

# Introduction to the templatic verb morphology of Birhor (Birhor), a Kherwarian Munda language

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Birhor (Birhor) is a Kherwarian Munda language spoken in small enclaves in India, primarily in Hazaribagh, Ranchi, and Singhbhum districts and other small pockets in Jharkhand state. Birhor has to date been poorly documented, and even the basic properties of its core grammatical systems remain largely undescribed. All data used in this study come from field notes collected in several trips dating back to 2015. This paper is a preliminary attempt to identify the basic templatic structures of positive and negative finite conjugations in Birhor of both monovalent and polyvalent predicates. We discuss here two basic intersecting inflectional oppositions in the grammar of Birhor: (i) between perfective and imperfective tense-aspect forms (the imperfective includes imperfective and imperfect forms, and the perfective includes the past, the anterior and the perfect); and (ii) between monovalent predicates and polyvalent ones. Like all Kherwarian languages, Birhor has a nominative-accusative alignment of argument indexing and a complex templatic verb structure. It encodes subjects with monovalent stems. Polyvalent predicates encode two arguments, a first argument/syntactic subject and a second argument/syntactic 'object' following a primary object pattern. A complex array of different templates is thus found across positive and negative conjugations that contrast polyvalent vs. monovalent imperfective, perfective, and imperative forms. Many different formal templatic patterns are attested within each of the paradigmatic oppositional sets in Birhor. There are two formal subtypes of monovalent predicates. They contrast in both positive and negative conjugations, for both the imperfective and the perfective series of inflections. Polyvalent predicates also contrast the imperfective and the perfective series. Lastly, there are distinct templates for imperative and prohibitive of monovalent and polyvalent predicates as well.

**Keywords:** templatic morphology, typology, Munda languages, morphosyntax, Birhor language, verbs

## 1. Introduction

Birhor (Birhoꞗ) is a Kherwarian Munda language spoken in small enclaves in India, primarily in Hazaribagh, Ranchi, and Singhbhum districts and other small pockets in Jharkhand state. Some speakers are also found in nearby adjacent parts of Odisha, Chhattisgarh, and West Bengal states. Until recently the Birhor still engaged in their traditional economic pursuits in Jharkhand, making their living as semi-nomadic natural fibre rope makers (the *uthlu* Birhor), with rope and products derived therefrom being their primary monetized commodity. The Birhor *tanda* was their typical settlement, a set of temporary family-unit leaf huts assembled near the edge of village markets. Forest degradation (Firdos 2005) has made this forest resource-dependent economy no longer viable, and many Birhor bands have been quasi-forcibly settled (the *janghi* Birhor), who undergo rapid acculturation to either caste Indo-Aryan or higher status tribal groups like the Munda or Ho. Thus Birhor has now become an endangered language.

Birhor has to date been poorly documented, and even the basic properties of its core grammatical systems remain largely undescribed. The prodigal son parable in translation appeared in Grierson's *Linguistic Survey of India* (1906), and a small bit of lexical data and a few sentences have appeared in various ethnographically oriented studies (e.g. Roy 1925; Adhikary 1984; Sahu 1995; Mishra et al. 1996; Dash 1998; Mukherjee 2000; Kumar 2004; Ota & Sahoo 2010). Much of the data is however of limited quality and reliability and mainly lexical. The brief publication of Osada (1993) is among the only ones published by a linguist. Some recent sociolinguistic data appeared in Sarkar (2012). All data used in this study come from field notes collected in several trips dating back to 2015.

In this paper, we discuss the verbal system of Birhor. This paper is a preliminary attempt to identify the basic templatic structures of positive and negative finite conjugations in Birhor of both monovalent and polyvalent predicates. Templates are an important aspect of numerous languages and languages structures across several different domains; see Good (2003, 2005, 2007, 2011) for an overview of these issues. Morphosyntactic or syntactic approaches to templates in various languages have been offered from languages across the globe including Australia (Nordlinger 2010), Africa (Maganga & Schadeberg 1992; Hyman 2003), North America (Lounsbury 1953; Bloomfield 1962; McClendon 1975; Kari 1989; Dahlstrom 1993, 1995 to name just a few), Papua New Guinea (Inkelas 1993), Siberia (Vajda 2004), or South America (Muysken 1988; or Epps 2008 on specifically syntactic templates). To this we can now add South Asia in the present study.

Due to the nature of Birhor verb structure, and differences between phonological and morphological words in the Kherwarian languages as a whole (see below), our approach straddles the border between morphology and syntax.

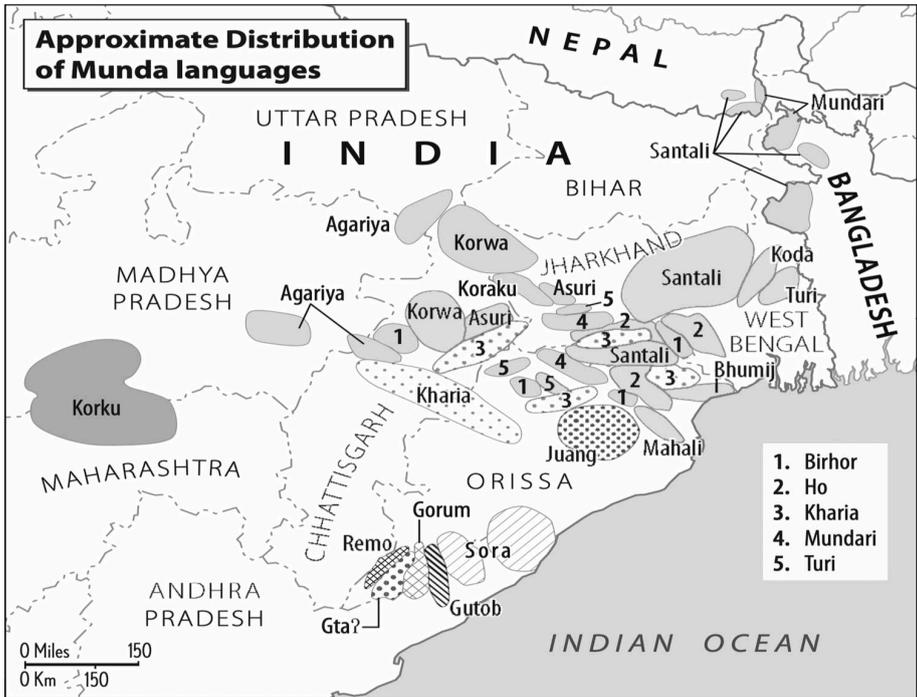


Figure 1. Munda language family in South Asia (Anderson 2007)

## 2. Birhor verb inflection

Birhor is a Kherwarian Munda language, which means it has a relatively complex verbal system as a result. Kherwarian languages organize their tense-aspect-mood system along two basic parameters: one an opposition between an imperfective and a perfective series of inflections, each with its own associated sets of verb templates. The second parameter that Kherwarian verbal systems are organized according to is the valence of the stem, with a primary opposition between monovalent and polyvalent. The two inflectional series use formally identical agreement markers with different prosodic and morphotactic characteristics. As in all Kherwarian languages, the subject and object indices are differentiated by their relative positions in the positive and negative verb templates: objects are encoded by suffixes in the internal part of a verb in both cases, while subjects are marked

by clitics and occur either at the very end of the verbal complex or enclitic to the word immediately preceding the verb, which in negative forms is the negative scope operator (either the general negator *ka* or the prohibitive *alo* in Birhor).

**Table 1.** Birhor pronouns, object agreement suffixes and subject agreement enclitics

	Syntactically free pronoun	Object suffix	Subject clitic
1SG	<i>iŋ</i>	<i>-iŋ/-eŋ/-ī</i>	<i>=iŋ</i>
2SG	<i>am</i>	<i>-me</i>	<i>=me/=m</i>
3SG.ANIM	<i>hini</i>	<i>-i</i>	<i>=e</i>
3SG.INAN	<i>hini</i>	∅	∅
1DL.INC	<i>alaŋ</i>	<i>-laŋ</i>	<i>=laŋ</i>
1DL.EXC	<i>aliŋ</i>	<i>-liŋ</i>	<i>=liŋ</i>
2DL	<i>aben</i>	<i>-ben</i>	<i>=ben</i>
3DL	<i>akin</i>	<i>-kin</i>	<i>=kin</i>
1PL.INC	<i>abu</i>	<i>-bu</i>	<i>=bu</i>
1PL.EXC	<i>ale</i>	<i>-le</i>	<i>=le</i>
2PL	<i>ape</i>	<i>-pe</i>	<i>=pe</i>
3PL	<i>ako</i>	<i>-ko/-ku</i>	<i>=ko</i>

The Proto-Kherwarian verb templates for these two series as reconstructed by Anderson & Jora (2018) are given in (1–4), here including the negative scope operator as well, which when present typically hosted the subject clitics; if no word appeared before the verb, then the subject clitics appeared enclitic to the end of the verbal complex.

