The morphology of argument marking in the Wagi dialect of Beria

Isabel Compes
University of Cologne

This paper presents an analysis of the system of argument marking on the verb in the Wagi dialect of Beria. Beria, also called by the exonym Zaghawa in the literature, is a Saharan language of the Nilo-Saharan phylum spoken in the border region of Sudan and Chad. Like other Saharan languages, it has complex verbal morphology, including person indexing. The primary aim of the study is descriptive in that it presents linguistic data from the underdescribed Wagi dialect, which is mainly spoken in Sudan. First, the paradigm of bound verbal affixes and their morphology is described. Second, one of the functions of the final morpheme of the verb, which has not been described in detail in previous studies on Beria, is analysed. This final morpheme interacts with the person indexes to mark plural participants, and it is exploited to mark a morphological category not yet recognized in the other dialects of Beria: the inclusive/exclusive distinction in the 1st person plural. Therefore, the study provides new data on the Beria verb system and contributes further detail to our knowledge of the Nilo-Saharan language family.

Keywords: verbal morphology, argument marking, person indexing, plural participants, inclusive/exclusive distinction, Beria, Nilo-Saharan

1. Introduction

This paper is concerned with the verbal morphology of the Beria language, also called by the exonym Zaghawa in the literature.[1] Beria is a Saharan language of the Nilo-Saharan phylum spoken in the border region of Sudan and Chad. Like other Saharan languages, it has complex verbal morphology and morphophonology, including an especially intricate system for indexing arguments on the verb. This is the focus of the present contribution. The primary aim of the study is descriptive in that it presents linguistic data from the underdescribed Wagi dialect, which is mainly spoken in Sudan. Most of the previous publications on the Beria language are based on the Kube dialect, spoken in Chad (Jakobi & Crass 2004, Jakobi 2002, 2006, 2010, 2011). On the Wagi dialect, on the other hand, there exists only unpublished material. In her doctoral thesis, Abdu El-Dawi (2010) is the first to be exclusively concerned with Wagi. Wolfe (2001), in his BA thesis, though mainly presenting data from Kube, also refers to the other Beria dialects: Wagi, Tuba and

Dirong-Guruf.[2] While presenting new material from Wagi, we will also incorporate some of this unpublished material where relevant for our presentation. In this way, the paper complements the analysis of the system of person indexing by bound verbal affixes and their morphology in Beria. In addition, a special focus is laid on the marking of plural participants. As will be shown, this feature is the outcome of the interaction of person indexing and a marking on the final morpheme of the verb form. To date, it has not been described in detail (but see general statements in Cyffer 1981a, 1981b, Jakobi & Crass 2004 and Wolfe 2001). Interestingly, it results in the marking of a morphological category not yet recognized in the other dialects of Beria: the inclusive/exclusive distinction in the 1st person plural. Therefore, our contribution, while focusing on Wagi, gives new insights into the Beria verb system, allows for future dialectal comparison and will thus deepen our understanding of the diachrony of the Nilo-Saharan language family.

The layout of the paper is as follows. We will first introduce the syntax and morphology of the simple transitive clause in Beria, including word order and person indexing. Before we continue with the morphological facts, we will briefly touch on the verb structure, the Saharan verb classes and the current view on them according to Jakobi (2010, 2011) and Abdu El-Dawi (2010). The main body of the paper comprises sections 3 and 4, where the facts about Wagi are presented. Section 3 describes the morphology of the person indexes. Section 4 is dedicated to the marking of plurality of participants. We will conclude by discussing the consequences of our analysis for the Saharan verb classes as traditionally recognized.

2. Morphosyntax of argument marking

In this paper we focus on the morphological indexing of A (agent or actor) and P (patient or undergoer) arguments. A and P are understood as macro-level semantic roles, with A referring to the most agent-like argument of a verb and P to the most patient-like argument (see Van Valin & LaPolla 1997; Dowty 1991).[3] Three types of formal marking of such macro-level roles have been identified: word order, case (marking on the arguments = dependent-marking) and person indexing (marking on the verb = head-marking). Beria is a head-marking language and shows a differentiated system of obligatory person indexes on the verbal head. This system of person indexes acts in concert with word order to identify the role an argument plays in the event structure designated by the verb.

2.1. Word order and person indexing in simple transitive clauses. Beria in general, and Wagi, too, has a rigid APV word order and does not mark case on full noun phrases or independent pronouns (see Jakobi & Crass 2004:154 for Kube). Therefore, one way to identify the A and P argument is by linear position. In a transitive clause, we always find the A argument preceding the P argument. The verb occupies the clause-final position. Variations of this word order are possible under specific information-structural conditions, in which case the arguments need to be marked overtly. The discussion of these markers is beyond the scope of this paper (but see Jakobi 2006 and Wolfe & Abdalla Adam 2018 for Kube).

---

[2] In this paper we will use the name Beria when presenting general facts about the language, while we will refer to Wagi, Kube etc. when speaking about specific dialectal data and analyses.
[3] Note that this paper is not concerned with their syntactic alignment and neither with the grammatical relations of subject and object, since at the current point of research on Wagi the status of arguments in terms of these morphosyntactic notions is still work in progress.

In the following examples, a prototypical bivalent event 'hit' is described, with the two participants referred to by full noun phrases:

(1)[4]   àbā hírì ìrɛ̄rɛ̀

àbā	hírì	Ø-ìrɛ̄-r-ɛ̀
father	cow	P3-hit-A3-IPFV.sg

'The father hits the cow.'
ZAG_EOI_20141119_3

(2)   hírì àbā ìrɛ̄rɛ̀

hírì	àbā	Ø-ìrɛ̄-r-ɛ̀
cow	father	P3-hit-A3-IPFV.sg

'The cow hits the father.'
ZAG_EOI_20141119_3

In (1) and (2), we have to rely exclusively on word order (= APV) to identify the respective A or P role of the arguments. The verb forms are identical, since both arguments are indexed by 3rd person singular forms. Reversal of the full NPs results in the reversal of the role of the arguments.

If arguments are expressed by pronouns, we find the same word order APV (see (3)).

(3)   lōū tōū tāsōìbɛ̀

lōū	tōū	tā-sōì-b-ɛ̀
you.pl	we	P1pl-wait-A2pl-IPFV.sg

'You (pl) wait for us (excl).'
ZAG_EOI_20151203

In a ditransitive clause, the recipient (R) typically precedes the theme (T), resulting in the word order ARTV.[5] (4) illustrates this word order. There are variations of this pattern, but these are not relevant to the purpose of this paper.

