalisation of the same categories and considerable restructuring of the verbal morphology. In the case of the subject prefixes, they assume a remarkable case of de-grammaticalization in Kherwarian (following Anderson & Zide 1999) in which the prefixes detached from the verb and developed into preverbal enclitics, attaching to any material preceding the verb. Anderson (2007) is more cautious about the status of the subject and object markers and gives them tentatively affix or clitic status. This results in the slightly modified structure:

SUBJ= CAUS/RECIP- VERB -INC -TNS/ASP/TRANS =OBJ

Figure 6 Anderson's 2007 reconstruction of the proto-Munda verb

Even in this version, a reattachement of the subject proclitic or prefix is required to account for all structures attested in the different Munda languages. So far, all accounts posit a morphologically complex proto-language and then focus on the loss of morphology and sometimes even several cases of demorphologization. This places the development of bound morphemes into a pre-proto-Munda stage and leaves it unexplained. The approach advocated here reconstructs a basic set of morphemes and posits a morphological structure from which all current verb morphologies delevoped without demorphologization or defaulting to loss of bound morphemes as the preferred explanation.

Reconstruction of the Proto-Munda Morphemes

This section provides evidence for the reconstructions of the morphemes populating the template outlined in the previous section. Most of the morphemes are attested widely in the branch and can be reconstructed with a high degree of certainty.

Roots

Verbal roots in Munda are mostly mono-syllabic with a (C)V(C) structure, although bi- and exceptionally even tri-syllabic roots may have existed in proto-Munda. We can reconstruct a number of verbal roots, but a thorough discussion of specific verb roots or hypotheses about phonological root structures or other patterns is beyond the scope of this paper. The six reconstructed root taken from Sidwell & Rau (2014) in (4) are a good examples of proto-Munda roots.

(4)	*kaʔp 'to bite'	*ɟOm 'to eat'
	*gEʔp 'to burn'	*gam 'to speak'
	*uʔt/uʔk 'to drink'	*sEn 'to go'

Additionally, a few polysyllabic roots have to be reconstructed for proto-Munda. Examples (5) and (6) were also taken from Sidwell & Rau (2014). The root in (5) is one of the few certain examples of this type. However, several of the putative polysyllabic roots may turn out to be polymorphemic structures, such as *(bə)goʔj 'to kill' in (6). The form *(bə)goʔj is best interpreted as a combination of the separately reconstructed root *goʔj 'to die' and a causative prefix *bə-, discussed in the following section.

(5)	*gətaɟ 'to sleep'

(6)	*(bə)goʔj 'to kill'

Causative *Oʔp

The causative morpheme *Oʔp can be reconstructed for proto-Munda. This particular causative is widely attested in the Munda family and has generally been reconstructed as a prefix – e.g. Pinnow (1966, p. 114 and 178) reconstructs *əb- and *ab- while Anderson (2004, p. 160) reconstructs *əʔb-. A closer look at the evidence in the different Munda languages and comparative evidence from other branches of Austroasiatic suggests that *Oʔp might have been a pre-verbal particle and not a morphologically bound prefix. Evidence for this is presented below. The following table illustrates the wide range of reflexes of *Oʔp.

	Prefix	Infix
Gorum	ab-	-b-
Sora	ab-/əb-	-b-
Gutob	ob-	-ob-
Remo	o-	
Gtaʔ	aʔ-	
Kharia	oʔb-, ob-	-ʔb-, -b-, -ʔ-
Juang	ab-, am-, ap-, (a-), (u-), (o-)	-b-
Korku	(a-)	
Mundari	(a-)	

Table 1 Causative morphemes in Munda languages

The reflexes of *OʔP in Kharia and Juang as well as the Sora-Gorum branch are mostly self-evident – althought the allomorphy in Juang warrants a second look in the discussion of North-Munda causatives. There is also hardly any doubt that Remo *o-* and Gutob *ob-* derive from proto-Gutob-Remo **ob-*. Gtaʔ *aʔ-* is also a straightforward reflex of *OʔP, since according to our current understanding of the development of Gtaʔ, proto-Munda *ʔp became ʔ, at least in morpheme final position in this language.

This causative also occurs as an infix with bisyllabic stems in several southern languages. This process of infixation is probably rather old, but its complete absence from the Northern languages is indicative. In fact, the North Munda languages, the Khewarian branch as well as Korku, lack definite reflexes of *OʔP altogether. These languages generally feature causative suffixes, such as Santali *-oco* (Neukom 2001, p. 139) and Korku *-khej, -ej* (Nagaraja 1999, p. 57). A causative prefix is only attested in frozen lexical forms. These lexemes contain a formative *a-* that has been generally considered a remnant of the same morpheme that gave rise to Sora *ab-/əb-* and Kharia *oʔb-*, the causative reconstructed as *OʔP here. While this is certainly a possible explanation, an alternative explanation is proposed in the following.

Lexical pairs such as Mundari *ajom* 'to feed' and *jom* 'to eat' found in North Munda are generally interpreted as lexicalized reflexes of *OʔP. The lack of any reflex of *ʔp in these forms and especially the apparent complete absence of any instance of a lexicalised *-ʔp- make a reconstruction as **A- a phonologically more likely alternative. A loss of final /b/ (or *ʔp) is theoretically possible, as the pair Remo *o-* and Gutob *ob-* attests. However, it cannot be motivated by known sound changes in North Munda and the lack of any fossilized instances of *-ʔp- make this even less likely. On the other hand, the reconstruction of a separate causative **A- can be supported by data from other Munda languages as well as Austroasiatic languages outside of Munda.

The interpretation of North Munda *a-* is crucial for the status of the causative *OʔP in proto-Munda. The position taken here is that with the currently available data North Munda *a-* is better interpreted as a reflex of an old causative prefix **A- and not taken as a reflex of *OʔP but. Since *OʔP is thus only attested as a bound morpheme for the southern Munda languages, it should be reconstructed as a preverbal particle in proto-Munda becoming bound at a later stage, when North-Munda had separated from the rest of the family. Another consequence of this hypothesis is that *OʔP is not linked to proto-Austroasiatic *p- (Sidwell 2008, p. 260). Reflexes of pAA *p- can be found in some fossilised forms and are discussed in the following paragraph. Even though, *OʔP cannot be linked to pAA morphology, it may have cognates outside of the Munda branch. Especially the similarity of the proto-Munda causative *OʔP to the causative auxiliary *op* in the South Bahnaric language Chrau is striking. This auxiliary derives from the lexeme *op* 'to make' (Thomas 1971).

Beyond reflexes of *OʔP, Munda languages feature scattered reflexes of other formatives. These reflexes suggest the existence of three causative prefixes in proto-Munda: **A-, **bə-, and **tA-. Maybe the most problematic is **A-, because of the closeness of its reflexes to the reflexes of *OʔP, as discussed above. The lexicalized causatives found in North-Munda – e.g. Korku and Mundari *a-* – are reflexes of a proto-Munda **A-. The lexically motivated variants *a-, u-, o-,* of the causative *ab-* in Juang (Patnaik 2008, p. 536) may also be reflexes of **A-, since the loss of morpheme-final *b cannot be motivated phonologically. For proto-Munda, we reconstruct the lexeme pair *goʔj 'to die' and *(bə)goʔɟ 'to kill' (see Sidwell & Rau 2014). The prefixal *bə- in the latter lexeme is based on Gtaʔ *bagweʔ* 'to kill' which relates to *gweʔ* 'to die' in the same language. This is tentative evidence for a causative prefix *bə- which in turn may be related to Khasi *pɨn* (Nagaraja 2014, p. 1155) and Golden Palaung *pʌn* (Mak 2012, p. 73), one type of Bahnaric causatives such as

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Pacoh *pa-* (Watson 1966, p. 17) and ultimately to proto-Austroasiatic **p-* as reconstructed by Sidwell (2008). A similar verb pair from Gorum – *kịn* 'to die' and *takịn* 'to kill' – suggests a fossilized causative **ta-* in Gorum. This could be evidence for a proto-Munda causative prefix ***tA-* which in turn could be related to a second type causatives in Bahnaric – such as Bahnar *tơ-* (Banker 1964, p. 105) Chrau *ta-* (Watson 1969, p. 91).