- (1) PROTO-KHERWARIAN MAXIMAL VERB TEMPLATE [PERFECTIVE SERIES], POSITIVE  
 Verb.Stem(-APPL-TAM-VOICE/VALENCE-(POSS)-OBJ)-IND=SBJ  
 or X=SUBJ Verb.Stem(-APPL-TAM-VOICE/VALENCE-(POSS)-OBJ)-IND<sup>1</sup>

X = any word immediately preceding the verb

- (2) PROTO-KHERWARIAN MAXIMAL VERB TEMPLATE [PERFECTIVE SERIES], NEGATIVE  
 NEG=SBJ Verb.Stem-(APPL)-TAM-(VOICE/VALENCE)-(POSS)-(OBJ)-IND=SBJ

1. The indicative marker *-a* also called the finitizer or the declarative marker occurs in all indicative forms, both positive and negative, although it can be suppressed in Birhor under as yet uninvestigated circumstances. It also occurs with prohibitives but not imperatives, and tends to be lacking in conditional forms. Its use in dependent clauses remains uninvestigated, it is commonly lacking in such forms, but may be present as well.

- (3) PROTO-KHERWARIAN MAXIMAL VERB TEMPLATE [IMPERFECTIVE SERIES], POSITIVE  
 TIVE  
 Verb.Stem-(POSS)-(OBJ/VOICE)<sup>2</sup>-TAM-IND=SBJ  
 or X=SBJ Verb.Stem-(POSS)-(OBJ/VOICE)-TAM-IND
- (4) PROTO-KHERWARIAN MAXIMAL VERB TEMPLATE [IMPERFECTIVE SERIES], NEGATIVE  
 TIVE  
 NEG=SBJ Verb.Stem(-(POSS)-OBJ/VOICE)-TAM-IND

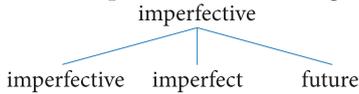
These trends are continued into the present day in Birhor with one stipulation the post-verbal marking of subject is associated with positive inflection and pre-verbal with negative forms. That is, Birhor inherited (2) and (4) intact except in one unusual subtractive paradigm discussed below, while Birhor took the first options listed in (1) and (3) in positive inflections to more consistently oppose the negative forms. Note that this means that there is typically a difference between positive and negative verb templates in Birhor insofar as negative verbs almost always has the shape NEG=SBJ Verb-TAM-(VOICE/VALENCE-[OBJ])-IND and the positive on the other hand almost always has the shape Verb-TAM-(VOICE/VALENCE-[OBJ])-IND=SBJ in Birhor. In either instance, however, some speakers will use the subject clitics both before the verb and after it, combining the two configurations above, particularly with 3rd singular subjects in the negative; see below. Also, as exemplified below, Birhor diverges from these idealized Proto-Kherwarian macro-templates at various points and appears to have innovated a range of new formations within this broad original templatic structure.

There are two salient differences between the two macro-templates: These deal mainly with the templatic position of objects and of the characteristically Kherwarian voice/valence markers. The object and voice/valence suffixes appear before the TAM markers in the imperfective series (5) as opposed to after them in the perfective series (12). Also they occupy separate templatic slots in the perfective in the order -transitive/active-object but appear to occupy the same templatic spot in the imperfective and thus are mutually exclusive; see below for more. Examples of various forms from the imperfective series of Birhor are seen in (6–11) and for the perfective series in (13–17).

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2. A few intransitive or monovalent verbs take the augment *-u?* (*--o?*) in Birhor—a handful of commonly used verbs are in this category, see examples below—but typically the element is found with active or polyvalent stems and serves to passivize or detransitivize them, or to mark the form as middle voice in the imperfective series.

## (5) Birhor imperfective series categories



## (6) Birhor imperfective positive

*ij am=ke lel-me=kan=ij*  
 1SG 2SG=OBJ see=OBJ=IPFV=1SG  
 'I am looking at you.'

## (7) Birhor imperfective negative

*ij am=ke ka=η nel-me=kan=e*  
 1SG 2SG=OBJ NEG=1SG see=2OBJ=IPFV=FIN  
 'I don't see you'/'I am not looking at you'

## (8) Birhor imperfect positive

*ij am=ke nel-me-kanken=ī*  
 1SG 2SG=OBJ see-2SG.OBJ-IMPERF=1SG.SBJ  
 'I was looking at you.'

## (9) Birhor imperfect negative

*ij am=ke ka=η nel-me-kanken-a*  
 1SG 2SG=OBJ NEG=1SG.SBJ see-2SG.OBJ-IMPRF-IND  
 'I was not looking at you.'

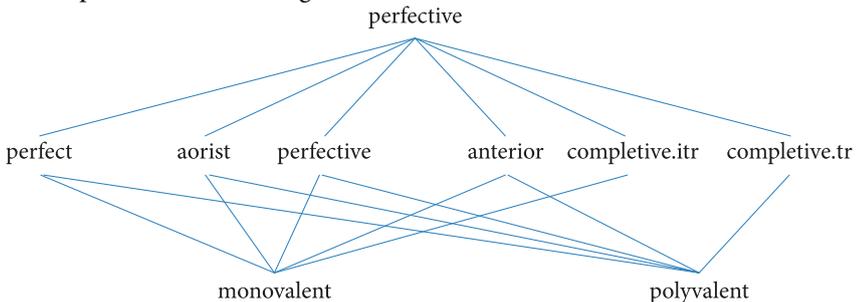
## (10) Birhor future positive

*ij am=ke lel-mi=η*  
 1SG 2SG=OBJ see-2SG.OBJ=1SG.SBJ  
 'I will see you.'

## (11) Birhor future negative

*ij am=ke ka=η nel-mi-jaj*  
 1SG 2SG=OBJ NEG=1SG.SBJ see-2SG.OBJ-IND  
 'I will not see you.'

## (12) Birhor perfective series categories



- (13) Birhor perfect positive  
*iŋ am=ke lel-ka-ʔ-m=iŋ*  
 1SG 2SG=OBJ see-PRF-TR/ACT-2SG.OBJ=1SG.SBJ  
 ‘I have seen you.’
- (14) Birhor perfect negative  
*iŋ am=ke ka=ŋ nel-eka-ʔ-m-a*  
 1SG 2SG=OBJ NEG=1SG.SBJ see-PRF-TR/ACT-2SG.OBJ-IND  
 ‘I have not seen you.’
- (15) Birhor transitive/active anterior positive  
*iŋ am=ke lel-le-ʔ-mi=ŋ*  
 1SG 2SG=OBJ see-ANT-TR/ACT-2G.OBJ=1SG.SBJ  
 ‘I saw (had seen) you.’
- (16) Birhor transitive/active aorist negative  
*iŋ am=ke ka=ŋ nel*  
 1SG 2SG=OBJ NEG=1SG.SBJ see  
 ‘I didn’t see you.’
- (17) Birhor intransitive/middle completive positive  
*hini daŋu-re nir+rakab-ɖa-n-a=e*  
 3SG tree-LOC run+climb.up-COMPL.INTR/MID-INTR/MID-IND=3SG.SBJ  
 ‘He ran and climbed up into a tree.’

Note that in the perfective series, there is a formal opposition between an intransitive/middle marker *\*-n* (19) and a transitive/active marker *\*-(ʔ)d*, the latter of which could be suppressed as well (so yielding a third  $\emptyset$ -marked option in theory), while in the imperfective series, the transitive/active is unmarked and only a intransitive/middle/passive marker *\*-oʔ* (18) is used, which occupies the same templatic spot as the object agreement markers.

- (18) *ɖajr hutfa-oʔ-kan-a*  
 branch break-INTR/MID.IPFV-IPFV-IND  
 ‘The branch breaks.’
- (19) *ɖajr hutfa-e-n-a*  
 branch break-COMPL. INTR/MID-INTR/MID-IND  
 ‘The branch broke.’