(4)   ɲâ àbā bǒ kɛ̀īrɛ̀

ɲâ	àbā	bǒ	Ø-kɛ̀ī-r-ɛ̀
child	father	stick	P3-give-A3-IPFV.sg

'The child gives the father a stick.'
ZAG_EOI_20141119_3

---

[4] Examples display five lines: (1) transcript, (2) morphological analysis, (3) interlinear glosses, (4) engl. translation, (5) data source. The data is archived online (Compes 2017, Compes & Hellwig 2020). File names adhere to the following convention: ZAG_speaker code_recording date (year, month, day) plus a running number if necessary. Abbreviations used in glossing and throughout this paper: 1=1st person, 2=2nd person, 3=3rd person, Ø=zero morpheme, A=agent, APPL=applicative, AUX=auxiliary, CAUS=causative, excl=exclusive, FM=final morpheme, IPFV=imperfective, incl=inclusive, P=patient, PFV=perfective, pl=plural, sg=singular, R=recipient, TA=Tense-Aspect, T=theme, VAL=valence related prefix.

[5] The typical argument indexing on ditransitives shows referencing of the A in the suffix slot and the R in the prefix slot (see 2.2. for a description of the slots). T is not indexed – i.e. P = R ≠ T – indicating that Beria has a "primary object category" (see Dryer 1986:814).

As the examples discussed so far already indicate, in addition to word order, bound person affixes assume a central position in the marking of the argument role on the verbal head. In fact, Beria independent pronouns are optional and a finite verb form may constitute a complete clause, as shown in (5).

(5)   tɛ̀rɛ̄bɛ̀
        tɛ̀-rɛ̄-b-ɛ̀
        P1pl-hit-A2pl-IPFV.sg
        'You (pl) hit us (excl).'
        ZAG_EOI_20151111_1

The bivalent predicate 'hit' has two arguments indexed by affixes on the verb: *tɛ-* 'P1pl' and *-b* 'A2pl'. Referring to these two arguments by means of independent pronouns is possible depending on discourse conditions, but it is not necessary for the clause to be grammatically acceptable.

To summarize, Beria is a poly-personal language, exhibiting two slots for argument indexing: prefixes and suffixes. The two sets of person indexes and their allomorphic variation in Wagi will be presented in detail in section 3. First, we will give an overview over the structural template of verb forms in general and thereby introduce the Beria verb class system.

2.2. Verb structure and the Beria verb class system. The following position class diagram shows the basic structural slots for the two sets of person indexes, called A-markers and P-markers in this paper:

        (P)-root-A-FM

A-markers are suffixed to the verb root, and this slot is always filled. P-markers are prefixed. In general, P-markers occur in the case of bivalent predicates. Moreover, they play a central role in the structural make-up of two of the four verb classes of Beria, which we will describe below. The final morpheme (FM) is a portmanteau-morpheme marking tense-aspect, mood and polarity. A further category indicated by the FM is related to the plurality of event participants (see table 1, below). While we will not pursue most of these categories, we will discuss the marking of plural participants in section 4.

The structural template above has been the basis for a subdivision of Beria verbs into three basic verb classes. A threefold verb class system is traditionally recognized as characteristic of the Saharan language family. Indeed, it is the major argument used to establish the unity of this language group. Beria shares this feature with the other languages of the family (Kanuri-Kanembu, Teda-Daza and the extinct Berti). Since Abdu El-Dawi's (2010) analysis, however, it is now agreed that the verbal system in Beria encompasses one further class yielding four distinctions (see Jakobi 2011, Kellenberger 2008 and Wolfe 2010 on Kube). We will briefly present the relevant structural details for each class.

To start with, in class II the A-marker indexes the A of the clause. If the predicate is bivalent, a P-marker indexing the P or T is prefixed. A further characteristic of this class are special secondary perfective markings occurring with the 3rd person A. There is either an element *k-* prefixed to the root or an element *-a* suffixed to the root, resulting in two subclasses of class II verbs:

Class II/1   (P)-**3PFV**-root-**A**-FM
Class II/2   (P)-root-**3PFV**-**A**-FM

Class I verbs, in general, are monovalent. They index what is to be considered the only verbal argument by P-markers in the prefix position. The A-marker slot, on the other hand, is always filled with a 3rd person index. These verbs constitute the point of departure for an analysis of split intransitivity in Beria, and Jakobi & Crass analyse class I verbs as "experiencer" or "medium verbs" (2004:75-77; see also Jakobi 2002, 2010, 2011 and Wolfe 2010).[6] Class I verbs can also be subdivided on morphological grounds. One class shows an element *s-* prefixed to the root in the imperfective aspect but not in the perfective. It can thus be interpreted as a secondary imperfective marker. Verbs of Class I/1 do not have such an element, but many verbs show an alveolar consonant root initially.[7]

Class I/1   **P**-root-A-FM
Class I/2   **P-IPFV**-root-A-FM

In the third and the fourth class, instead of a verbal root, a combination of a lexical morpheme (LM) and a semantically empty light verb or auxiliary (AUX) is used. The AUX carries the grammatical morphemes making up the finite verb form, with the LM as a meaning carrier preceding it. Thus, the verbal complex is a light verb construction with the following structure:

Class III   LM=(P)-**AUX**-**A**-FM
Class IV   LM=**P-AUX**-**A**-FM

In both constructions the auxiliary has the status of a clitic to the LM. In class III, it behaves morphologically like a class II/1 verb indexing the A with an A-marker, and a possible second argument – P/T – with the P-marker. In class IV, it behaves like a class I/1 verb: the predicate is monovalent, marking the single participant with a P-marker.

Furthermore, the finite verb has slots for derivational morphemes directly before and after the verb root (see table 1). In Kube, the derivational morphemes so far identified (see Jakobi & Crass 2004:87-93) mark valence changing categories – causative and valence reduction (with a functional range encompassing reflexivity, reciprocity, resultative and more) – and an applicative, also called directive. For Wagi, Abdu El-Dawi (2010; see also Coenen 2017 on causatives) has confirmed these categories. Some of the valence changing derivational morphemes share a slot with the 'secondary' aspect markers *s-* and *k-*. The applicative seems to be mutually exclusive with the P-marker. The make-up and functional range of both of these slots need further research. Table 1 is adapted from Jakobi (2010:162) and summarizes the structure of the morphosyntactic categories of verb forms in Beria as discussed so far.

---

[6] We will not pursue this issue here, but take it up and discuss the analysis of the alignment type of Wagi in detail in another paper (Compes submitted).

[7] For Kube, Jakobi (2011:103; see also Wolfe 2001:76) reconstructs this root initial alveolar consonant as a frozen prefix identical to the valence reducing prefix *t(V)-* of slot 2 (see table 1, below). Moreover, Jakobi (2011) identifies further subclasses of class I which are not relevant for the purposes of this paper. Jakobi & Crass (2004:82-84) also show two different tonal patterns in the FM for the classes I/1 and I/2, but we will not pursue this here since the Kube system differs considerably in this respect. The tonal patterns of the FM in Wagi will be discussed in section 4.1.