Interestingly, the causatives of the Bahnaric branch are particularly informative when reconstructing the causatives of proto-Munda. Bahnaric has causatives with initial bilabial such as Pacoh *pa-*, with a dental such as Chrau *ta-*, vowel or glottal stop initial such as Pacoh *ʔa-* (Alves 2006, p. 33) or Bahnar *a-* (Banker 1964, p. 105) and pre-verbal causative auxiliaries such as Chrau *op*. Munda shows fossilised remnants of causative prefixes ***bə-*, ***tA-*, as well as ***A-* and many Munda languages still possess a productive prefixes reflecting proto-Munda **Oˀp*. This results in the following correspondences. Whether this superficial similarity can be substantiated by advances in historical phonology has to be seen, but the similarities are striking.

Bahnaric	*pa-*	*ta-*	*(ʔ)a-*	*op*
proto-Munda	***bə-*	***tA-*	***A-*	**Oˀp*

Figure 7 Comparison of Bahnaric and proto-Munda causatives

While the three proto-Munda prefixes have to be considered tentative, we can reconstruct the proto-Munda causative **Oˀp* with a high degree of certainty. While it has been generally assumed that **Oˀp* was already a bound morpheme in proto-Munda and a reflex of proto-Austroasiatic **p-*, the hypothesis proposed here assumes three bound causative morphemes in proto-Munda – ***bə-*, ***tA-*, and ***A-* – with parallel prefixes in other branches of Austroasiatic and a free pre-verbal particle **Oˀp* with a possible cognate free form in Chrau (Thomas 1971).

Incorporation

Most Munda languages show substantial reflexes of post-root nominal incorporation. In some languages – most notably Sora (Anderson & Harrison 2008b) – noun incorporation is still a productive process, which seems to resemble the original process quite closely. Nominal forms that were incorporated are generally monosyllabic roots (Zide 1976) that do not conform with the so called bimoraic constraint (Anderson & Zide 2001b), requiring free nominal forms to consist of either one heavy syllable or more than one syllable. Anderson in this volume also discusses noun incorporation in the Munda languages.

Productive or fossilized noun incorporation is attested in Sora (Anderson & Harrison 2008b, p.351), Gorum (Zide 1976), Remo (Anderson & Harrison 2008a, p.602), Gutob (Griffiths 2008, p.662) Kharia (Peterson 2011a, p.122), Juang (Patnaik 2008, p.539), Gtaʔ (Anderson 2008b, p.736), and – although much more sparsely attested – in Kherwarian languages (Anderson, Osada & Harrison 2008 , p.228). In all languages, the verb immediately precedes the incorporated noun. Table 2 illustrates the parallel morphological structures by analog examples from seven Munda languages.

Sora	*abaːsi* 'wash hands'	*abaː* 'wash'	< *sˀiː* 'hand'	(Anderson & Harrison 2008b, p.354)
Gorum	*asiʔ* 'wash hands'	**a* 'wash'	< *siʔ* 'hand'	(field notes)
Gutob	*gujti* 'wash hands'	*guj* 'wash'	< *titi* 'hand'	(Griffiths 2008, p.640)
Remo	*guiti* 'wash hands'	*gui* 'wash'	< *titi* 'hand'	(Bhattacharya 1968, p.68)
Kharia	*guʼɟ* 'wash hands'	*guʼɟ* 'wash'	< *tiʔ* 'hand'	(Pinnow 1959, p.23)
Juang	guidi 'wash hands'	gui 'wash'	< iti 'hand'	(Patnaik 2008, p.539)

Gtaʔ	*gweʔti* 'wash hands'	*gweʔ* 'wash'	< *tti* 'hand'	(Anderson 2008b, p.737)

Table 2 Verbs with noun incorporation

The status of noun incorporation in proto-Munda is difficult to determine, but it is possible that some sort of incorporation was already present in proto-Munda and worked along the lines attested in modern Sora. Specific reconstructions of the incorporated nouns are not ventured here, but a position for incorporated nouns is reconstructed in the predicate template.

Reciprocal *kƏl

Proto-Munda had a pre-verbal reciprocal particle *kƏl*. The existence of such a formative as well as its form are generally undisputed. Pinnow (1966, p.116) already reconstructs *qəl-* and other writers follow him implicitly or explicitly. However, the claim made here is that the morphological status and its position in relation to other formatives was different than generally assumed.

Pre-stem reciprocal morphemes can be found in four Munda languages – Sora, Juang, Gtaʔ, and Kharia – and there are remnants of such a morpheme in the lexicon of Gorum.

	Form	Status
Sora	*əl-*	prefix
Gorum	(*al-*)	lexicalized prefix
Juang	*ko-/ku-*	prefix
Gtaʔ	*ho-*	prefix
Kharia	*kol*	particle

Table 3 Reciprocal morphemes in Munda languages

In Sora, Juang and Gtaʔ the reciprocal is a prefix positioned before the stem and the causative prefix and following the negative prefix. The particle *kol* in Kharia is an phonological independent word that is positioned in the syntax of the Kharia predicate complex between the verb (potentially with its causative prefix *ob-*) and the preceding negative particle *um*. Biligiri (1965) regards *kol* as a prefix, but Peterson (2011a and 2011b) argues convincingly that *kol* has to be regarded as a phonological word by itself with clear prosodic characteristics of a free phonological word. It directly precedes the verb and only so called incorporated nouns can intervene (Peterson 2011a, p.128). The status of Kharia *kol* as an independent particle is crucially different from the prefixes in Sora, Juang, and Gtaʔ. Gorum displays isolated remnants in the lexicon such as *al-pa'd* 'to mend' relating to *pa'd* 'to sew'. This formative is interpreted here as cognate with Sora *əl-* and allows us to reconstruct the prefix *əl-* for proto-Sora-Gorum.

Kharia *kol*, Juang *ko-* (with a variant *ku-*), Sora *əl-*, and the probable Gorum *al-* can be reconstructed confidently as proto-Munda *kƏl*. The connection of Gtaʔ *ho-* is less secure, but final *l was lost in Gtaʔ as *swa* 'fire(wood)' from proto-Munda *səŋal* and *usa* 'skin' from proto-Munda *usal* demonstrate. Gtaʔ /h/ is one possible reflex of proto-Munda *k, although the sound laws that lead from *k to Gtaʔ /h/ and /k/ are not understood yet. However, it seems to be a viable hypothesis to posit a pre-verbal particle *kƏl* in proto-Munda that accounts for Sora *əl-*, Gorum *al-*, Juang *ku-*, Gtaʔ *ho-* , as well as Kharia *kol.*

Proto-Munda *kƏl* can be connected to Golden Palaung *kʌr* (Mak 2012, p. 71 and 100). Shorto (1963, p. 53) gives *kər-* for Palaung, which he genetically connects to Riang-Lang *tər-*, while he also lists a separate Riang-Liang *kər-*. Since Pacoh also has *kar-/tar-* reciprocals (Watson 1966, p. 20), the connection of *kVr* and *tVr* seems to be old and linking Munda with the Palaungic, and Katuic branches of Austroasiatic and with Palaung in particular. If the Jeh reciprocal *ta-* (Gradin 1976, p. 35), the Bahnar reciprocal *tơ-* (Banker 1964, p.