We discuss here two basic intersecting inflectional oppositions in the grammar of Birhor: (i) between the perfective and imperfective tense-aspect forms; and (ii) between monovalent predicates and polyvalent ones. Like all Kherwarian languages, Birhor has a nominative-accusative alignment of argument indexing in a

head-marked verb structure. It encodes subjects with monovalent stems. Polyvalent predicates encode two(-plus) arguments, a first argument/syntactic subject and a second argument/syntactic 'object' following a primary object pattern in the Dryer (1986) sense. That is, the morphological object position in the polyvalent predicate verbal template encodes either theme/patient undergoers or recipients/beneficiaries. Both object types are also marked in the nominal morphosyntax (20–21) by the primary object case clitic =*ke*, of Indo-Aryan origin. This therefore has yielded a synchronically mixed system of head- and dependent-marking of objects.

(20) *am in=ke lel-eŋ-a=m*  
 2.SG 1.SG=OBJ see-1SG.OBJ-IND=2SG.SBJ  
 'You will see me.'

(21) *in hor=ke nija ema-ku<sup>3</sup>-kan=in*  
 1.SG man=OBJ DEIC give:APPL-3PL.OBJ-IPFV=1SG.SBJ  
 'I am giving it to the men.'

As these two examples also demonstrate, not only are both patients and recipients encoded by the (borrowed) primary object case clitic, but the object agreement markers also encode referents filling both thematic roles. In other words, both the morphosyntax of the noun phrase and of the verb reflect the primary object pattern.

Such a primary case marking pattern on NPs using =*ke* is found in a range of Kherwarian languages, but is lacking in languages such as Santali that show significantly less contact-induced restructuring than does Birhor. Compare Ho (22) and Santali (23). Note that the verbal agreement pattern alone as in Santali (Bodding 1929; Ghosh 1994, 2008; Neukom 2001) is the older Kherwarian system, not the case clitic.

(22) Ho  
*aiŋ ho:=ke=ŋ goi<sup>?</sup>-k-i*  
 1.SG man=OBJ=1.SBJ kill-PRF-3.OBJ  
 'I killed the man.'

(23) Santali  
*am in=em daŋ-oŋo-ki-d-in-a*  
 2SG 1SG=2SG.SBJ run-CAUS-TR.PFV-TR-1SG.OBJ-IND  
 'You made me run.'

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3. The two allomorphs of the third plural marker *-ku* and *-ko* appear under yet-to-be-determined circumstances, if not just subject to inter- and even intra-speaker variation. Note that (14) with *-ku* and (42) *-ko* were recorded from the same speaker and both occur with applicative marked verbs in the imperfective series.

The =*ke* case appears to be a borrowing from Sadani/Sadri/Nagpuri (Kiran & Peterson 2010; 2011), the locally dominant tribal Indo-Aryan, Hindi-esque lect that serves as a *lingua franca* among *adivasi* ('tribal') populations in Jharkhand. Santali thus retains the older Kherwarian structure that lacks the case clitic and uses the original head-marking pattern alone.

Many different formal templatic patterns are attested within each of the paradigmatic oppositional sets in Birhor. Polyvalent predicates contrast the imperfective and the perfective series. There are two formal subtypes of monovalent predicates, one with a redundant marker of intransitivity called the 'augment' here. They contrast in both positive and negative conjugations, for both the imperfective and the perfective series of inflections. Lastly, there are distinct templates for imperative and prohibitive of monovalent and polyvalent predicates as well. A complex array of different templates is thus found across positive and negative conjugations that contrast polyvalent vs. monovalent imperfective, perfective and imperative forms. In § 2.1 we introduce imperfective series of conjugations and in § 2.2 the perfective ones.

## 2.1 Imperfective series of conjugations in Birhor

Birhor has an imperfective polyvalent verb template consisting of one complex morphological word but two phonological words in the positive conjugations typically, one of which is the lexical stem with the object suffix, followed by a word consisting of the imperfective marker, the finite marker and the subject clitic (24–25).

(24) imperfective polyvalent positive: [VERB-OBJ-TAM-IND=SBJ]

(25) *iŋ am=ke lel-me-kan-a=iŋ*  
 1SG 2SG=OBJ see-2SG.OBJ=IPFV-IND=1SG.SBJ  
 'I see you./'I'm looking at you.'

Negative imperfective polyvalent forms in Birhor show a different template with typically three phonological words in the negative conjugations that, like the one in (25), is typical of (almost) all the Kherwarian languages, consisting of the negative marker with the subject clitic and the verb with its subcategorized object followed by the aspect+finite marker (19–20).

(26) imperfective polyvalent negative: [NEG=SBJ] [VERB-OBJ-TAM-IND]

(27) *iŋ am=ke ka=iŋ nel-me-kan-a*  
 1SG 2SG=OBJ NEG=1SG.SBJ see-2SG.OBJ-IPFV-IND  
 'I don't see you./'I am not looking at you.'

The unmarked or simplex class of monovalent imperfective positive forms show a similar template to polyvalent ones, minus the object index (28–29). This is also true of the corresponding negative forms of monovalent stems in the imperfective (30–31).

(28) imperfective monovalent positive: [VERB-TAM-IND=SBJ]

(29) *ape sobin iam-kan-a=pe*  
 2PL all cry-IPFV-IND=2PL.SBJ  
 ‘You are crying.’

(30) imperfective monovalent negative: [NEG=SBJ] [VERB-TAM-IND]

(31) *ape sobin ka=pe iam-kan-a*  
 2PL all NEG=2PL.SBJ cry-IPFV-IND  
 ‘You are not crying.’

The imperfect and the future form pattern together with the imperfective, and show more or less similar templates as a result. In all three instances, there are two formal classes of monovalent verbs. One (the simplex set) is represented by “cry” above and consists of the bare root/stem of the verb in the imperfective series. The other class of monovalent stems (the augmented set) takes a stem augment in the imperfective conjugations (*-oʔ/-uʔ*).<sup>4</sup> The important verb *sen* ‘go’ is one such verb (33); no such labial vowel augment is found in perfective conjugational series with this same stem (see § 2.2 below).

(32) ‘augmented’ monovalent imperfective positive [VERB:*uʔ*-TAM-IND=SBJ]

(33) *ij senuʔ-kan=ij*  
 1SG go:*uʔ*-IPFV=1SG.SBJ  
 ‘I am going.’

Negative forms in this conjugation have the subject clitic attached to the negative particle immediately preceding the verb (34–35).

(34) ‘augmented’ monovalent imperfective negative [NEG=SBJ] [VERB.*uʔ*-TAM-IND]

(35) *ij ka=η senuʔ-kan-a*  
 1SG NEG=1SG.SBJ go:*uʔ*-IPFV-IND  
 ‘I am not going.’

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4. Note that with polyvalent predicates this element can function to express passive or low transitivity/low control of the agent with respect to the action in imperfective series, which formally contrasts with the alternating use of *-d-* vs. *-n-* after the TAM marker in the perfective series. As we have not yet tested the full range of such a system, a further elucidation of this must await further research.

The future has no overt marker in any conjugation in Birhor *per se*, just the stem augment (36–38) when this category is realized in the ‘augmented’ class of monovalent verbs.

(36) ‘augmented’ class monovalent future [VERB. *u*-IND=SBJ]

(37) *hini senuʔ-a=he*  
3SG go:*uʔ*-IND=3SG.SBJ  
‘He will go.’

(38) *nijarjin aliŋ senuʔ-a=lī*  
we.two 1DL.EXCL go:*uʔ*-IND=1DL.EXCL.SBJ  
‘The two of us (not you) will go.’

In first singular future forms of the augmented monovalent class of verbs, the finite marker is often lacking (39–40), and the stem augment is realized as *oʔ* not *uʔ*.

(39) ‘augmented’ class monovalent future 1st singular [VERB. *oʔ*=1SG]

(40) *iŋ senoʔ=iŋ*  
1SG go:*oʔ*=1SG.SBJ  
‘I will go.’

Note that this is not true, however, of corresponding negative forms of the augmented monovalent conjugation with first singular subjects (41–42), where the finite marker is typically found and the stem augment remains *uʔ*.