Table 1 – Structural slots of finite verb forms

1	2	3	4	5	6	7	8
P APPL	3PFV IPFV VAL	CAUS	root AUX	CAUS	3PFV	A	FM = TA Mood Polarity Plurality

3. Morphology of person indexes

In this section we present the morphological form of the bound person affixes: the sets of A-markers and P-markers.[8] We analyse verb forms from classes I and II. We exclude classes III and IV in this paper since the internal morphological analysis of the AUX in the light verb construction of these classes is still problematic. This concerns in particular the AUX root in relation to the suffixed A-marker (for the analysis of the AUX in Kube, see Jakobi & Crass (2004:65-66, 79-82) and Wolfe (2001:70-72)). We first discuss the P-markers, which show less allomorphy, and then continue with the A-markers. We conclude by showing the correlation of the 3rd person A-markers with the verb structure of classes I and II in section 3.3, and finally summarize this section with an overview of the person indexes (table 14) in section 3.4.

3.1. P-marker. The morphemes indexing Ps take the forms shown in table 2. All P-markers are prefixed. The 3rd person is zero-marked. The 1st plural and 2nd person indexes have an allomorphic C(V)- structure. A vowel appears before consonant-initial roots. In the case of vowel-initial roots the consonant of the prefix directly attaches to the verb root. The 1st person singular alternates between a vowel prefix (for consonant-initial roots) and zero (for vowel-initial roots). As a consequence, 1st person singular and 3rd person forms are syncretic for vowel-initial verb roots. Further distinctions are made through the FM of the verb, to be discussed in section 4.

Table 2 – P-markers

Person		Prefix
SG	**1**	*(V)-*
	2	*l(V)-*
	3	*Ø-*
PL	**1**	*t(V)-*
	2	*l(V)-*
	3	*Ø-*

What concerns us here is the allomorphy of the prefix vowel with consonant-initial roots, which is identical for all persons and whose quality is conditioned by the vowel of the verbal root. For roots with monophthongs, we find the following combinations with prefix vowels:[9]

---

[8] We owe part of the segmental analysis of the person affixes to the unpublished master's thesis of Veit (2016). We elaborate especially on the details of the allomorphic analysis of this first draft.
[9] Those prefix vowels which are uncommon are put in parentheses here.

- i → e
- ɪ → ɛ, a
- ɛ → ɛ
- u → o
- ʊ → (ɔ), a
- ɔ → ɔ, (a)
- a → a

The prefix vowel is underlying non-high, thus varying between [e, ɛ, o, ɔ, a][10], and it is underspecified for the features advanced tongue root (ATR), roundness and backing. For these features the vowel gets its specification from the root vowel. In general, there are two vowel harmonic processes at work. The first conditioning factor is the ATR feature of the verbal root, which triggers an ATR-harmonic vowel in the prefix.

- -ATR: ɪ, ɛ, ʊ, ɔ → ɛ, ɔ
- +ATR: i, u → e, o

Secondly, the vowel harmonizes for the features [round] and [back] with the root vowel.

- [-round, -back]:   ɪ, ɛ, i → ɛ, e
- [+round, +back]:   ʊ, ɔ, u → ɔ, o

The vowel [a], which is unmarked for the features [ATR], [round] and [back], and which behaves as a neutral vowel, triggers the identical vowel [a] in the prefix. Table 3 shows the evidence for the vowel combinations attested in our data. Also included are roots with a diphthong where the vowel triggering the same harmonic rules is the first vowel in the sequence. The last column gives examples for each vowel in a prefix, the P-marker of the 2nd person. Pattern A conforms to the processes just described, while pattern B shows exceptions with the neutral vowel [a]; pattern C shows standard examples for vowel-initial roots and two exceptional verbs.

Some comments on gaps, variation and exceptions are necessary. The first case to be discussed is that of the mid [+ATR] root vowels [e] and [o], which are not listed as root vowels in table 3 and the list above. These vowels are only attested in roots that already contain [+ATR] vowels, e.g., in monosyllabic roots as part of a [+ATR] diphthong or in disyllabic roots (provided that the other syllable contains a [+ATR] vowel).[11] For the diphthongs, there are examples that trigger the non-high [+ATR], [+/-round/back] vowel in the prefix (see *losoure* 'you dress', *leteige* 'I cause you to cry') according to the vowel harmonic processes stated above. For the disyllabic roots, we would expect that the prefix vowel would also harmonize with the root vowel, as is the case

---

[10] The Beria system of vowels comprises 9 distinctions on the phonetic level [i, ɪ, e, ɛ, u, ʊ, o, ɔ, a] including 4 vowels with the feature [+ATR]: [i, e, o, u]. At the word level Beria exhibits vowel harmony for the ATR feature. On the phoneme status of the [+ATR] mid vowels [e] and [o] see FN 11.

[11] In fact, it is debatable whether [e] and [o] constitute phonemes at all. This fact was first stated by Anonby (2007:219) in his review of Jakobi & Crass (2004): the [+ATR] mid vowels are conditioned as allophones of /ɛ/ and /ɔ/ by [+ATR] high vowels. This means that monosyllabic roots cannot contain the [+ATR] mid vowels. This is confirmed in all dialects. The only exception is the root [ɟe-] 'to move one's house' in Kube (Wolfe 2001:41). In Tuba and Wagi this root appears as [ɟɛ-]. Wolfe considers the lack of [+ATR] mid vowels in monosyllabic roots to be an "accidental" gap. We rather attribute it to the allophonic rule identified by Anonby.

with diphthongs. At the current stage of research, however, we do not have any examples of such roots – a fact which might turn out to be an accidental gap.

Table 3 – Allomorphic patterns of the prefix vowel in P-markers[12]