107), Sedang *to-* (Smith 1969, p. 115), the Kammu reciprocal *tr-* (Sidwell 2008, p. 262) and Katu *ta-* (Castello 1966, p. 70) can be connected to this complex, a reciprocal cluster **kVr/*tVr* would be attested in Munda, Palaungic, Katuic, Bahnaric as well as Khmuic. This would suggest a very old pre-verbal reciprocal. If the the reciprocal **kVr* is not connected to **tVr*, the /k/ initial reciprocal would still link Munda, Palaungic and Katuic.

Three languages of the southern group lack the reciprocal despite featuring the preceding negative: Gutob and Remo as well as Gorum. In the case of Gutob and Remo no reflex can be found in the lexicon, while there is at least one clear lexical instance in Gorum. These three languages employ an alternative strategy to form reciprocals which involves the reduplication of the verb stem and changing the active voice to middle voice marking. In these three languages, the simple stem of these verbs with the middle voice would be interpreted as a reflexive form, the reduplication changes this to a reciprocal interpretation. The Gorum lexicon still contains remnants of a prefix *al-* as discussed above, showing that at least Gorum had reciprocal forms with a prefix derived from **kƏl*. However, these forms were replaced by the reduplication and middle voice strategy and only remnants survived in the lexicon. No reflexes of **kƏl* are known from either Remo or Gutob making it possible that it was never bound in this branch of Munda. However, a loss parallelling their direct geographic neighbour Gorum is possible.

The Khewarian languages (e.g. Santali, Neukom 2001, p. 130) and Korku (Nagaraja 1999, p. 56) feature a reciprocal infix *-pV-*. This infix has the appearance of an old morphological device, but its history is problematic. Although, an infix **-p-* has been reconstructed for proto-Austroasiatic (Sidwell 2008, p. 260), its function as a nominalising instrumental is very different from the reciprocal function of North Munda *-p-*. No parallels are known from other Munda languages. Unless a connection between pAA **-p-* and the reciprocal forms in North Munda can be demonstrated, this reciprocal remains restricted to the North Munda branch.[3]

The evidence produced by Peterson (2011a, 2011b) proving that Kharia *kol* is an independent phonological word is crucial evidence for our understanding of the development of the Munda languages. The fact that the reflex of **kƏl* in Kharia is a free word, suggests that the other reciprocals became bound only after Kharia seperated form the rest. The lack of reflexes in North Munda is then not an instance of the loss of a prefix, but these languages in all likelihood never had a bound morpheme dervied from **kƏl*. This development is parallel to the development proposed for the causative. The only difference here is that in the case of the causative Kharia groups with the other southern Munda languages by having bound morphemes derived from **OɁp*, while in the case of the reciprocal **kƏl*, Kharia never developed a reciprocal prefix but kept the free reciprocal word *kol*, while the use of the reciprocal words derived from **kƏl* fell out of use in the Khewarian languages and Korku.

Negation **əɁt* / **Um*

A set of negators or negative polarity markers can be reconstructed for the proto-Munda stage. The reconstructed forms are **əɁt*, **Um* and more tentatively **ka*, and **ban*. Table 4 lists all negators related to the four reconstructed negative markers.

*əɁt	**Um*	**ka*	**ban*

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[3] An anonymous reviewer points out that there might be reflexes of a bilabial retroflex in GtaɁ as well. This would suggest that it might be possible to reconstruct a reciprocal **-p-* for proto-Munda.

Sora	*ə*d-			
Gorum	*ar-, or-*	*ambu*		
Gutob	*ar-*			
Remo	*a-*			
Gta?ʔ	*ar-, a-*			
Juang	*ara-,*	*ama-*		
Kharia	(*aʔ)	*um*		
Ho			*ka*	
Turi			*ka*	
Santali				*baŋ*
Korku				*ban*

Table 4 Negation morphemes in Munda languages

As can be seen from this table, there is ample evidence from Gorum, Sora, Gtaʔ, Gutob, Remo, and Juang for a negator *ə̓t* or *ər*. Even though the most widespread form of the negative prefix is /ar/, the variety of forms – especially reported from Sora – suggest that /ar/ is not the form closest to the proto-form. The variation includes Sora *aʔ-/əʔ-, aʔn-, aʔd-, ədn-,* and *əd-* but also Kharia *aʔ*, discussed below. These variants suggest that Sora *əd-* is the more original form from which other forms are derived. Sora *əd-* makes proto-Munda *ə̓t* the most likely proto-form.

The fact that Kharia lacks a bound negative marker and the fact that negation precedes the reciprocal, which is not bound in Kharia either, suggests that the negative morpheme was not attached to the verb until Kharia and with that most likely also the North Munda languages where separated from the southern languages Gorum, Sora, Gtaʔ, Gutob, Remo, and Juang. That means that we have to reconstruct *ə̓t* as a free word in proto-Munda.

Comparative evidence from other branches of Austroasiatic suggest that the negative marker *ə̓t* is not an innovation of the Munda languages, but connects to negative markers in other Austroasiatic languages and ultimately to the verb *ʔət* 'to lack' (MKCD 943). An etymology already suggested by Donegan and Stampe (2004), who equate Sora *əd-* to Austroasiatic *ət* which is their equivalent of MKCD 943 *ʔət*.

Although its main negator *um* is not derived from *ʔət*, Kharia has negative forms that could be interpreted as reflexes of *ʔət*. Peterson (2011a, p. 338) takes the second person singular form *abu*, which is also used for third persons, as the base form. The internal structure of abu is – if it exists – not apparent, but two other forms of negation in Kharia are interesting: *aʔbar* '2DU/2HON' and *aʔpe* '2PL'.

Elsewhere, the clitics *=bar* '=2DU/2HON' and *=pe* '=2PL' are the bound forms of the personal pronouns *ambar* and *ampe* respectively and in this case seem to attach to a formative *aʔ*. This formative *aʔ* could be reasonably reconstructed as a reflex of *ə̓t* and would add Kharia to the languages in which *ə̓t* is attested. Unlike other reflexes of *ə̓t*, Kharia *aʔ* is not bound to the verb and in fact looks more like the base to which *=bar* '=2DU/2HON' and *=pe* '=2PL' attached. This would add further support to the notion that negators were free forms in proto-Munda.

Beyond reflexes of *ʔət*, Juang possesses a prefix *ama-* (Pattanaik, 2008, p. 537), which cannot be explained as a reflex of *ə̓t*, but would have developed from a negator containing the bilabial /m/. The Kharia negative particle *um* (Peterson, 2011a, p. 335) is the freestanding equivalent. If other free standing negators such as the Gorum negative imperative *ambu* 'Don't!' are connected, it seems justified to tentatively posit a negator *Um* for proto-Munda.