(41) ‘augmented’ class monovalent negative future [NEG=SBJ] [VERB- *uʔ*-IND]

(42) *iŋ ka=ŋ senuʔ-a*  
1SG NEG=1SG.SBJ go:*uʔ*-IND  
‘I will not go.’

As (43–44) demonstrate, all negative forms with third singular subjects of monovalent augmented stems require *double* encoding of subject across imperfective conjugations, including in the imperfect (32), the imperfective (44) or the future (45).

(43) *hini ka=e senuʔ-(tehi)ken-a=e*  
3SG NEG=3SG.SBJ go:*uʔ*-IMPRF-IND=3SG.SBJ  
‘He wasn’t going.’

(44) *hini ka=e senuʔ-kan-a=e*  
3SG NEG=3SG.SBJ go:*uʔ*-1PFV-IND=3SG.SBJ  
‘He isn’t going.’

- (45) *hini ka=e senu<sup>?</sup>-a=e*  
 3SG NEG=3SG.SBJ go:*u<sup>?</sup>*-IND=3SG.SBJ  
 ‘She will not go.’

The imperfective series of inflectional templates in Birhor are summarized in Table 2. Note that the TAM slot can be occupied by either *kan* imperfective, (*təhi*)*ken* for imperfect or Ø for future.

**Table 2.** Imperfective series templates in Birhor

imperfective polyvalent positive:		[VERB-OBJ-TAM-IND=SBJ]
imperfective polyvalent negative:	[NEG=SBJ]	[VERB-OBJ-TAM-IND]
imperfective monovalent positive:		[VERB-TAM-IND=SBJ]
imperfective monovalent negative:	[NEG=SBJ]	[VERB-TAM-IND]
‘augmented’ monovalent imperfective positive		[VERB: <i>u<sup>?</sup></i> -TAM-IND=SBJ]
‘augmented’ monovalent imperfective negative	[NEG=SBJ]	[VERB= <i>u<sup>?</sup></i> -TAM-IND]
‘augmented’ class monovalent ‘future’		[VERB- <i>u<sup>?</sup></i> -IND=SBJ]
‘augmented’ class monovalent ‘future’ 1st sg		[VERB- <i>o<sup>?</sup></i> =1SG]
‘augmented’ class monovalent negative ‘future’	[NEG=SBJ]	[VERB- <i>u<sup>?</sup></i> -IND]
‘augmented’ class monovalent negative 3rd sg	[NEG=SBJ]	[VERB- <i>u<sup>?</sup></i> -IND=SBJ]

## 2.2 Perfective series of conjugations in Birhor

Perfective conjugations are more complex. This is the area of the greatest complexity in Birhor verb morphology. In addition to the object index that is found in polyvalent stem conjugation, there are historically compound tense-aspect markers that explicitly encode valence/transitivity/voice, plus there are more TAM markers themselves and these latter form a complex set of oppositions that are differentiated between polyvalent and monovalent predicates, and between negative and positive conjugations as well. Further complicating this picture is the fact that both the object markers and the voice markers may be suppressed under as yet poorly investigated discourse conditions, the specifics of which require further research to determine.

The basic template for the Birhor perfective series follows the pattern for Kherwarian mentioned above: the verb stem followed by the TAM marker, then the marker of voice/transitivity/valence, then the object marker and the finite marker and followed lastly by the subject clitic. Perfective polyvalent conjugations are distinct not only in the additional templatic slot of the voice marker, but also in that the object marker comes *after* this and the TAM marker in the template (46–47), while it comes *before* the TAM marker in imperfective conjugations (48–49).

(46) polyvalent perfective [VERB-TAM-TR/ACT-OBJ-IND=SBJ]

(47) *ij hoɾ=ke udub-ka-ʔ-i=η*  
 1SG man=OBJ tell-PRF-TR/ACT-3SG.OBJ=1SG.SBJ  
 'I have told the man.'

or

(48) polyvalent imperfective [VERB-OBJ-TAM-IND=SBJ]

(49) *ij hoɾ=ke uduwa-ko-ken=iη*  
 1SG man=OBJ tell.APPL<sup>5</sup>-3PL.OBJ-IMPRF-IND=1SG.SBJ  
 'I was telling the men.'

In some forms in this conjugation, for example with first singular subject operating on a second singular object, the overt finite marker can be suppressed (50–51):

(50) polyvalent perfective positive II 1SUBJ > 2OBJ [VERB-TAM-TR/ACT-OBJ=SBJ]

(51) *ij am=ke lel-le-ʔ-mi=η*  
 1SG 2SG=OBJ see-ANT-TR=2SG.OBJ=1SG.SBJ  
 'I had seen you.'

Monovalent perfective conjugations, including serialized structures as in (53), show similar templates in positive forms (52).

(52) monovalent perfective positive [VERB(+VERB<sub>2</sub>)-TAM-INTR/MID-IND=SBJ]

(53) *hini bir-te kula lel + sen-ɕa-n-a=e*  
 3SG forest-ALL tiger see + go-COMPL.INTR/MID-INTR/MID-IND=3SG.SBJ  
 'He went to the forest and saw a tiger.'

Perfective negative forms show some significant anomalies in Birhor. The corresponding negative perfective template for polyvalent stems shifts the subject marker to the negative polarity marker that precedes the verb in the template (54–55):

(54) polyvalent perfective negative [NEG=SBJ] [VERB-TAM-TR/ACT-OBJ-IND]

(55) *ij am=ke ka=iη nel-le-ʔ-mi-aj*  
 1SG 2SG=OBJ NEG=1SG.SBJ see-ANT-TR/ACT-2SG.OBJ-IND  
 'I had not seen you.'

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5. The presence or absence of the applicative marker is subject to its own set of complex conditions, some grounded in discourse salience or affectedness, but also partly grounded in degrees of transitivity. It is somewhat more likely to occur in imperfective series forms than in perfective series forms.

With the monovalent stems in the negative perfective, Birhor shows some anomalous patterns from an internal-Kherwarian perspective. The default monovalent negative past is realized as zero in Birhor. Thus, the template follows the familiar Kherwarian pattern with the subject clitic attached to the negative scope operator *ka*, but this in turn precedes an unmarked verb stem with just the finite clitic at the end. For all persons except third singular subject forms, this pattern is found. Note that in perfective conjugations the imperfective augment is of course lacking. It is in fact the presence or absence of such an augment that is the only formal marker distinguishing monovalent negative past forms from corresponding negative future forms in the ‘augmented’ monovalent stem class in Birhor. Compare (58) in this regard with (59), repeating (42) above.

(56) monovalent negative past [NEG=SBJ] [VERB-Ø-IND]

(57) *am ka=m sen-a*  
2SG NEG=2SG.SBJ go-IND  
‘You didn’t go.’

(58) *iŋ ka=ŋ sen-a*  
1SG NEG=1SG.SBJ go-IND  
‘I didn’t go.’

(59) *iŋ ka=ŋ senuʔ-a*  
1SG NEG=1SG.SBJ go:uʔ-IND  
‘I will not go.’

This subtractive marking of negative past in Birhor is very unusual in Kherwarian. Typically one finds TAM+voice/valence markers in such constructions in Kherwarian languages like Santali, Bhumij, Ho, or Kera? Mundari.

(60) Santali  
*abo ba(ŋ)=bo sen-le-n-a*  
1PL NEG=1PL.SBJ go-ANT-INTR/MID-IND  
‘We have not gone.’

(61) Bhumij  
*koto ka rəpud-ɖʒe-n-a*  
branch NEG break-COMPL.INTR/MID-INTR/MID-IND  
‘The branch did not break.’

(62) Ho  
*koto ka rəhuɖ-ia-n*  
branch NEG break-COMPL.INTR/MID-INTR/MID  
‘The branch did not break.’

(63) *Kera? Mundari*

*sukri ka=i*                      *gɔɔʔ-ka-n-a*  
 pig NEG=3SG.ANIM.SBJ kill-PFV.NEG-INTR/MID-IND  
 ‘The pig was not killed.’

Third singular forms in the past negative in Birhor follow more or less the same pattern, differing, as in the imperfective series, only in that the subject is *doubly* encoded in such forms (64), both on the negative scope operator and on the verb itself (65).

(64) monovalent negative past 3<sup>RD</sup>SG                      [NEG=3SG] [VERB-Ø-IND=3SG]

(65) *hini ka=e*              *sen=e*  
 3SG NEG=3SG.SBJ go=3SG.SBJ  
 ‘She didn’t go.’