Root vowel	Prefix vowel	Root	P2-root-A1sg-IPFV
Pattern A			
i	e	*ti* 'put on, dress'	*le-ti-g-e* 'I dress you'
ɪ	ɛ	*bɪ* 'hold'	*lɛ-bɪ-g-ɛ* 'I hold you'
		gɪ 'cut'	*lɛ-gɪ-r-ɛ* 'he cuts you'
		dɪ 'do'	*lɛ-dɪ-g-ɛ* 'I do you ...' (spec. context)
ɛ	ɛ	*tɛl* 'put (down)'	*lɛ-tɛl-g-ɛ* 'I put you (down)'
u	o	*gu* 'call'	*lo-gu-g-e* 'I call you'
		dur 'make you fall down'	*lo-dur-g-e* 'I make you fall down'
ʊ	ɔ	*tʊr* 'pour'	*lɔ-tʊr-g-ɛ* 'I pour on you' (not common)
		kʊr 'slaughter'	*lɔ-kʊr-g-ɛ* 'I slaughter you' (not common)
ɔ	ɔ	*dɔ* 'marry'	*lɔ-dɔ-g-ɛ* 'I marry you'
		tɔgɔ 'fall'	*tɔ-tɔgɔ-r-ɛ* 'we fall'
a	a	*kal* 'bring out'	*la-kal-g-ɛ* 'I bring you out'
		kar 'bring (here)'	*la-kar-g-ɛ* 'I bring you (here)'
ou	o	*kou* 'bring out'	*lo-kou-g-e* 'I bring you out'
		sou 'dress'	*lo-sou-r-e* 'you dress'
ei	e	*tei* 'cause to cry'	*le-tei-g-e* 'I cause you to cry'
ɛɪ	ɛ	*sɛɪ* 'make, prepare'	*lɛ-sɛɪ-g-ɛ* 'I cause you to... ' (lit. make)
aɪ	a	*daɪ* 'beat in running'	*la-daɪ-g-ɛ* 'I beat you in running'
aʊ	a	*taʊ* 'stop, tr.'	*la-taʊ-g-ɛ* 'I stop you'
		saʊ 'stop, intr.'	*la-saʊ-l-ɛ* 'you stop'
Pattern B			
ɪ	a	*ʃɪ* 'add'	*la-ʃɪ-g-ɛ* 'I give you more; I add'
		tɪ 'show'	*la-tɪl-g-ɛ* 'I show you'
		hɪ 'cover'	*la-hɪ-g-ɛ* 'I cover you'
		dɪr 'meet'	*la-dɪr-r-ɛ* 'you meet'
ʊ	a	*bʊ* 'tell'	*la-bʊ-g-ɛ* 'I tell you'
		tʊr 'pour'	*la-tʊr-g-ɛ* 'I pour on you'
		kʊr 'slaughter'	*la-kʊr-g-ɛ* 'I slaughter you'
ɔ	a	*dɔ* 'marry'	*la-dɔ-g-ɛ* 'I marry you' (not common)
ʊɪ	a	*sʊɪ* 'wait'	*la-sʊɪ-g-ɛ* 'I wait for you'

---

[12] Since our focus is on the allomorphic conditions of the vowel quality of person indexes and since our understanding of the tone system needs refinement, all examples in tables 3 and 5-13 are presented without tone annotation. A full tonal annotation is restricted to the exemplary paradigm displayed in the appendix, the examples cited from this paradigm and the example clauses in section 2.1.

Pattern C			
Root vowel	Prefix vowel	Root	P2-root-A1sg-IPFV
vowel-initial root	no vowel	*ɔkkɪl* 'fight against' *ei/kei* 'give'[13] *eije* 'cry'	*l-ɔkkɪl-g-ɛ* 'I fight against you' *l-ei-g-e* 'I give to you' *l-eije-r-i* 'you cried'
exceptional forms	ɛ e	*(ɪ)rɛ* 'hit' *i* 'give water'	*lɛ-rɛ-g-ɛ* 'I hit you' *le-i-g-e* 'I give you water'

Secondly, in pattern B we find some variation and exceptions to the general rule of the harmonic processes. In certain roots with a [-ATR] vowel, our data shows the neutral vowel [a] in the prefix. At first sight, the appearance of the vowel [a] seems to be possible with almost all [-ATR] root vowels, but a closer look reveals very different frequencies in our data, which can be accounted for by considering not only the ATR feature of the root vowel but also the feature [+/-high].

We observe the vowel [a] in the prefix especially with roots containing [ɪ] and [ʊ], i.e. containing high vowels. In the case of roots containing [ɪ], there are some examples attested that follow the round/back harmony rule, while others have the neutral [a]. In the case of [ʊ], by contrast, there is no single convincing example with a prefix vowel [ɔ] as the **only** acceptable variant, [a] being far more regular.[14] Although there are a number of cases that allow for alternative realizations (e.g., both *lɔtʊrgɛ* and *latʊrgɛ* 'I pour on you' are possible), the realizations with [ɔ] are uncommon. Therefore, the alternative neutral prefix vowel [a] is typical with roots containing [ɪ] and even more regular with roots with [ʊ], including a root with the diphthong [ʊɪ].

For the non-high vowels [ɛ] and [ɔ] the situation is very different. There is no example of a root containing [ɛ] with an [a] as the prefix vowel – this could be an accidental gap in our data, but it is also possible to offer an explanation for its absence, which we will present below. With the back vowel [ɔ], only one verb, *dɔ* 'marry', was produced by one of our speakers in the form with the neutral vowel [a]. In this case, *ladɔgɛ* 'I marry you' seems to be uncommon, the form *lɔdɔgɛ*, instead, being the preferred one. Thus, roots with a mid [-ATR] vowel regularly comply with the round/back harmony rule.

These facts reflect a tendency which, in his analysis of Kube, Wolfe (2001:79-82) captures in a rule restricting the application of the round/back harmony rule: "[…] round/back harmony is more likely to take place when the trigger and target already share a specification for [high]".[15] The rule takes the root vowel height into account. Exceptions to the prefix round/back harmony are almost exclusively related to the high root vowels [ʊ] and [ɪ], which are also specified as [-ATR][16]. In this respect Wagi shows the same behaviour as Kube: a high root vowel as trigger does not share the specification for [high] with the targeted prefix vowel, which is underlying non-high. In this

---

[13] The paradigm of *ei/kei* 'give' is irregular in having an alternating root with an initial velar plosive in the 3rd person and an initial diphthong otherwise.

[14] There is one form with this pattern, *lɔbʊgɛ* 'I give life to you (after being ill)', which belongs to the disyllabic verb *kɔbʊ* 'give life to s.o.', and is a short form of *lɔkɔbʊgɛ*. In this form the prefix vowel is regularly triggered by the first root vowel [ɔ] which, for unknown reasons, is elided with the whole syllable in the short form.

[15] Wolfe (2001:78) specifies the harmony as a primary rounding harmony and a subsequent backing process. However, for the prefixes this has no impact.

[16] Wolfe (2001:78-82) only refers to the root vowel height but does not include the restriction to [-ATR] root vowels, although the data he presents for all three dialects shows the variation in the prefix only with [-ATR] root vowels. This restriction to [-ATR] root vowels cannot be explained at present.

case the round/back harmony will rather be blocked, and the prefix vowel is realized as the neutral vowel [a], which is [-high] and underspecified for [round] and [back] as well as [ATR]. Nevertheless, realizations of the prefix vowel as [ɔ] or [ɛ] harmonizing for [round] and [back] are also possible, since the restriction on the application of the round/back harmony rule according to root vowel height is only a tendency. A non-high root vowel, on the other hand, shares the specification for [high] with the prefix vowel, and in this case the round/back harmony rule will apply. This is the regular pattern in our data: roots with [ɛ] or [ɔ] generally have a prefix vowel [ɛ] or [ɔ] harmonizing for the features [round] and [back]; the prefix vowel [a] is very uncommon in this context.