Ho and Turi negative particle *ka* (Deeney 1978, p. 174; Anderson, Osada & Harrison, 2008, p. 227) has no clear cognate form in branches other than Khewarian. Santali *baŋ*, Chaibasa Ho *ban* and Korku *ban* attest a negation device **ban* that cannot be traced beyond proto-North-Munda, the generally assumed common ancestor of Khewarian and Korku. Reflexes of **ban* have clear characteristics of a negative copula and suggest a more recent verbal origin, than **ə'ʔt* and **Um*. If we assume both Khewarian **ka* and North-Munda **ban* are reflexes of negators already present in the proto-Munda stage, we would have to posit **kA* and **bAn*. However, unless these formatives can be connected to etymons in wider Austroasiatic, positing these two negators for proto-Munda is not well supported.[4]

Tense and Mood Prefixes in Gorum

A set of prefixes occurring in the negative prefix position in Gorum encodes modal-aspectual semantics as well as negative polarity. The position can be occupied by one of three prefixes. Two of the prefixes encode negative polarity and mood/aspect, while the third prefix only encodes modality:

ar-	negative past, negative irrealis, negative conditional
or-	negative non-past, negative imperative
aj-	irrealis

This system of modal vowel alteration in the prefixes is parallelled by a similar vowel alteration in the negative copula:

iŋkaʔ	negative irrealis copula, negative conditional copula
iŋkoʔ	negative realis (negative indicative) copula
iŋkuʔ	non-finite copula

The negative prefix *ar-* is also part of the aspectual particle-like negative copula *arlaŋ* 'not yet' which derives from a – probably verbal – **laŋ*. The Gutob middle voice non-past suffix *-loŋ* (Griffiths 2008, p. 654) could be a cognate to the *laŋ* part of Gorum *arlaŋ*.

The two very distinct morphological positions of the modal vowel alterations – fused parts of verbal prefixes and in the coda of the negative copula – characterise this phenomenon as an archaic feature. The semantic similarities between *ar-* as well as *aj-* with *iŋkaʔ* and between *or-* and *inkoʔ* suggest that the phenomena indeed historically related and go back to a threefold distinction. The morphological distribution in modern Gorum characterises them as originally freestanding morphemes. The three morphemes can be reconstructed as:

*A	'REALIS + PERFECTIVE'
*Aj	'IRREALIS'
*O	'REALIS + IMPERFECTIVE'

This phonological reconstruction of the three morphemes is highly tentative and their actual phonological substance is impossible to determine with the available evidence. This shortcoming stems first and foremost from the fact that a single vowel in modern Gorum can correspond to three or more vowels on proto-Munda level. Furthermore, consonants in some prefixes seem to have been weakened or deleted in

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[4] An anonymous reviewer suggests possible parallels for **bAn* in Kơho-Sre and Khmer as well as Danau and Old Mon for **kA*.

the development of Gorum, making an original (C)V(C) structure of these morphemes conceivable. Beyond these crucial limitations, the evidence for pre-verbal mood-aspect morphemes which in part fused with the negative marker *ə̄ʔt and gave raise to the two negative prefixes or- and ar- as well as the irrealis prefix aj- is conclusive. This observation is corroborated by the Gutob negatives ar- 'not' and mor- 'not yet' (Griffiths 2018, p. 659). These two prefixes display an aspectual distinction that corresponds to a difference in the vowels (and onset).

The different semantics and form of the negative prefixes or- and ar- in Gorum and Gutob ar- and mor- cannot be explained by a development from *ə̄ʔt alone. These forms are best explained as forms that arose from a combination of the negative *ə̄ʔt with preceding aspectual-modal markers. The only univocal reflex of these aspectual-modal markers is Gorum irrealis aj-, but the forms in modern Gorum and Gutob suggest that at least perfective, imperfective, and irrealis markers occurred in the position preceding the negative marker. The available evidence suggests the following five reconstructions:

*Aj-	Gorum aj- 'IRREALIS'
*A+*ə̄ʔt	Gorum ar- 'NEGATIVE PAST' and Gutob ar- 'NEGATIVE'
*Aj+*ə̄ʔt	Gorum ar- 'NEGATIVE IRREALIS'
*O+*ə̄ʔt	Gorum or- 'NEGATIVE NON-PAST'
*mO+*ə̄ʔt	Gutob mor- 'NEGATIVE IMPERFECTIVE (not yet)'

A common source of Gorum ar- 'NEGATIVE PAST' and Gutob ar- 'NEGATIVE' in the combination of a perfective *A and the negative ə̄ʔt is possible. An interesting open issue is how to relate the supposed imperfective *mO- posited as an explanation of Gutob mor- 'not yet' and imperfective *O- that is currently posited to explain Gorum or- 'NEGATIVE NON-PAST'. The similarity in semantics and the possible similarity of the posited vowel *O in *mO- and *O- makes commons source of Gorum or- and Gutob mor- tempting.

This reconstruction allows to posit a pre-verbal modal-aspectual position that preceded the negation position. Since the only evidence from within the Munda branch comes from Gorum and Gutob, it is possible that it is an innovation of a subbranch of Munda. However, The archaic appearance of this feature and evidence from other branches of Austroasiatic suggest that it is an inherited feature.

In Golden Palaung, aspect auxiliaries precede the negators in pre-verbal position (Mak 2012, p. 27). These auxiliaries comprise markers for perfective, progressive/durative, inchoative among others (Mak 2012, p. 84).[5] Pnar has a pre-negator mood position. This syntactic position accommodates a passivizer and a deontic marker, but more crucially the realis marker da as well as the irrealis marker daw occur in this position (Ring 2013). The existence of a comparable pre-negator modal and aspectual position in Palaungic and Khasic languages further supports the hypothesis of a pre-negator mood-aspect position in proto-Munda.

Tense/Aspect

Munda languages have a large inventory of tense/aspect markers. However, most of these morphemes cannot be reconstructed at the proto-Munda stage, but seem to have developed at later stages. This paper will focus on the two best attested tense/aspect markers: the perfective *lə and the imperfective *tə; see also Rau 2011 for a discussion of the history of tense/aspect and voice morphology.

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[5] See also Janzen (1976) for an analysis of a different Palaung variety, Pale.

Two branches of Munda, Kherwarian and Sora-Gorum, feature clear reflexes of a perfective marker, that can be reconstructed with a level of certainty as *lə. Given the occurrence in these very different branches we can posit perfective *lə already for proto-Munda. The relevant markers are given in the following table. In Sora-Gorum, perfective *lə developed into a general past tense marker.

	Past/Perfect
Sora	-lə
Gorum	-ru
Santali	-let'/-len
Mundari	-le
Korku	(-le)

Table 5 Past/Perfect morphemes in Munda languages

Nagaraja (1999, p. 74) describes Korku past perfect as V-PST-ɖaːn with intransitive past -en and transitive past -khe in the PST position. However, V-le and V-le-ɖaːn forms – as in (7) and (8) – are given there as well. This suffix is not discussed by Zide (2008), but the position of the suffix -le and its contribution to the meaning of the verb form suggest a connection to *lə.

(7)	ji-le
	give-PST

'gave' Nagaraja (1999, p. 74)

(8)	ji-le-ɖaːn
	give-PST-PST.PERF

'had given' Nagaraja (1999, p. 74)

There is another very tantalizing word, that bares some resemblance in form and function with the other reflexes of *lə. In Gtaʔ, post-verbal læʔ 'to stay, to remain' functions as a perfective auxiliary. Our knowledge of historical phonology of Munda and Gtaʔ in particular does not allow for a reliable reconstruction[6], but it is possible that is connected to the perfective marker *lə. In this case, the reconstructed marker could not have existed as a clitical marker in proto-Munda, but it would have certainly been a free verbal element *lə(ʔ) at this stage. However, all substantiated evidence points to *lə being a bound morpheme in proto-Munda.