Third singular subject forms in negative conjugations in Birhor are therefore typically doubly marked with the augmented monovalent stem class. Thus, as would be predicted from the discussion above, the negative third singular subject future form differs from the corresponding negative past form only by the presence (future) or absence (past) of the imperfective series stem augment (66), repeating (45).

(66) *hini ka=e*              *senuʔ-a=e*  
 3SG NEG=3SG.SUBJ go:uʔ-IND=3SG.SUBJ  
 ‘She will not go.’

However, other than the default negative past formation, which has a Ø-TAM marker, other monovalent negative forms in the perfective series parallel the polyvalent negative perfective forms and the positive monovalent ones as well. Either way, we again find two templates, one for third singular subjects (59) with double subject marking, and one for all others (69). In each instance the template has the negative scope operator with the subject clitic followed by a bare verb stem and then a TAM marker with the intransitive/middle voice marker *-n-* followed by the finite marker, to which is added the pleonastic or seemingly redundant third singular subject marker.

(67) monovalent perfective negative 3<sup>RD</sup>SG                      [NEG=3SG] [VERB-TAM-INTR/MID-IND=3SG]

(68) *hini ka=e*              *sen-eka-n=e*  
 3SG NEG=3SG.SBJ go-PRF-INTR/MID=3SG.SBJ  
 ‘He hasn’t gone.’

The non-third singular forms (69–70) conversely take a different stem augment in the perfective series, *-e-* in such formations. It is in fact only the difference between the stem augment *-uʔ-* in the imperfective series (71–72) vs. the stem augment *-e-* in perfective series that formally contrast negative imperfective from negative perfect forms in such conjugations in Birhor.

(69) monovalent perfective negative [NEG=SBJ] [VERB- *e*-TAM-INTR/MID-IND]

(70) *hamariŋ ka=laŋ sen-eka-n-a*  
 I.DU.INCL NEG=1DU.INCL.SBJ go-PRF-INTR/MID-IND  
 ‘You and I haven’t gone.’

(71) augmented monovalent negative imperfective [NEG=SBJ] [VERB- *u*-TAM-IND]

(72) *hamariŋ ka=laŋ senuʔ-kan-a*  
 I.DU.INCL NEG=1DU.INCL.SBJ go:*uʔ*-IPFV-IND  
 ‘You and I aren’t going.’

While *etymologically* the *-n-* in *ka-n* in (70) for the perfect vs. *kan* in the imperfective in (72) *might* be the same, *synchronically* the *-n-* in the perfective series forms a paradigmatic opposition for monovalent stems with both *-d-* and  $\emptyset$  for polyvalent stems, while the imperfective in the imperfective series never varies and is used with both monovalent and polyvalent stems, as in (73), repeating (25) above.

(73) *iŋ am=ke lel-me=kan-a=iŋ*  
 1SG 2SG=OBJ see-2SG.OBJ=IPFV-IND=1SG.SBJ  
 ‘I see you.’/‘I’m looking at you.’

Note also the differential placement of object agreement markers between the imperfective vs. perfective series mentioned above in this regard. The perfective series templates of Birhor are summarized in Table 3.

**Table 3.** Perfective series verbal templates in Birhor

polyvalent perfective		[VERB-TAM-TR/ACT-OBJ-IND=SBJ]
polyvalent perfective positive II (1SG > 2SG)		[VERB-TAM-TR/ACT-OBJ=SBJ]
polyvalent perfective negative	[NEG=SBJ]	[VERB-TAM-TR/ACT-OBJ-IND]
monovalent past negative	[NEG=SBJ]	[VERB- $\emptyset$ -IND]
monovalent past negative 3 <sup>RD</sup> SG	[NEG=3SG]	[VERB- $\emptyset$ -IND=3SG]
monovalent perfective negative	[NEG=SBJ]	[VERB- <i>e</i> -TAM-INTR/MID-IND]
monovalent perfective negative 3 <sup>RD</sup> SG	[NEG=3SG]	[VERB-TAM-INTR/MID-IND=3SG]

Note that the TAM slot in these templates can be filled by a number of different operators, including *ke*, *le*, *ka*, *ta*, *e*, and *ja/dʒa*, encoding a range of tense-aspect-mood nuances. Some are more preferred with monovalent stems, others with polyvalent ones. Teasing apart such semantic distinctions and how they are used textually and in discourse in Birhor is a subject of ongoing research. Regardless, the morphotactics of the templates in these series remains constant, with the one exception that the indicative marker is often suppressed in first singular subjects acting on second singular object forms in the perfective series.

### 3. Imperative and prohibitive

Imperative and prohibitive forms in Birhor also have distinct templatic structures. In polyvalent imperative forms, the order of argument indices in the verb is the object markers followed by the subject clitics in that order (74–75). The imperative form lacks the indicative marker.

(74) polyvalent imperative [VERB-OBJ=SBJ]

(75) *k<sup>h</sup>antfi ema-ŋ=pe*  
 basket give.APPL-1SG.OBJ=2PL.SBJ  
 ‘Give me the basket!’

In corresponding polyvalent prohibitive forms, one finds a typical Kherwarian pattern in Birhor where the prohibitive particle *alo* hosts the subject clitics and is followed by a verb and any object index followed by the indicative suffix *-a* (76–77).

(76) polyvalent prohibitive [PROH=SBJ] [VERB-OBJ-IND]

(77) *k<sup>h</sup>antfi alo=pe* (e)*ma-ŋ-a*  
 basket PROH=2PL.SBJ give.APPL-1SG.OBJ-IND  
 ‘Don’t give me the basket!’

Monovalent imperatives (78) and prohibitives (79) are quite simple. Subject indexing is obligatory even with a singular familiar/intimate addressee. Morphotactically or prosodically, a historical minimal word constraint that was operative in earlier stages of the history of the Munda languages (Anderson & Zide 2002; Anderson 2015) has a partial reflex in the Birhor imperative. In this, a full form of the second singular subject clitic is required with monosyllabic verb stems, for example in the singular imperative of monovalent verbs (80), but a reduced form of the same clitic is adequate when attaching to the disyllabic prohibitive marker (81). As is typical of Kherwarian languages, imperative forms lack the finite clitic,

while prohibitive forms require it. Further, subject encoding is enclitic to the prohibitive particle itself rather than the verb as occurs in imperatives. So effectively the same templates exist for polyvalent and monovalent verbs, only the object index is logically lacking in the monovalent forms.

(78) monovalent imperative [VERB=SBJ]

(79) monovalent prohibitive [PROH=SBJ] [VERB-IND]

(80) *nir=me*  
run=2SG.SBJ  
'Run!'

(81) *alo=m nir-a*  
PROH=2SG.SBJ run-IND  
'Don't run!'

However, even disyllabic stems seem to require this full form of the subject clitic with imperatives now in Birhor (82), so what was originally likely a phonologically conditioned alternation has become analogically extended and morphologized such that the full form of the subject clitic is found in imperatives, and the reduced form in the prohibitive.

(82) *riɕ<sup>h</sup> tahin=me*  
happy COP=2SG.SBJ  
'Be happy!'

Note that this full form of the subject clitic with imperatives but reduced form in prohibitives is a pattern shared with a number of other Kherwarian languages, such as Santali (83–84) or Tamaɽia Mundari (85–86).

(83) Santali  
*dəɽ=me*  
run=2SG.SBJ  
'Run!'

(84) Santali  
*alo=m dəɽ-a*  
PROH=2SG.SBJ run-IND  
'Don't run!'

(85) Tamaɽia Mundari  
*nir=me*  
run=2SG.SBJ  
'Run!'

- (86) Tamaɽja Mundari  
*alo=m nir-a*  
 PROH=2SG.SBJ run-IND  
 ‘Don’t run!’

In some of these like Ho (87–88), this pattern remains phonologically conditioned, with monosyllabic stems taking the full form and polysyllabic ones the reduced form.

- (87) Ho  
*nir=me*  
 run=2SG.SBJ  
 ‘Run!’

- (88) Ho  
*kaɽʒi=m*  
 tell=2SG.SBJ  
 ‘Tell (me)!’