Therefore, in general, the feature specification of the non-high prefix vowel depends on the root vowel according to the two harmonic processes: ATR harmony and round/back harmony. Under the condition that the root vowel is [-ATR, +high], however, both processes are regularly blocked, and the neutral vowel [a] is realized. In rare cases, we observe a free variation between neutral [a] and the harmonic vowel [ɔ] in the prefix which can only be accounted for as a reflex of individual speaker variation, e.g. *latʊrgɛ* or *lɔtʊrgɛ* 'I pour on you' and *ladɔgɛ* or *lɔdɔgɛ* 'I marry you'. However, even in these cases, the form not obeying the stated blocking rule is very uncommon. Finally, some roots with [ɪ] seem to have a lexical specification as to which vowel appears in the prefix: e.g. *lɛbɪgɛ*, not **labɪgɛ* 'I hold you' as expected.

As a last point to be discussed here, we come back to the rule concerning vowel-initial roots (see pattern C). We found two verbs which show other prefix formation than described so far: *(ɪ)rɛ* 'hit' and *i* 'give water'. The first case is easily explained: the initial vowel – a high [ɪ] – is realized in forms with the zero 3ʳᵈ person P (*ìrɛ̄gɛ̀* 'I hit it/him/her') but does not appear in forms with other Ps, where the non-high prefix vowel [ɛ] is used instead (*lɛ̀rɛ̄gɛ̀* 'I hit you (sg)'). It is likely that the initial vowel [ɪ] is not a root vowel. Wolfe (2001:59-60), in discussing this and similar verb forms, states that there is a "prohibition on words beginning with [r]" in Beria and that [ɪ] is an epenthetic vowel to avoid an [r]-initial word form. Thus, the underlying root would be *rɛ* 'hit', i.e. consonant-initial with [ɛ] as the root vowel, and the prefix selection would conform to the rules described above. In the appendix we present the whole paradigm of *(ɪ)rɛ* 'hit'. As can be seen there, the vowel [ɪ] only occurs verb form initially, confirming Wolfe's and our analysis that the underlying root is *rɛ*.

The other exception is the verb *i* 'to water (animals)'. This verb normally has a 3ʳᵈ person P, as in *ige* 'I water it (e.g. an animal)', but it can also be constructed with a 2ⁿᵈ person P as in *leige* 'I give you water'. Contrary to our expectations, which would yield a verb form **lige,* we find an additional vowel [e] in the prefix. We cannot account for this exception without further exploration.

To summarize the discussion on the allomorphy of the P-marker in the 1ˢᵗ and 2ⁿᵈ person we can state the following rules:

1. Vowel-initial roots: the consonant of the prefix attaches directly to the verb root; there is one exceptional verb *i* 'to water (animals)'.
2. Consonant-initial roots: the prefix shows a V-/CV-structure and the underlying non-high prefix vowel is the target of two harmonic processes triggered by the root vowel: ATR harmony and round/back harmony.
3. The round/back harmony rule adheres to the following subrules:
    a. Roots with a [+ATR] vowel trigger the round/back harmony without exception.
    b. Roots with a [-ATR, +high] vowel in the majority of the cases do not trigger the round/back harmony, resulting in the neutral vowel [a] in the prefix.

    c.   In some cases with the root vowel [ɪ], the quality of the prefix vowel – [a] or [ɛ] – seems to be lexically specified.

3.2. A-marker. A-markers indexing As are suffixed to the verb root and take the forms shown in table 4.

Table 4 – A-markers

Person		Suffix
SG	**1**	*-g*
	2	*-l*
	3	*-r/-l/(-Ø)*
PL	**1**	*-d*
	2	*-b*
	3	*-r/-l/(-Ø)*

    The forms for the speech act participants (1st and 2nd person) are distinguished unambiguously by different consonants without allomorphy. An additional differentiation between 1st plural exclusive and inclusive will be discussed in section 4.3. For the 3rd person we encounter an allomorphic variation that needs some comments. In the following we will first discuss the overall evidence for the underlying form of the 3rd person A-marker *-r*, which is rather clear in the imperfective. We then show the data for the variation of the 3rd person A-marker in the perfective separately. Two further points concern a possible zero allomorph and other morphophonological processes.

-r as the base form. At the current stage of research we take the suffix *-r* to be the base form of the 3rd person A-marker. This is obvious in the imperfective, where this allomorph is regularly selected. In table 5, for comparison, we add the corresponding perfective forms in the last column. As can be seen, the perfective form shows more variation in allomorph selection and frequently features the suffix *-l*, even though the imperfective form regularly has the suffix *-r*.

Table 5 – Allomorph selection of 3rd person A-marker

Root	root-A3-IPFV	(3PFV)-root-A3-PFV
ti 'put on, dress'	*ti-r-e* 'he/she puts on'	*ki-ti-l-i* 'he/she put on'
(s-)ou 'dress, enter'	*s-ou-r-e* 'he/she dresses/enters'	*ou-r-i* 'he/she dressed/entered'
tɛgɛɪ 'return'	*tɛgɛɪ-r-ɛ* 'he/she returns'	*tɛgɛɪ-r-ɪ* 'he/she returned'
bɛ 'dress'	*bɛ-r-ɛ* 'he/she dresses'	*kɪ-bɛ-Ø-ɪ* 'he/she dressed'
ɟɛ 'leave'	*ɟɛ-r-ɛ* 'he/she leaves'	*kɪ-ɟɛ-r-ɪ* 'he/she left'
tʊ 'shave'	*tʊ-r-ɛ* 'he/she shaves'	*kʊ-tʊ-Ø-ɪ/kʊ-tʊ-l-ɪ* 'he/she shaved'
kou 'bring out'	*kou-r-e* 'he/she brings out'	*kou-a-r-i* 'he/she brought out'

    In the imperfective, there are only some rare cases where the allomorph *-l* appears. It is almost exclusively the result of an assimilation of the affix consonant to the final lateral of the verb

root [-l].[17] In these cases, the assimilation regularly occurs in the imperfective as well as in the perfective. The forms in table 6 are attested.

Table 6 – 3ʳᵈ person A-marker: allomorph *-l* as result of assimilation

Root	root-A3-IPFV	(3PFV)-root-A3-PFV
sɛl 'stay, remain'	*sɛl-l-ɛ* 'he/she stays'	*ɛl-l-ɪ* 'he/she stayed'
tɛl 'put'	*tɛl-l-ɛ* 'he/she puts'	*kɪ-tɛl-l-ɪ* 'he/she put'
sil/ʃil 'die'	*sil-l-e/ʃil-l-e* 'he/she dies'	*lu-l-u* 'they died'[18]

Secondly, the allomorph *-l* in the imperfective is lexically conditioned. Two attested cases concern class I verbs (see table 7).