Outside of Munda, some etymons with a reported meaning 'completed' or 'finished' look promising as cognates. For example, Sidwell (2000) reconstructs *ləʔ 'completed' for proto-South-Bahnaric and later positing *lɛʔ 'completed' also for proto-Bahnaric (Sidwell 2011).

The other well attested tense-aspect marker is the imperfective *tə/tɛ. It is better attested in the southern Munda languages than *lə, but not as well in North Munda. However, Mundari possesses a progressive suffix -ta (Osada 2008, p. 127), that could be related.

	Non-Past/Imperfective/Progressive
Sora	-tə
Gorum	-tu

6 The biggest problem is that læʔ is also reported as laʔ in modern Gtaʔ. It is possible to reconstruct Gtaʔ læʔ as *laˀc on proto-Munda level. However, this is only one of several options and a purely mechanical one, as not other reflexes of such a hypothetical proto-Munda word exists.

Gutob	*-tu*
Kharia	*=te*/*=ta*
Mundari	*-ta*

Table 6 Future/imperfect morphemes in Munda languages

If the active past markers Kharia *=oʔ,* Gutob and Remo *-oʔ*, and Juang *-o* are related to Korku active past *-èʔ* (Zide 2008, p. 273), this set should go back to proto-Munda as well. However, in this case the marker would seem to consist of a fused aspect and voice morpheme already at proto-level.

Other tense/aspect morphemes attested in one or more branches may have existed in proto-Munda, but evidence is so far not sufficient to reconstruct any of these on the proto-level.

Voice *-n

All Munda languages make a voice distinction between active and middle voice – sometimes called transitive and intransitive respectively. Although voice marking is fused with tense/aspect marking in most Munda languages, Rau (2011) reconstructs middle voice *-n* for proto-Munda. As discussed there, Kherwarian suggests that the middle voice *-n* was paralleled by an active voice marker *-ʔt*. However, there is no evidence for *-ʔt* outside of Kherwarian, making the reconstruction of the active voice morpheme considerably less reliably than the middle voice marker.[7]

In southern Munda languages outside of Sora-Gorum, tense/aspect morphemes are completely fused with voice morphemes into a single marker. There is no way to separate the active voice part from the past tense component in Kharia active past clitic *=oʔ* or in Gutob and Remo active past suffix *-oʔ*. This suggest a very complex history of tense/aspect and voice morphology in Munda, beyond the few morphemes reconstructable to the proto-Munda level.

Person Markers

The development of person markers in Munda languages has been a topic of discussion for some time – starting with Pinnow (1966) and most influentially Zide & Anderson 2001, Cysouw (ms.), and Anderson (2007). It is probably the most widely discussed topic in historical morphology of Munda languages. In fact, the history of person marking is particularly complex in these languages and would warrant a separate extensive study.

For the sake of brevity, this section focuses first and second person markers and the etymologically related pronouns. The first and second person pronouns – in particular the first and second person singular – have good cognate forms in other branches of Austroasiatic, so that these grammaticalized person markers are ultimately connected to free and bound forms in other Austroasiatic languages. Third person markers are etymologically more diverse and developed from other sources than personal pronouns and are excluded here. Their particular etymologies and morpho-syntactic positions require a separate treatment, but do not change the overall picture delevoped in this section.

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[7] Pinnow's *-ed* (Pinnow 1966, p. 115) is the equivalent in his reconstruction to this marker. He connects Korku *-èʔ* to this complex.

Person Marking Patterns in Munda languages

At least seven different patterns of person marking can be distinguished in modern Munda languages (Table 7).

S-	V	*-O*		Gorum, Juang, (Sora)
S-	V			Gta?
X=S	V	*-O*		Kherwarian
X=S	V			Gutob, Kharia
	V	*-O*	*=S*	Kherwarian
	V		*=S*	Gutob, Remo, Kharia
	V	*-O*		Sora, Korku

Table 7 The position of person markers in Munda languages

The patterns result from combinations of subject prefixes, object suffixes, as well as subject enclitics preceding the verb or attached to the end of the verb.

Subject Markers

Six individual languages and the various Kherwarian languages feature subject marking in the predicate, but only four languages – Juang, Gta?, Gorum, and Sora – have markers not homophonous with pronouns or not transparently derived from contemporaneous pronominal free forms. The markers of these four languages are also the only subject prefixes, as opposed to the clitics the other languages. These prefixes are clearly old and worth considering as reflexes of older stages of subject marking.

	1 SG	1 DU INCL	EXCL	1 PL INCL	EXCL	2 SG	2 DU	2 PL
Juang	*V-/Ø-*	*ba-*		*nV-*		*mV-*	*a-*	*V-*
	aiɲ	*niɲba*		*niɲ*		*am*	*apa*	*ape*
Gta?	*n-*	*ni?-*	*ni-*	*(næ?-)*	*næ-*	*na-*	*pa-*	*pe-*
	næŋ	*nia?*		*næ?*	*næ*	*na*	*pa*	*pe*
Gorum	*ne-*	*le-*				*mo-*	*bo-*	
	miŋ	*bileŋ*				*maŋ*	*maiŋ/baiŋ*	
Sora					*ə-*			*ə-*
	ɲen	*anlen*				*amən*	*ambeɲ*	

Pronominal clitics (subject and object marking):

	1 SG	1 DU INCL	EXCL	1 PL INCL	EXCL	2 SG	2 DU	2 PL
Santali	*=iɲ/=ɲ*	*=laŋ*	*=liɲ*	*=bo(n)*	*=le*	*=me/=m*	*=ben*	*=pe*
	iɲ	*alaŋ*	*əliɲ*	*abo(n)*	*ale*	*am*	*aben*	*ape*

Table 8 Pronouns and subject markers in Munda languages

A closer look at the different paradigms in Table 8 reveals very different structures in the four languages. In Juang, Gta?, and Gorum the structures mirror the paradigmatic structure of the free pronouns of the respective language. The exception among the four is Sora, the closest relative of Gorum. Sora only has a single prefix *ə-*. Unlike the prefixes in the other languages that encode person and number information, *ə-* only marks plurality.

The form of the prefixes in Juang, Gtaʔ, and Gorum suggests that they are historically related to pronominal forms, but their sometimes archaic and always very contracted form indicates some age. For example, Gorum first person singular *ne-* corresponds to the free pronoun *miŋ* '1s.PRO', but reflects **niŋ*, an older stage of the pronoun. Despite this historical depth, the prefixes clearly reflect language-specific developments in the pronominal domain. The contrast in the first person singular subject prefixes – between Gtaʔ *n-* and Gorum *ne-* on the one side and Juang *V-/Ø-* on the other – is best explained by the corresponding lack of initial /n/ in the first person pronoun in Juang. The same is true for the /l/ in the Gorum first person plural prefix *le-* as opposed to Juang *nV-* and Gtaʔ *næ-*. Again the prefixes reflect distinct developments in the pronominal domain of the different languages. Crucially, the differences cannot be explained by general sound changes, but only by lexeme specific changes to the corresponding pronouns.