Some extensions to the above templates in Birhor can be found as well. For example, the verb part in the templates can be expanded to include multiple roots in a serial verb formation. Here we follow the criteria of Anderson (2011) to distinguish broadly between auxiliary verb constructions and serial verb constructions. A serial verb construction must be combinatorial or concatenative semantically and it must always also contain at least two predicative elements in a single clause without any marker of coordination or subordination. Such an example would be like that in (89):

- (89) *hini daɽu-re nir+rakab-ɽʒa-n-a=e*  
 3SG tree-LOC run+climb.up-COMPL.INTR/MID-INTR/MID-IND=3SG.SBJ  
 ‘He ran and climbed up into a tree.’

The inflectional clitic chain appears only once in structures such as the serial verb construction in (81) in Birhor. Note, however, that this same type of meaning can also be conveyed in Birhor through use of a clause-chaining non-finite structure with the adverbial dependency marker =*kete* as well (90).

- (90) *hini nir=kete deɽf-ɽʒa-n-a=e*  
 3SG run=NFIN climb-COMPL.INTR/MID-INTR/MID-IND=3SG.SBJ  
 ‘He ran and climbed up.’

On the other hand, it is also possible for a structure that is formally like a serial verb construction with a deictic-motion verb to have the meaning of a purposive clause ‘go/come in order to Verb’ as well in Birhor. In each case however, the inflectional clitic chain only attaches to the rightmost verb, whether the inflection is from the perfective series (91) or the imperfective series (92).

- (91) *hini bir-te kula lel+sen-ɔ̃a-n-a=e*  
 3SG forest-ALL tiger see+go-COMPL.INTR/MID-INTR/MID-IND=3SG.SBJ  
 ‘He went to forest to see the tiger.’
- (92) *hini am=lo l<ep>el+hiɔ̃u?-ken-a=e*  
 3SG 2SG=EMPH see<RECP>see+come-IMPRF-IND=3SG.SBJ  
 ‘He was coming to see you.’

Imperative and prohibitive templates for polyvalent and monovalent stems in Birhor are listed in Table 4.

**Table 4.** Imperative and prohibitive templates in Birhor

polyvalent imperative		[VERB-OBJ=SBJ]
polyvalent prohibitive	[PROH=SBJ]	[VERB-OBJ-IND]
monovalent imperative		[VERB=SBJ]
polyvalent prohibitive	[PROH=SBJ]	[VERB-IND]

For a complete set of the finite inflectional templates and categories in the Birhor verb, see the Appendix.

#### 4. Summary

The poorly documented Birhor language shows a complex array of different verbal templates that distinguish imperfective series of inflections from perfective series inflections, and between the patterns of inflection attested in polyvalent vs. monovalent predicates, the latter of which has two formal subclasses, a bare-stem class and an “augmented” class with the stem-augment in *-u?* (*-o?*). All such features are widespread across the Kherwarian family. However, Birhor also has some features that are not typical of Kherwarian languages as a whole. Indexing of subject typically is realized as a preverbal clitic on the word immediately preceding the lexical verb head across the Kherwarian languages, but in Birhor, positive conjugations have the subject marker enclitic to the verb and maintains the etymological structure only in negative formations typically. Other such features unusual from a Kherwarian perspective would include a  $\emptyset$ -marked past for monovalent predicates in the negative perfective series, obligatory double marking of third singular subjects across a range of negative formations, or a formal contrast of *-o?/-u?* augment in imperfective forms in opposition to an *-e* augment in perfective forms in the augmented monovalent series. In short, Birhor shows commonalities with “characteristic” features of both Santali and Mundari, and

thus appears to be transitional or intermediate between these two poles, a fact which combined with the Birhor features found in neither of these two accepted groups of Kherwarian languages, suggests that Birhor may well occupy a third node in the internal diversification of the Kherwarian family that is neither Santali nor Mundari-Ho-Bhumij. Further research is required to determine whether this initial hypothesis will be fully borne out.

## Abbreviations

1	First person	IPFV	Imperfective
2	Second person	INTR	Intransitive
3	Third person	LOC	Locative
ACT	Active	MID	Middle
ALL	Allative	NEG	Negative
ANIM	Animate	NFIN	Non-Finite
ANT	Anterior	NHUM	Non-Human
APPL	Applicative	OBJ	Objective
AUGM	Augment	PFV	Perfective
CAUS	Causative	PROH	Prohibitive
COMPL	Completive	PL	Plural
COP	Copula	PRF	Perfect
DEIC	Deictic	PRON	Pronominal
DU	Dual	PST	Past
EMPH	Emphatic	RECP	Reciprocal
EXCL	Exclusive	SG	Singular
GEN	Genitive	SUBJ	Subjective
IMPRF	Imperfect	TAM	Tense-aspect-mood
INCL	Inclusive	TR	Transitive

## Appendix. The Templates of the Birhor Verb

Positive monovalent imperfective *oʔ/uʔ*-class

Verb.Stem-[*oʔ/uʔ*]-[ $\emptyset$ /*kan/ken*]-*a*=SBJ

Positive monovalent imperfective  $\emptyset$ -class

Verb.Stem-[ $\emptyset$ ]-[ $\emptyset$ /*kan/ken*]-*a*=SBJ

Negative monovalent imperfective *oʔ/uʔ*-class

*ka*=SBJ      Verb.Stem[*-oʔ/-uʔ*]-[ $\emptyset$ /*kan/ken*]-*a*

Negative monovalent imperfective  $\emptyset$ -class

*ka*=SBJ      Verb.Stem- $\emptyset$ -[*kan/ken*]-*a*      NEG.IPFV NEG.IMPRF

*ka*=SBJ      Verb.Stem- $\emptyset$ - $\emptyset$ -*a*      NEG.FUT

Positive monovalent perfective *oʔ/uʔ*-class,  $\emptyset$ -class

Verb.Stem- $[\emptyset]$ - $[/e/le/ke/ka/dʒa]$ - $[n]$ -*a*=SBJ

Negative monovalent perfective *oʔ/uʔ*-class

- |      |                               |   |
|------|-------------------------------|---|
| i.   | <i>ka</i> =SBJ                | Verb.Stem- $\emptyset$ - <i>a</i>   |
| ii.  | <i>ka</i> =SBJ                | Verb.Stem- <i>e</i> / $\emptyset$ / <i>kan</i> <sub>i</sub> - <i>kan</i> <sub>j</sub> / <i>ken</i> - <i>a</i> |
| iii. | <i>ka</i> =SBJ                | Verb.Stem- <i>uʔ</i> / <i>oʔ</i> - <i>a</i>   |
| iv.  | <i>ka</i> =SBJ <sub>3SG</sub> | Verb.Stem- <i>u</i> - <i>a</i> -SBJ <sub>3SG</sub>  |

Negative monovalent perfective  $\emptyset$ -class

- |     |                |  |
|-----|----------------|--|
| i.  | <i>ka</i> =SBJ | Verb.Stem- $\emptyset$ - $\emptyset$ - $\emptyset$ NEG.AOR |
| ii. | <i>ka</i> =SBJ | Verb.Stem- $\emptyset$ - <i>kat</i> - <i>a</i> NEG.PRF     |

Positive polyvalent imperfective

Verb.Stem-*OBJ* TAM-*a*=SBJ

Negative polyvalent imperfective

*ka*=SBJ Verb.Stem-*OBJ* TAM-*a*

Positive polyvalent perfective future

Verb.Stem- $\emptyset$ - $\emptyset$ -*OBJ*- $\emptyset$ /*a*=SBJ

Negative polyvalent perfective future

*ka*=SBJ Verb.Stem- $\emptyset$ - $\emptyset$ -*OBJ*-*a*

Positive polyvalent perfective 'past'

Verb.Stem-*e*/*le*/*ka*/ $\emptyset$ -*d*-*OBJ*- $\emptyset$ /*a*=SBJ

Negative polyvalent perfective 'past'

*ka*=SBJ Verb.Stem- $\emptyset$ - $\emptyset$ - $\emptyset$ - $\emptyset$

Positive polyvalent perfective perfect

Verb.Stem-*ka*-*d*/*ʔ*-*OBJ*- $\emptyset$ (/*a*)=SBJ

Negative polyvalent perfective perfect

*ka*=SBJ Verb.Stem-*le*/*ka*-*d*/*ʔ*-*OBJ*-*a*

PERFECTIVE POSITIVE CONJUGATION, POLYVALENT PREDICATES

anterior	Verb.Stem	- <i>le</i> - <i>d</i> - <i>OBJ</i> - $\emptyset$ / <i>a</i> =SBJ
$\emptyset$ -aorist	Verb.Stem	- $\emptyset$ - <i>d</i> - <i>OBJ</i> - $\emptyset$ / <i>a</i> =SBJ
<i>e</i> -aorist/completive	Verb.Stem	- <i>e</i> - <i>d</i> - <i>OBJ</i> - $\emptyset$ / <i>a</i> =SBJ
perfect	Verb.Stem	- <i>ka</i> - <i>d</i> - <i>OBJ</i> - $\emptyset$ / <i>a</i> =SBJ