Table 7 – 3ʳᵈ person A-marker: lexically conditioned allomorph selection of *-l*

Root	root-A3-IPFV	(3PFV)-root-A3-PFV
tɛɪ 'grow'	*tɛɪ-l-ɛ* 'he/she grows'	*tɛɪ-l-ɪ* 'he/she grew'
(s-)aʊ 'stop'	*saʊ-l-ɛ* 'he stops'	*aʊ-l-ɪ* 'he stopped'

In the second example of table 7, the allomorph selection of *-l* helps to disambiguate between two verbs meaning 'stop' and 'learn' with the same segmental root *(s-)aʊ-*[19] but different 3ʳᵈ person allomorphs *-l* and *-r*, as in (6) vs. (7) respectively:

(6)   sàōlɛ̀
        Ø-s-àō-l-ɛ̀
        P3-IPFV-stop-A3-IPFV.sg
        'He stops.'
        ZAG_elicit_20190209_MAM

(7)   sáórɛ̀
        Ø-s-áó-r-ɛ̀
        P3-IPFV-learn-A3-IPFV.sg
        'He learns.'
        ZAG_elicit_20190408_MAM

To sum up, in the imperfective our data shows an underlying allomorph of the 3ʳᵈ person A-marker *-r* and rare cases of a lexically conditioned allomorph *-l*. Furthermore, we find assimilation of underlying *-r* if the verbal root ends in the consonant [l], resulting in cases of phonologically conditioned allomorphy.

---

[17] Likewise, the allomorph *-l* occurs in some forms of the light verb construction of class III, where the suffix *-r* is assimilated to the (assumed) AUX root =*l*. See **dèk= tɛ̄-l-r-ɛ̀ > dèk tɛ̄-l-l-ɛ̀* 'beat=P1pl-AUX-A3-IPFV.sg; he beats us' (ZAG_EOI_20151111_1).

[18] In the 3ʳᵈ singular perfective of this verb *lɪɪ* 'he/she died', the person index is elided. See below for similar cases of elision of intervocalic *–l/-r* in the perfective. We cannot yet account for these elisions and present the plural form here, which is more regular in terms of allomorph selection.

[19] The tone pattern is different, but we have found no interaction between tone and the selection of the allomorph in any of the verbal paradigms.

Similarly, Wolfe (2001:43-52) argues for an underlying -*ɾ* and phonologically conditioned processes depending on the root-final consonant in Kube to account for the allomorphy in the imperfective. He discusses two processes: deletion of the A-marker suffixed to r-final roots and mutation of the root final consonant [n]. Kube [n] regularly corresponds to [l] in Wagi, and the allomorphs in Kube have the forms -*ɾ, -n* and -*Ø*. The first process results in a zero morpheme in Kube. In Wagi, by contrast, the 3rd person A-marker -*r* is regularly retained and no additional process or zero morpheme must be adduced. The result is a geminated consonant. Compare the forms in table 8 in Kube and Wagi:

Table 8 – r-final roots: deletion in Kube, retention in Wagi

	Root	root-A1-IPFV	root-A3-IPFV
Kube	*tʊr* 'pour'	*tʊr-g-ɪ* 'I pour'	*tʊr-**Ø**-ɪ* 'he/she pours'
Wagi	*tʊr* 'pour'	*tʊr-g-ɛ* 'I pour'	*tʊr-**r**-ɛ* 'he/she pours'

The second process concerns n-final roots in Kube, where in the 3rd person the root undergoes a mutation to [ɪ] (see table 9). In Wagi, cognates of these roots end in [l] and the 3rd person -*r* assimilates to the root-final [l] as shown above.

Table 9 – n/l-final roots: mutation in Kube, assimilation in Wagi

	Root	root-A1-IPFV	root-A3-IPFV
Kube	*tɛn* 'put'	*tɛn-g-ɪ* 'I put'	*tɛɪ-r-ɪ* 'he/she puts'
Wagi	*tɛl* 'put'	*tɛl-g-ɛ* 'I put'	*tɛl-**l**-ɛ* 'he/she puts'

Therefore, in comparison to the Kube data, the Wagi data is even more consistent and allows us to posit the allomorph -*r* as the base form

Allomorphy -*r* vs. -*l* in the perfective. Turning to the perfective, the forms of the 3rd person A-markers show more variation. Like in the imperfective, l-final roots select the allomorph -*l*. However, in addition, we see far more lexically conditioned allomorphs; these can best be explained by taking into account the verb classes we have introduced in section 2.2. The greatest allomorphic variation is exhibited by the 3rd person indexes in class II/1. We will thus first concentrate on verbs of this class and then look at some further phonological processes. In class II/1 verbs, there seems to be no phonological conditioning factor involved in the allomorphy; consider the verb forms in table 10 with varying root vowel and consonant qualities:

Table 10 – Allomorphy -*r* vs. -*l* in the perfective

Root	root-A3-IPFV	PFV-root-A3-PFV
bɛ 'insert'	*bɛ-r-ɛ* 'he/she inserts'	*kɪ-bɛ-l-u* 'they inserted'
ɟɛ 'leave'	*ɟɛ-r-ɛ* 'he/she leaves'	*kɪ-ɟɛ-r-u* 'they left'
tʊ 'shave'	*tʊ-r-ɛ* 'he/she shaves'	*kʊ-tʊ-l-u* 'they shaved'
ɟʊ 'fear'	*ɟʊ-r-ɛ* 'he/she fears'	*kʊ-ɟʊ-r-u* 'they feared'
dɔ 'marry'	*dɔ-r-ɛ* 'he/she marries'	*kʊ-dɔ-l-u* 'they married'
tɔ 'taste'	*tɔ-r-ɛ* 'he/she tastes'	*kʊ-tɔ-l-u* 'they tasted'
gu 'call'	*gu-r-e* 'he/she calls	*ku-gu-r-i* 'they called'
ti 'put on'	*ti-r-e* 'he/she puts on'	*ki-ti-l-u* 'they put on'

In this table we include the imperfective forms in the second column to show that they all select the allomorph *-r*. For the perfective we list the 3rd person plural forms because they are more regular and do not undergo further phonetic/phonological processes (see the next two sections). Since no conditioning factors for allomorph selection in these examples can be observed, the allomorphic variation between *-r* and *-l* in this class seems to be lexically conditioned. With some verbs, we find free intraspeaker variation within the paradigm of one verb, allowing two forms: *loggu-r-i* and *loggu-l-i* 'he called you'.