The uniformity of the negation prefixes in these languages is in stark contrast to the heterogenity of the subject prefixes. The differences in the subject prefixes and the fact that they parallel the pronominal paradigms of the different languages suggest that free pronouns which proceeded the verb became bound in Juang, Gtaʔ, and Gorum (or alternatively proto-Sora-Gorum), separately. The patterns found in these four languages cannot be explained by an early, single grammaticalization event.

Object Markers

Juang, Gorum, Sora, and Korku as well as the languages of the Kherwarian branch feature object marking on the verb. Although, the patterns for object marking are less diverse than the subject marking systems, the basic situation is similar. The object markers in the Khewarian languages are phonological identical to the subject clitics in these languages, but their morpho-syntactic behaviour is slightly different. Just as the subject clitics, object clitics are regularly derivable from the corresponding free pronouns. In the other four languages – Juang, Gorum, Sora, and Korku – we find specialized object suffixes. The markers in Korku are very similar to the clitics in the closely related Kherwarian languages, but are generally described as suffixes not enclitics (Nagaraja 1999, p. 67). The structure of the paradigm is identical to the pronominal paradigm in Korku and to the paradigms in Kherwarian languages.

The three other languages display a decidedly different situation. The paradigms of Sora and Gorum are identical in structure and the suffixes only differ between the two languages according to sound laws applying in the Sora-Gorum branch. This suggests that object marking was already present in proto-Sora-Gorum. Object marking in Juang, is again different and is in form and paradigmatic structure closer related to the free pronouns of Juang than to the object suffixes in the other languages.

	1 SG	1 DU INCL	EXCL	1 PL INCL	EXCL	2 SG	2 DU	2 PL
Juang	*-ɲ*	*-ɲba*		*-ɲeniɲ*		*-m*	*-pa*	*-pe*
	aiɲ	*niɲba*		*niɲ*		*am*	*apa*	*ape*
Gorum	*-iŋ*	*-ileŋ*				*-om*	*-ibeŋ*	
	eniŋ	*enleŋ*				*enom*	*enbeŋ*	
Sora	*-iɲ*	*-lɛn*				*-əm*	*-ben*	
	ɲen	*anlen*				*amən*	*ambeɲ*	
Korku	*-(i)ɲ*	*-laɲ*	*-liɲ*	*-buɲ*	-le	-mi	*-piɲ*	*-pe*
	iɲ	*alaɲ*	*aliɲ*	*abuɲ*	*ale*	*am*	*apiɲ*	*ape*

Pronominal clitics (subject and object marking):

Santali	=iɲ/=ɲ	=laŋ	=liɲ	=bo(n)	=le	=me/=m	=ben	=pe
	iɲ	alaŋ	əliɲ	abo(n)	ale	am	aben	ape

Table 9 Pronouns and object markers in Munda languages

Development of Person Markers in Munda

The evidence suggests that the grammaticalization of person marking in Munda languages were separate processes in the different branches. Most first and second person markers developed from pronominals and to the degree the pronouns are cognate across Munda languages the person markers are ultimately related. However, the branch or language specific developments in the pronominal lexemes are reflected in the bound markers. Showing clearly, that the markers developed after these changes occurred in the sub-branches or individual languages. In fact, the person markers of Kherwarian are simply bound or cliticized versions of the free pronouns and bear no close relation to any markers in other languages with the exception of the object suffixes in Korku. In other branches, the grammaticalization may have happened at early stages of the branches. So, it is possible to reconstruct the object suffixes of proto-Sora-Gorum, based on the reflexes in the modern languages. The picture emerging from the available evidence suggests that while most Munda languages developed some sort of morphological person marking, proto-Munda had no bound person markers on the verb.

Comparative Evidence of Morphological Structure

Several templates describing the morphological structure of the proto-Munda verb have been proposed. The original proposal is Pinnow (1966), but Anderson (2007) in Figure 8 can be considered the state of the art.

SUBJ= CAUS/RECIP- VERB -INC -TNS/ASP/TRANS =OBJ

Figure 8 Morphological of the proto-Munda verb according to Anderson (2007)

The slots in Table 10 are based on the morphological structure found in the languages of the Sora-Gorum branch as well as in Juang, because the languages of this subgroup are the closest to the reconstructed structure proposed by Anderson (2007) and other previous accounts of the proto-Munda verb.

	PREFIXES			STEM					SUFFIXES	
	S	MOOD	RECP	CAUS	RDL	ROOT	INC	ASP	VOICE	O
Gorum	x	x	(x)	x	x	x	x	x	x	x
Sora	(x)	x	x	x	x	x	x	x	x	x
Juang	x	x	x	x	x	x	x	x	(x)	x
Gtaʔ	x	x	x	x	x	x	x	x	(x)	
Gutob		x		x	x	x	x	x	(x)	
Remo		x		x	x	x	x	x	(x)	
Kharia				x	(x)	x	x	x	(x)	
Santali				(x)	x	x		x	x	(x)
Korku				(x)	x	x		x	(x)	(x)

Table 10 Common morphological slots with bound morphemes in Munda languages

The structure underlying Table 10 represents a hypothesis for morpheme order in proto-Munda based on which morphemes can be reconstructued at the proto-Munda stage and it what order they are attested in modern languages. In the following, I will argue that this morpheme order is in fact the best hyposthesis and examine the status of the morphemes in these position, especially in regard to morphological boundedness at the proto stage.

Pre-stem Positions

The prefix domain of Juang, Gtaʔ, Gorum, and Sora is the best available evidence for pre-verbal markers in proto-Munda. Examples (9) to (15) illustrate the current range of prefixes.

(9)	Juang
	a-ku-buji-ri-kia
	NEG-RECP-like-PRS-DL

'They don't like each other' (Patnaik 2008, p. 517)

(10)	Juang
	m-ab-soj-e
	2-CAUS-learn-FUT

'You will teach me.' (Patnaik 2008, p. 530)

(11)	Juang
	ni-kɔ-ɔŋ-se-na
	1PL-RECP-see-PRF-FUT

'We will see each other.' (Patnaik 2008, p. 533)

(12)	Gtaʔ
	a-ho-ba-ke
	NEG-RECP-get-T/A

'He did not meet (the cat)' (Anderson 2008b, p. 731)

(13)	Gtaʔ
	n-ar-aʔ-ble
	1-NEG-CAUS-ripen

'Shouldn't I be cultivating (grass).' (Anderson 2008b, p. 712)

(14)	Gorum
	ne-r-ab-soʹɟ-om
	1sA-NEG-CAUS-learn-ACT:2sU

'I didn't teach you.'

(15)	Sora
	ə-ədn-əl-gə{b}rɔj-l-aj
	PL-NEG-RECP-{CAUS}:feel.ashamed-PST-1ST

'We (exclusive) didn't shame each other.' (Donegan & Stampe 2004, p. 4)

The prefixes in these four languages all follow the same basic order as demonstrated in Table 2. As shown in the first part of this paper, the negation, reciprocal, and causative prefixes of these languages are cognate.