PERFECTIVE NEGATIVE CONJUGATION, POLYVALENT PREDICATES

anterior	<i>ka</i> =SBJ	Verb.Stem - <i>le</i> - <i>d</i> - <i>OBJ</i> - <i>a</i>
aorist	<i>ka</i> =SBJ	Verb.Stem - $\emptyset$ - $\emptyset$ - $\emptyset$ - $\emptyset$
perfect	<i>ka</i> =SBJ	Verb.Stem - <i>ka</i> - <i>ʔ</i> / <i>d</i> - <i>OBJ</i> - <i>a</i>

## IMPERFECTIVE POSITIVE CONJUGATION, POLYVALENT PREDICATES

imperfective		Verb.Stem-OBJ <i>kan-a</i> =SBJ
imperfect		Verb.Stem-OBJ <i>kan-ken-a</i> =SBJ
future		Verb.Stem-OBJ <i>-Ø-(a)</i> =SBJ

## IMPERFECTIVE NEGATIVE CONJUGATION, POLYVALENT PREDICATES

imperfective	<i>ka</i> =SBJ	Verb.Stem-OBJ <i>-kan-a</i>
imperfect	<i>ka</i> =SBJ	Verb.Stem-OBJ <i>-kan-ken-a</i>
future	<i>ka</i> =SBJ	Verb.Stem <i>-Ø-Ø-ØB</i> - <i>a</i>

PERFECTIVE POSITIVE CONJUGATION, MONOVALENT PREDICATES *oʔ/uʔ*-class

anterior		Verb.Stem <i>-le-n/Ø-Ø-a</i> =SBJ
aorist		Verb.Stem <i>-Ø-Ø-Ø-a</i> =SBJ
perfect		Verb.Stem <i>-ke-n-Ø-a</i> =SBJ

PERFECTIVE NEGATIVE CONJUGATION, MONOVALENT PREDICATES *oʔ/uʔ*-class

anterior	<i>ka</i> =SUBJ	Verb.Stem <i>-le-n-Ø-a</i>
aorist	<i>ka</i> =SBJ	Verb.Stem <i>-Ø-Ø-Ø-Ø/a</i> <small>&lt;1DU.INCL/EXCL, 2/3DU/PL&gt;</small>
	<i>ka</i> =SBJ	Verb.Stem <i>-Ø-Ø-Ø-a</i> <small>&lt;1SG/PL, 2SG&gt;</small>
	<i>ka=e</i>	Verb.Stem <i>-Ø-Ø-Ø-a=e</i> <small>&lt;3SG&gt;</small>
perfect	<i>ka</i> =SBJ	Verb.Stem- <i>e</i> <i>-ka-n-Ø-a</i>
anticipatory	<i>nimite ka</i> =SBJ	Verb.Stem=Ø <i>-Ø-Ø-Ø-Ø/a</i>
	<i>nimite ka</i> =SBJ	Verb.Stem=Ø <i>-Ø-Ø-Ø-a</i> <small>&lt;1/2/3PL&gt;</small>
	<i>nimite ka=e</i>	Verb.Stem=Ø <i>-Ø-Ø-Ø-a=e</i> <small>&lt;3SG&gt;</small>

IMPERFECTIVE POSITIVE CONJUGATION, MONOVALENT PREDICATES *oʔ/uʔ*-class

imperfective		Verb.Stem- <i>uʔ/oʔ</i> <i>kan-a</i> =SBJ
imperfect		Verb.Stem- <i>uʔ/oʔ</i> <i>ken-a</i> =SBJ
future		Verb.Stem- <i>uʔ/oʔ</i> <i>Ø-Ø-a</i> =SBJ

IMPERFECTIVE NEGATIVE CONJUGATION, MONOVALENT PREDICATES *oʔ/uʔ*-class

imperfective	<i>ka</i> =SBJ	Verb.Stem- <i>oʔ/uʔ</i> <i>kan-a</i>
imperfect	<i>ka</i> =SBJ	Verb.Stem- <i>oʔ/uʔ</i> <i>ken-a</i>
future	<i>ka</i> =SBJ	Verb.Stem- <i>oʔ/uʔ</i> <i>Ø-a</i>

## PERFECTIVE POSITIVE CONJUGATION, MONOVALENT PREDICATES Ø-class

anterior		Verb.Stem-Ø <i>l(e/i)-n-Ø-a</i> =SBJ
perfective		Verb.Stem-Ø <i>ke-n-Ø-a</i> =SBJ
perfect		Verb.Stem- <i>e</i> <i>ka-n-Ø-a</i> =SBJ <small>&lt;1.2.3SG/1DU.EXCL&gt;</small>
		Verb.Stem-Ø <i>ka-n-Ø-a</i> =SBJ <small>&lt;PL&gt;</small>
		Verb.Stem- <i>o</i> <i>ka-n-Ø-a</i> =SBJ <small>&lt;3DU&gt;</small>

## PERFECTIVE NEGATIVE CONJUGATION, MONOVALENT PREDICATES Ø-class

aorist	<i>ka</i> =SBJ	Verb.Stem <i>Ø-Ø-Ø-Ø-Ø</i>
--------	----------------	----------------------------

perfect	<i>ka</i> =SBJ	Verb.Stem <i>ka-n-Ø-a</i>
	<i>ka=e</i>	Verb.Stem <i>ka-n-Ø-a=e</i> <3SG>
anticipatory	<i>nimite ka</i> =SBJ	Verb.Stem
aorist		
anticipatory	<i>nimite ka</i> =SBJ	Verb.Stem <i>ka-n-Ø-a</i>
perfect	<i>ka=e</i>	Verb.Stem <i>ka-n-Ø-a=e</i> <3SG>

## IMPERFECTIVE POSITIVE CONJUGATION, MONOVALENT PREDICATES

imperfective		Verb.Stem-Ø <i>kan-Ø-a=SBJ</i>
imperfect		Verb.Stem- <i>o?</i> / <i>u?</i> <i>ken-Ø-a=SBJ</i>
future		Verb.Stem- <i>e</i> <i>Ø-Ø-Ø=iŋ</i> <1SG>
		Verb.Stem- <i>o?</i> / <i>u?</i> <i>Ø-Ø-Ø=lan/lin/pe</i> <1DU.INCL; 1DU.EXCL, 2PL>
		Verb.Stem-Ø <i>Ø-Ø-a=SBJ</i> <2.3SG; 2.3DL; 1PL.3PL>

## IMPERFECTIVE NEGATIVE CONJUGATION, MONOVALENT PREDICATES

imperfective	<i>ka</i> =SBJ	Verb.Stem <i>-kan-a</i>
	<i>ka=e</i>	Verb.Stem <i>-kan-a=e</i> <3SG>
imperfect	<i>ka</i> =SBJ	Verb.Stem <i>-kan-ken-a=e</i>
future	<i>ka</i> =SBJ	Verb.Stem <i>-Ø-Ø-Ø-a(?)</i>
anticipatory	<i>nimite ka</i> =SBJ	Verb.Stem <i>-kan-a</i>
imperfective		
anticipatory	<i>nimite ka=e</i>	Verb.Stem <i>-kan-ken-a=e</i> <3SG>
imperfect		
anticipatory	<i>nimite ka</i> =SBJ	Verb.Stem <i>-kan-a</i>
imperfective		
anticipatory	<i>nimite ka=e</i>	Verb.Stem <i>-kan-ken-a=e</i> <3SG>
imperfect		

## IMPERATIVE POLYVALENT

Verb.Stem=2SBJ

## PROHIBITIVE POLYVALENT

*alo*=SBJ Verb.Stem-Ø -Ø-Ø-*a*IMPERATIVE MONOVALENT *o/u*-classVerb.Stem-*o?*/*u?* -Ø-Ø-Ø =SBJPROHIBITIVE MONOVALENT *o/u*-class*alo*=SBJ Verb.Stem- -Ø-Ø-Ø-*a*