Zero realization. The zero form of the 3rd person A-marker seems to be the result of phonetic/phonological reduction processes. These processes are almost exclusively found in the perfective.[20] Often we find free variation with the allomorph *-l* as in *kiti-Ø-i* or *kiti-l-i* 'he put on'. In other cases the plural form shows the allomorph *-l* as in *kɪbɛ-l-u* 'they inserted' vs. *kɪbɛ-Ø-ɪ* 'he inserted', suggesting reduction in the singular form. While the reduction seems to take place more often with the allomorph *-l*, we also have one case where the allomorph in the plural is *-r*: *tar-r-u* 'they played' vs. *tarʊ-Ø-ɪ* 'he played'. In this case, the elision in the singular seems to involve the vowel [ʊ] as a compensation for the reduction. While these reduction processes are not yet fully understood, we hypothesize that they are the result of non-systematic phonetic processes.

Further morphophonological processes. With some verbs, further processes come into play that distinguish the 3rd person verb forms from the forms of the other persons and can thus be considered as secondary markings. These processes[21] – a kind of ablaut and gemination – concern the verb root and we find them in class I verbs. Tables 11 and 12 show examples from our data; in the second column the alternating root is given and in the last column the 3rd person singular or plural.

Table 11 – Ablaut

Root	Root alternation	1.sg.IPFV	3.sg.IPFV
sɛbɛ	*sɪbɛ* 'forget'	*ɛsɛbɛrɛ* 'I forget'	*sɪbɛrɛ* he/she forgets'
dɛbɛ	*dɪbɛ* 'dress.pl.O'	*ɛdɛbɛrɛ* 'I dress (clothes)'	*dɪbɛrɛ* 'he/she dresses (clothes)'
tʊr	*tar* 'play'	*atʊrrɛ* 'I play'	*tarrɛ* 'he/she plays'
dɪr	*dar* 'meet'	*adɪrrɛ* 'I meet'	*darrɛ* 'he/she meets'
ʃɛ	*ʃɪgɛ* 'sleep'	*ɛʃɛrɛ* 'I sleep'	*ʃɪgɛrɛ* 'he/she sleeps'

Table 12 – Gemination

Root	Root alternation	1.sg.IPFV or 1.pl.IPFV	3.sg.IPFV or 3.pl.IPFV
ddege	*degge* 'jump'	*ɛddɛgɛrɛ* 'I jump'	*dɛggɛrɛ* 'he/she jumps'
skʊ	*sakkʊ* 'take a rest'	*askʊrɛ* 'I take a rest'	*sakkʊrɛ* 'he/she takes a rest'
sku	*sokku* 'stay'	*toskure* 'we stay'	*sokkure* 'they stay'

At the current stage of research, the distribution of ablaut and gemination is not predictable in this context, but we assume that they are related to the occurrence of various prefixes in series.

---

[20] There is only one hypothetical counter-example in the imperfective: the form A3 > P3 of the AUX in the light verb construction *dɛ̀k=l-ɛ̀* 'LM=AUX/3A?-FM; he beats him'. However, as has been noted above, the segmental analysis of the AUX is still unclear, and we therefore postpone this issue.

[21] To account for other irregular forms – e.g. in very frequent verbs like GO and COME – further processes need to be adduced. But since in most cases the forms involve idiosyncratic suppletive roots, a presentation is beyond the scope of this paper.

This assumption takes into account Wolfe's analysis of the ablaut in the Kube dialect, as well as further occurrences of gemination in Wagi verb forms.

According to Wolfe (2001:53-64), the ablaut phenomenon is related to the imperfective prefix *s-* of class I. This prefix takes an epenthetic high vowel when occurring word initially, as is the case with the 3rd person P zero morpheme (see [ɪ] in the last column, table 11). When preceded by one of the other P-markers (1st or 2nd person), the epenthetic vowel of the *s*-prefix is lowered, e.g. to [ɛ] (see third column, table 11). In Wagi, this accounts for some cases (i.e. [ɪ] > [ɛ]), but it cannot explain the occurrence of [a] and its change to [ʊ] or [ɪ] in *tʊr/tar* 'play' and *dɪr/dar* 'meet'.

Gemination, in turn, is a regular process in Beria verb forms occurring for instance in the following contexts: as a compensation for elisions (e.g. *lɛ-ɪ-g-ɛ > lɛkkɛ* 'P2sg-give-A1sg-IPFV.sg; I give (it) to you') and in perfective forms like **la-k-tʊ-ɪ > la-t-tʊ-ɪ* 'P2sg-PFV-shave-Ø-PFV.sg; he shaved you'. Here, the geminated consonant is the result of the total assimilation of the perfective prefix *k-* to the root initial consonant. This assimilation takes place, as a rule, after a preceding P-marker. The gemination in the cases of the 3rd person in table 12, however, is unpredictable. Thus, while the specific conditions underlying the two processes need further investigation, it is highly probable that they are related to the occurrence of a series of prefixes also involving the P-markers.[22]

3.3. Correlation of the 3rd person A-marker with the verb structure of classes I and II.
By way of summary, we now present the correlation of the allomorphs of the 3rd person A-marker with the structural patterns of classes I and II based on the secondary T/A-markers of imperfective and perfective. In section 2.2, we have already introduced the subclasses of class I and II verbs. The two subgroups of class II verbs have two different segmental markings in the perfective which appear only in the 3rd person and whose distribution is lexicalized: a prefix *k-* (=class II/1) or a suffix *–a* (=class II/2). The allomorphs of the 3rd person A-marker correlate with these perfective markers. In table 13 we present the current state of research with regard to this correlation and the more uniform behaviour of class I. The data in table 13 is organized according to the verb classes (I/1, I/2, II/1 and II/2) and tense/aspect category (see first two columns). The third column consists of three subcolumns and presents the pattern of 3rd person A-markers, including the T/A-marking. The last column gives examples of each pattern with the root and the 3rd person form in subcolumns.

For the imperfective, table 13 summarizes the facts discussed in section 3.2: the 3rd person A-marker has the base form *-r* with only a few cases of phonologically or lexically conditioned allomorphic variation. The marking of the 3rd person forms in the perfective basically follows three patterns that reflect the verbal subclasses:

i.   a combination of the secondary perfective marker *k-* and the suffix *-r/-l* (=class II/1);
ii.   a combination of the secondary perfective marker *-a* and the suffix *-r* (=class II/2);
iii. the suffix *-r* and a few cases of allomorphic variation of *-r/-l* without secondary aspect marking (=class I/1 and class I/2)

Note that it could be argued that in the first two patterns the person indexing patterns consist of two elements: the elements *k-* and *-a* respectively and the suffixed A-marker. The perfective markers only occur in the 3rd person. So in effect, they are secondary markers of both tense-aspect **and** person. Nevertheless, we follow Wolfe (2001:40) here, who, similar to our

---

[22] See the chapter on morphophonology in Jakobi & Crass (2004:35-45), which also includes a section on the interaction of prefixes.

account, presents a coherent subject person marker paradigm as all being suffixed. Consequently, he considers these markers to be secondary markers of aspect and not A-markers.[23]