		SUBJ	NEG	RECP	CAUS	ROOT	SUFFIXES
Juang	(9)		*a-*	*ku-*		*buji*	*-ri-kia*
	(10)	*m-*			*ab-*	*soj*	*-e*
	(11)	*ni-*		*kɔ-*		*ɔŋ*	*-se-na*
GtaʔOL	(12)		*a-*	*ho-*		*ba*	*-ke*
	(13)	*n-*	*ar-*		*aʔ-*	*ble*	
Gorum	(14)	*ne-*	*r-*		*ab-*	*so'ɟ*	
Sora	(15)	*ə-*	*ədn-*	*əl-*		*gə{b}rɔj*	*-l-aj*

Table 2 The prefix domain in Munda languages

The North Munda languages lack these prefixes and any reflexes of the relevant morphemes. This could be explained by assuming that the prefixes were lost in the development of North Munda or by assuming that these morphemes were not morphologically bound at the proto stage. The crucial evidence comes from Kharia. The configuration illustrated in Table 11 is paralleled by the patterns found in the morphology and syntax in Kharia. Figure 9 gives the structure according to Peterson (2011, p. 335).

NEG=PERS/NUM/HON   RECP   CAUS-LEXEME-<CAUS>   v2(s)=PERF=TAM/VOICE

Figure 9 The predicate in Kharia according to Peterson (2011, p. 335)

The crucial part is the sequence NEG RECP CAUS-ROOT. In contrast to Gtaʔ, Juang, Gorum and Sora, the reciprocal and the negator are not bound morphemes. The subject enclitic cannot head the syntagma in the first position and thus occurs in second position with the negative as its host, resulting in the sequence [NEG=SUBJ] RECP CAUS-ROOT. The crucial part for reconstructing the proto-Munda predicate is that the sequence in Kharia contains three phonological words [NEG=PERS]ω [RECP]ω [CAUS-LEXEME]ω while basically exhibiting the same morpheme sequence – NEG+RECP+CAUS – as Juang, Gtaʔ, Gorum, and Sora.

ω	ω	ω
σ σ	σ	σ σ (σ)
NEG=PERS/NUM/HON	RECP	CAUS-LEXEME

Figure 10 Prosodic structure of the verb and pre-verbal postions in Kharia

The prosodic structure in Figure 10 is the best evidence that the negator *ɔʔt* and the reciprocal *kɘl* were not bound in proto-Munda. Evidence for a pre-verbal subject position is present in every branch of Munda. The patterns favour an original position of the subject preceding the negative marker. In languages such as Juang, Gtaʔ, Gorum (or proto-Sora-Gorum), the subject pronoun developed into a subject prefix, while in Kharia and the Khewarian languages it developed into an enclitic that has to follow a host, resulting in the general pattern [NP=SUBJ] [VERB] in Kherwarian and the negation pattern [NEG=SUBJ] [RECP] [CAUS-ROOT...] in Kharia. This allows us to reconstruct the sequence of free words SUBJ NEG RECP preceding the verb in proto-Munda.

As discussed earlier, there is limited, but intriguing evidence from Gorum and Gutob for an aspect or mood slot following the subject position, but preceding the negator. Although the remaining evidence is tightly bound to the negative morpheme in Gutob and Gorum, there is no evidence that the aspect/mood morpheme was bound at the proto stage. We can thus tentatively expand the preverbal position to SUBJ (ASP/MOOD) NEG RECP.

The last pre-stem marker that can be reconstructed for proto-Munda is the causative *Oʔp. The causative immediately precedes the stem. While all current reflexes of *Oʔp are bound morphemes, the lack of any fossilized reflexes of *Oʔp in North Munda and evidence from outside of Munda discussed above raise the possibility that the *Oʔp causative was not bounded in proto-Munda. Given its position relative to the stem and the fact that all its reflexes are bound morphemes, the probability that *Oʔp was already bounded in proto-Munda is higher than with any other prefix. Fossilized remnants of at least three causative morphemes – **bə-, **tA-, and **A- – can be found in different Munda languages. These derivational morphemes were almost certainly bounded, resulting in the following pre-stem structure:

SUBJ (ASP/MOOD) NEG RECP CAUS DERIV-ROOT

Post-stem Positions

In contrast to modern Munda languages, the post-stem domain in proto-Munda was minimal. There is substantial evidence for aspect morphemes directly following the stem. The evidence discussed in the first part of the paper mostly suggests that the aspect morphemes may have been already bounded on proto-Munda level. The aspect morphemes were followed by voice morphemes. The cohesion between the aspect morphemes and the voice morphemes is particularly strong. In several modern Munda languages, aspect and voice morphemes are consistently expressed as portmanteau morphemes. Even in the languages in which separate voice morphology can be identified, voice morphemes are phonologically minimal. The only morpheme that can be reliably reconstructed is middle voice *-n. The form of the middle voice marker makes it unlikely that it was a free standing word even in proto-Munda. From this evidence the post-verbal morphology can be reconstructed as [VERB]=ASP:VOICE.

The situation of the object markers is similar to the subject markers. The markers in the different languages are cognate, but the fact that language and lexeme specific changes in the pronouns are reflected in the markers is evidence that the object pronouns were bounded later in separate events. This means the whole post-verbal domain in proto-Munda can be reconstructed as [VERB]=ASP:VOICE OBJ.

Consequences of the Reconstruction

The structure in Figure 11 shows the complete reconstructed proto-Munda clausal core. The clause had a basic SVO structure with modal/aspectual, negation, reciprocal particles and a causative particle or auxiliary positioned between subject and verb. The verb was immediately followed by a combined aspect and voice marker.

[SUBJ]   MOD/ASP   NEG   RECIP   CAUS   [VERB]=ASP:VOICE   [OBJ]

Figure 11 The proto-Munda clause

While modern Munda languages differ considerably in syntax and morphology from other Austroasiatic languages, the clausal template in proto-Munda is very similar to clausal structures found in many

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Austroasiatic languages. Figure 12 compares the proto-Munda template to the clausal patterns of Palaung (Mak 2012), Pnar (Ring 2013), and Chrau (Thomas 1971).

	(ASP/MOOD)	NEG	RECP	CAUS	[DERIV- ROOT]	=ASP:VOICE
pMunda	(ASP/MOOD)	NEG	RECP	CAUS	[DERIV- ROOT]	=ASP:VOICE
Palaung	ASP	NEG	INTENT CAPABILITY			DIRECTIONAL ADVERBS REFLEXIVE PRO
Pnar	MOOD	NEG	ASP	VALENCE	V+INC	ADVERBIAL
Chrau	MOOD/ASP/NEG	AUX	INTENT.V		[CAUS- MAIN.V]	

Figure 12 The proto-Munda clause compared to other Austroasiatic languages

Based on the comparitive evidence and the reconstructed morphemes, we can try to reconstruct the prosodic structure of the predicate in proto-Munda. The stem consisting of a single root would be a monosyllabic word. Reduplicated roots, roots with derivational prefixes – in particular the proposed three causative morphemes **bə-, **tA-, and **A- – and bisyllabic roots form bisyllabic words. This mono- or bisyllabic verb is preceded by monosyllabic auxiliaries or particles. The word status of reciprocal *kƏl and negative *əʔt can be reconstructed with high confidence, based on the evidence from modern Kharia. The independent word status of causative *Oʔp is decidedly less certain, but it is assumed to be an independent particle or auxiliary in the reconstruction proposed here. The reconstructed modal-aspectual morphemes preceding the negation marker are not attested well enough to reconstruct their status in proto-Munda. Their status as an independent word is a conjecture based on their position in the predicate complex and the fact that they also occur at the end of the negative copula in Gorum.

Beyond the derivational prefixes, the reconstructed voice morphemes are reconstructed as bound morphemes with the highest certainty. Middle voice *-n and the tentative active voice *-ʔt are not syllabic and thus cannot form an independent word on their own. As discussed in the first part of this paper, the voice morphemes already formed a close unit with the aspectual morphemes in proto-Munda. Whether the unit of aspect and voice was an independent word or bound to the stem is a particularly interesting question with far reaching consequences for any model of the development of morphology in the Munda languages and will be discussed below in more detail. The resulting structure in Figure 13 was framed by the preceding subject position and the final object position.