## IMPERATIVE MONOVALENT Ø-class

Verb.Stem-Ø -Ø-Ø-Ø=SBJ

## PROHIBITIVE MONOVALENT Ø-class

*alo*=SBJ Verb.Stem-Ø -Ø-Ø-Ø-*a*

## References

- Adhikary, Ashim Kumar. 1984. *Society and world view of the Birhor* (Memoir 60). Calcutta: Anthropological Survey of India, Ministry of Education and Culture, Government of India.
- Anderson, Gregory D.S. 2007. *The Munda verb: Typological perspectives*. Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110924251>
- Anderson, Gregory D.S. 2011. Auxiliary verb constructions (and other complex predicate types): A functional-constructional typology. *Language and Linguistics Compass* 5(11). 795–828. <https://doi.org/10.1111/j.1749-818X.2011.00311.x>
- Anderson, Gregory D.S. 2015. Prosody, phonological domains and the structure of roots, stems and words in the Munda languages in a comparative/historical light. *Journal of South Asian Languages and Linguistics* 2(2). 163–183. <https://doi.org/10.1515/jsall-2015-0009>
- Anderson, Gregory D.S. & Jora, Bikram. 2018. Negation, TAM and person-indexing interdependencies in the Munda languages: A preliminary report. In Ring, Hiram & Rau, Felix (eds.), *Papers from the Seventh International Conference on Austroasiatic Linguistics* (JSEALS Special Publication 3), 36–59. Honolulu: University of Hawai'i Press.
- Anderson, Gregory D.S. & Zide, Norman H. 2002. Issues in proto-Munda and proto-Austroasiatic nominal derivation: The Bimoraic Constraint. In Macken, Marlys A. (ed.), *Papers from the 10th Annual Meeting of the Southeast Asian Linguistics Society*, 55–74. Tempe: Arizona State University, Southeast Asian Studies Program.
- Bloomfield, Leonard. 1962. *The Menomini language*. New Haven: Yale University.
- Bodding, Paul Olaf. 1929. *Santal grammar for beginners*. Dumka: Santal Mission of Northern Churches.
- Dahlstrom, Amy. 1993. The syntax of discourse functions in Fox. In Peterson, David A. (ed.) *Proceedings of the Nineteenth Annual Meeting of the Berkeley Linguistics Society, Special Session on Syntactic Issues in Native American Languages*, 11–21. Berkeley: Berkeley Linguistics Society.
- Dahlstrom, Amy. 1995. *Topic, focus, and word order problems in Algonquian* (The Belcourt Lectures). Winnipeg: Voices of Rupert's Land.
- Dash, Jagannatha. 1998. *Human ecology of foragers. A study of Khariā (Savara), Ujiā (Savara) and Birhor in Simlipāl Hills*. New Delhi: Commonwealth.
- Dryer, Matthew S. 1986. Primary objects, secondary objects, and antidiative. *Language* 62(4). 808–845. <https://doi.org/10.2307/415173>
- Epps, Patience. 2008. *A grammar of Hup*. Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110199079>
- Firdos, Sohel. 2005. Forest degradation, changing workforce structure and population redistribution: The case of Birhors in Jharkhand. *Economic and Political Weekly* 40(8). 773–778.
- Ghosh, Arun. 1994. *Santali: A look into Santal morphology*. New Delhi: Gyan Pub. House.
- Ghosh, Arun. 2008. Santali. In Anderson, Gregory D.S. (ed.), *The Munda languages*, 11–98. Abingdon: Routledge.
- Good, Jeff C. 2003. *Strong linearity: Three case studies towards a theory of morphosyntactic templatic constructions*. Berkeley: UC Berkeley. (Doctoral dissertation.)
- Good, Jeff C. 2005. Reconstructing morpheme order in Bantu: The case of causativization and applicativization. *Diachronica* 22(1). 3–57. <https://doi.org/10.1075/dia.22.1.02g00>

- Good, Jeff C. 2007. Strong linearity, weak linearity, and the typology of templates. In Miestamo, Matti & Wälchli, Bernhard (eds.), *New challenges in typology: Broadening the horizons and redefining the foundations*, 11–33. Berlin: Mouton de Gruyter.
- Good, Jeff C. 2011. The typology of templates. *Language and Linguistics Compass* 5(10). 731–747. <https://doi.org/10.1111/j.1749-818X.2011.00306.x>
- Grierson, George A. (ed.) 1906. *Linguistic survey of India, volume IV: Munda and Dravidian languages*. Calcutta: Office of the Superintendent of Government Printing.
- Hyman, Larry M. 2003. Suffix ordering in Bantu: A morphocentric approach. In Booij, Geert & van Marle, Jaap (eds.), *Yearbook of morphology 2002*, 245–281. Dordrecht: Kluwer. [https://doi.org/10.1007/0-306-48223-1\\_8](https://doi.org/10.1007/0-306-48223-1_8)
- Inkelas, Sharon. 1993. Nimboran position class morphology. *Natural Language and Linguistic Theory* 11(4). 559–624. <https://doi.org/10.1007/BF00993014>
- Kari, James. 1989. Affix positions and zones in the Athapaskan verb. *International Journal of American Linguistics* 55(4). 424–454. <https://doi.org/10.1086/466129>
- Kiran, Savita & Peterson, John M. 2010. Sadani/Sadri language. (English version of Russian text it appears based on side by side comparison.) (<http://www.southasiabibliography.de/uploads/Sadri.pdf>) (Accessed 2015-06-15.)
- Kiran, Savita & Peterson, John M. 2011. Sadani/Sadri jazyk (Sadani/Sadri language). In Oranskaja, T. I., Mazurov, Ju. V., Kibrik, A. A., Kulikov, L. I. & Rusakov, A. Ju. (eds.) *Jayki Mira: Novye indoarijskie jazyki—Languages of the world: New Indo-Aryan languages*, 367–379. RAN Institut Jazykoznanija. Moscow: Akademija.
- Kumar, Sudhir. 2004. *The Birhors of Chotanagpur region (A study in tribal geography)*. New Delhi: Rajesh Publications.
- Lounsbury, Floyd G. 1953. *Oneida verb morphology*. New Haven: Yale University.
- Maganga, Clement & Schadeberg, Thilo. 1992. *Kinyamwezi: Grammar, texts, vocabulary* (East African Languages and Dialects 1). Köln: Rüdiger Köppe Verlag.
- McLendon, Sally. 1975. *A grammar of Eastern Pomo*. Berkeley: University of California Press.
- Mishra, Ramesh Chandra & Sinha, Durganand & Berry, John Widdup. 1996. *Ecology, acculturation and psychological adaptation: A study of adivasis in Bihar*. Thousand Oaks: Sage Publications.
- Mukherjee, Mohua. 2000. *The Birhor towards the next millennium: Glimpses of a primitive tribal group at Kodarma in Bihar*. Howrah: Sujan Publications.
- Muysken, Pieter. 1988. Affix order and interpretation: Quechua. In Everaert, Martin & Evers, Arnold & Huybregts, Riny & Trommelen, Mieke (eds.), *Morphology and modularity: In honour of Henk Schultink*, 259–279. Dordrecht: Foris. <https://doi.org/10.1515/9783110882674-015>
- Neukom, Lukas. 2001. *Santali* (Languages of the World/Materials 323). München: Lincom Europa.
- Nordlinger, Rachel. 2010. Verbal morphology in Murrinh-Patha: Evidence for templates. *Morphology* 20(2). 321–341. <https://doi.org/10.1007/s11525-010-9184-z>
- Osada, Toshiki. 1993. Field notes on Birhor. In Nara, Tsuyoshi (ed.), *A computer-assisted study of South-Asian languages*, 30–40. Tokyo: ILCAA.
- Ota, A. B. & Sahoo, Trilochan. 2010. *The Birhor*. Bhubaneswar: Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI).
- Roy, Sarat Chandra. 1925. *The Birhors: A little-known jungle tribe of Chota Nagpur*. Ranchi: G. E. L. Mission Press.
- Sahu, Chaturbhuj. 1995. *Birhor tribe: Dimensions of development*. New Delhi: Sarup & Sons.

Sarkar, Sangita. 2012. Birhor: A sociolinguistic study of language endangerment. (Manuscript.)  
Vajda, Edward. 2004. *Ket*. München: Lincom Europa.

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