(ω)	ω	ω	ω	ω		(ω)
|	|	|	|			
(σ)	σ	σ	σ	[[(σ)	σ]	σ]
(MOD/ASP)	NEG	RECP	CAUS		ROOT	ASP:VOICE
				ROOT	INC	
				RDL	ROOT	
				DERIV	ROOT	

Figure 13 Prosodic structure of thr proto-Munda predicate

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The reconstruction of the proto-Munda clause presented here and in particular the prosodic status of the different components raises important question for the development of verbal morphology in the Munda languages.

Austroasiatic languages have a well known preference for prefixes (Donegan & Stampe 2002). Although such a preference for prefixes is typologically unusual (Cysouw 2009, Himmelmann 2014), it is possible that this preference persisted for some time after the Munda branch formed. Modern Munda languages have a strong preference for suffixation. At some point in the development of the modern Munda languages, the preference must have changed from the general Austroasiatic prefixing to modern Munda suffixing. Donegan & Stampe (1983, 2002, 2004) and Donegan (1993) developed a proposal that postulates a holistic shift from a head-first, analytic language with rising rhythm to a head-final, synthetic language with falling rhythm during the development of the Munda branch. A scenario based on these premises would assume that the prefixes in Munda languages are older than the suffixes. Furthermore, prefixes closer to the stem should be the oldest bound morphemes, while the more peripheral prefixes are younger, but older than the suffixes close to the stem, leaving the peripheral suffixes as the youngest morphology. While at first glance, this scenario seems to broadly match the history of Munda verb morpholgy, the evidence presented in this paper suggests a more complex development. Even if we allow for this holistic switch to appear in the different branches of Munda at different times, the scenario is to simple to explain the attested patterns.

The proposed archaic causative prefixes **$b\partial$-, **tA-, and **A- have cognate prefixes in other branches of Austroasiatic and thus seem to go back to a stage before the Munda branch separated from Austroasiatic. However, all other prefixes attested in the Munda languages are restricted to subgroups of Munda and were probably morphologized at stages later than proto-Munda.

However, the best candidate for a bound morpheme that defines proto-Munda and sets it apart from other branches of Austroasiatic are the combinations of the perfective *$l\partial$ or the imperfective *$t\partial$ with the middle voice *-n or with the more putative active voice *-$ʔt$. The comparative evidence suggest that the sequences of aspect and voice morphemes already formed a close unit (ASP:VOICE) in proto-Munda. Furthermore, this unit seems to have been already bounded to the verb stem at the proto-Munda level.

After the development of the aspect-voice markers in the development of proto-Munda, the North Munda continued to develop suffixes after the proto-Munda stage. This branch never developed any prefixes and all morphological innovations in Kherwarian and Korku are suffixes or enclitics. The situation is different in the southern languages. The southern branches morphologized the proto-Munda causative *$Oʔp$ as a prefix. If this constitutes an individual event, this would be an argument for South Munda as a proper subgroup of the Munda languages. The causative *ob*- is the last prefix that Kharia acquired. All other bound morphemes in this language are suffixes or enclitics. The other branches – Juang, Gtaʔ, Sora-Gorum, and Gutob-Remo – morphologized the reciprocal *$k\partial l$ and the negative *$\partial ʔt$ as prefixes, either in a single event or in separate developments.[8] All subsequent innovations in Gutob-Remo are suffixes or enclitics. In a final development, Juang, Gtaʔ, and Sora-Gorum acquired subject marking prefixes. The differences in the paradigms and in

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[8] The lack of reflexes for *$k\partial l$ in proto-Gutob-Remo could be explained by a later replacement by another construction. However, it could be evidence that the reciprocal and the negative were not only bounded in separate events, but also each independently in each of the four sub-branches. In this case, Gutob-Remo, never morphologized the reciprocal, but only the negative prefix *ar-.

the form of the prefixes suggest that these developed independently in each of the three branches. All later developments in Juang, Gtaʔ, and Sora-Gorum are suffixes or enclitics.

In all modern Munda languages, every recent morphologization is either a suffix or an enclitic. However, while most of the suffixes and enclitics are comparatively recent and language or branch specific, the aspect-voice markers seem to be old and could predate all Munda prefixes, except the derivational prefixes inherited from Austroasiatic.

The Typological Shift

Donegan & Stampe (1983, 2002, 2004) and Donegan (1993) postulate a holistic shift from a head-first, analytic language with rising rhythm to a head-final, synthetic language with falling rhythm. This holistic typological shift entails a shift from the development of prefixes to the development of suffixes or enclitics.

While it is indisputable that modern Munda languages have a preference for suffixes and enclitics, the notion of a holistic shift has to accommodate the diversity of patterns in modern Munda languages and the different developments in the individual branches. In particular, the fact that the bound aspect-voice morphemes can be reconstructed for proto-Munda, while the prefixes are innovations of subgroups of Munda languages has to be reconciled with the notion of a holistic shift and the patterns in modern Munda. Furthermore, recent works – such as Peterson (2011b) and Ring and Anderson (2018) – have cast doubt on the completeness of the shift towards a falling rhythm. While the emerging evidence points to a more complex development, the relation between morphological and prosodic patterns remains a central, but poorly understood, component of the development of modern Munda languages. The holistic shift model proposed by Donegan and Stampes seems inadeuqate to explain the evidence from the different branches of the Munda group. To develop a better model for the processes that gave rise to the diverse morphological structure attested in the individual Munda languages, more research on the prosody of individual languages and comparisons between prosodic structures of languages from different branches along the line of Ring and Anderson (2018) is needed.

Summary

Proto-Munda can be reconstructed an Austroasiatic language with an SVO word order, few bound morphemes and a range of syntactic slots for particles. Comparative evidence allows a reconstruction of the morphology and the core clausal syntax of proto-Munda. The proposed reconstruction of the clausal core (Figure 14) is strikingly similar to syntactic structures in modern languages of other branches of Austroasiatic.

[SUBJ] MOD/ASP NEG RECP CAUS [VERB](=)ASP:VOICE [OBJ]

Figure 14 proto-Munda clause

The syntactic positions are connected with morphemes that can be reconstructed for proto-Munda. Several of the reconstructed morphemes in Figure 15 can be linked to morphemes in other branches of Austroasiatic.

MOD/ASP	NEG	RECP	CAUS	DERIV-	RDL:	ROOT	-INC	=ASP	:VOICE
*A	*əʔt	*kƏl	*Oʔp	**bə-				*=lə PERF	:*n MID

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*O	*Um	**tA-	*=tə IMPERF	:*ʔt ACT
*Vj		**A-		
*mO				

Figure 15 The syntactic positions and reconstructed morphemes

Besides the reconstruction of proto-Munda, this paper presented a proposal for the development of the modern languages from their common ancestor and accounts for the diversity of morphology in the different Munda languages. The details of this development question existing theories about the development of the Munda languages and the underlying mechanisms of the changes. Especially the bound status of the post-verbal aspect-voice morphemes is intriguing as it seems to contradict widespread assumptions about the sequence of grammaticalization events. Future research should produce a detailed model that accounts for the attested patterns of prefix and suffix morphologization as well as the changes to the internal organization of the different Munda languages.

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