Table 13 – Correlation of allomorph selection (3rd person A) with verb classes I and II

Verb class	T/A	3rd person A pattern			Example	
		T/A-prefix	T/A-suffix	A-marker	Root	(3PFV)-root-(3PFV)-A3-PFV
class I/1	PFV	*(t-)*[24]		*-r*	*dɪr/dar*	*dar-r-ɪ* 'he met'
					tʊr	*tarʊ-ɪ, tar-r-u* 'he, they played'
class I/2	PFV			*-r/-l*	*ɔʊ*	*ɔʊ-r-ɪ* 'he entered'
					aʊ	*aʊ-l-ɪ* 'he stopped'
					ɛl	*ɛl-l-ɪ* 'he stayed'
					gɛ	*gɪɛ-ɪ, gɪɛ-l-u* 'he, they slept'
class II/1	PFV	*k-*		*-r/-l*	*ɟɛ*	*kɪ-ɟɛ-r-ɪ* 'he moved out'
					tɛl	*kɪ-tɛl-l-ɪ* 'he put (away)'
					bɛ	*kɪ-bɛ-ɪ, kɪbɛlu* 'he, they inserted'
					ti	*ki-ti-i* or *ki-ti-l-i* 'he put on'
class II/2	PFV		*-a*[25]	*-r*	*sʊɪ*	*sʊɪ-a-r-ɪ* 'he waited'
					kʊr	*kʊrɪ-a-r-ɪ* 'he slaughtered'
					Root	(IPFV)-root-A3-IPFV
class I/1	IPFV	*(t-)*		*-r*	*tɛgɛɪ*	*tɛgɛɪ-r-ɛ* 'he returns'
class I/2	IPFV	*s-*		*-r/-l*	*ɔʊ*	*s-ɔʊ-r-ɛ* 'he enters'
					ɛl	*s-ɛl-l-ɛ* 'he stays'
					aʊ	*s-aʊ-l-ɛ* 'he stops'
class II/1	IPFV			*-r/-l*	*ti*	*ti-r-e* 'he puts on'
					tɛl	*tɛl-l-ɛ* 'he puts (away)'
class II/2	IPFV			*-r*	*sʊɪ*	*sʊɪ-r-ɛ* 'he waits'
					kʊr	*kʊr-r-ɛ* 'he slaughters'

To sum up our discussion of the allomorphy in the 3rd person A-marker, the facts assembled in table 13 clearly support the view that the allomorphs *-r/-l* are both underlying variants while the zero allomorph regularly results from phonological processes. Moreover, allomorphic variation between *-r* and *-l* is morphologically and lexically conditioned as it is related to the tense-

---

[23] Crass & Jakobi (2000:15) included these T/A-markers in the paradigm of person indexes. Jakobi & Crass (2004:55, 58) later revised their analysis in favour of the simple solution in Wolfe (2001), but Jakobi still holds that the elements *k-* and *-a* are portmanteau morphemes of TA **and** person, and probably also "increased valency". This definitely "requires further research" (Jakobi 2011:99).

[24] The root-initial alveolar consonant is supposed to be identical to the valence reducing prefix *t(V)-* (see FN 7). Due to its hypothetical status we do not segment it in the verb forms (see the stem-initial consonants in the examples in the last column). Furthermore, as it is part of the root this element is not confined to the 3rd person but appears in all persons. This also applies to the element *s-* in the imperfective.

[25] We have one attested phonological variant *-ē* of this perfective marker which does not show ATR harmony with the verbal root but seems to be influenced by the final morpheme *-ú* 'PRF.pl': *tɛbɪ-ɛ-r-ú* 'take-PRF-A3sg-PRF.pl; they took (it)' (ZAG_EOI_20160212 00:57:29).

aspect category and the lexically determined verb classes. In the imperfective and with some verb classes (classes I/1 and II/2), the allomorph *-r* is the exclusive variant. In class I/2, there are a few cases of a lexically and phonologically conditioned allomorph *-l*. Most of the variation we find is in class II/1 in the perfective aspect and here variation is lexically conditioned. What is striking is that in class II/1 verbs, in our data the allomorph *-l* seems to outnumber the allomorph *-r*. This seems not to be the case in the other dialects.[26] This fact needs further exploration and one line of research might be that there is a development towards two dominating patterns with a clear opposition in the perfective: {*k-* + *-l*} vs. {*-a* + *-r*} in Wagi.

3.4. Overview of A- and P-markers. For the sake of clarity in the following sections, where we will turn to the marking of plurality of participants, table 14 presents the argument markers together.

Table 14 – Overview of A- and P-markers

Person		P Prefix	A Suffix
SG	1	*(V)-*	*-g*
	2	*l(V)-*	*-l*
	3	Ø	*-r, -l*
PL	1	*t(V)-*	*-d*
	2	*l(V)-*	*-b*
	3	Ø	*-r, -l*

4. Plural marking on verbs

In our presentation so far, we have focused on the indexing of A and P by means of bound affixes on the verb. In addition to these A- and P-markers, the verbal template contains a final morpheme which interacts with the participant constellation. This final morpheme (FM) is a portmanteau morpheme that primarily indicates aspect, i.e. imperfective vs. perfective (see table 1; further categories are mood and polarity). In each aspect, it consists of a basic and a marked form. The functional characterization of these forms with regard to the participant constellation is somewhat problematic. On the one hand, the marked form can be characterized as marking plural: it only occurs if at least one of the arguments is plural and it never occurs in contexts where all arguments are singular. On the other hand, it does not occur in all plural contexts. The same holds true for the basic form, which regularly occurs in singular contexts but sometimes also in plural contexts. For these reasons, we prefer to speak of the 'basic' and the 'marked' form (instead of the 'singular' and the 'plural'; for ease of reading we, however, gloss the forms as sg (=basic) and pl (=marked) in the examples). Note, also, that their distribution cannot be explained as a form of number agreement with one of the arguments. The marked form is sometimes determined by the plurality of the A argument, and sometimes by that of the P argument. Despite its problematic functional attribution, we discuss it in the context of participant number and plural marking, and for the sake of convenience, we sometimes refer to it as 'plural marker'.

In section 4.1 we focus on the description of the form and distribution of the FM. The occurrence of the marked form of the FM has an interesting effect in differentiating between several

---

[26] See the list in Wolfe (2001:43-44); in contrast to this, the list in Jakobi & Crass (2004:59) shows a higher frequency of the allomorph *-l*, which in Kube is *-n*.

forms that would otherwise be underspecified for number. Distinguishing between 'singular' and 'plural' reference, in this way results in disambiguation (4.2). The occurrence of the marked form also induces the distinction between 1st plural exclusive and inclusive (4.3). To our knowledge, this last distinction is not attested in the better described Kube dialect. The remaining sections are dedicated to the discussion of verb forms which remain underspecified for number, showing context dependent interpretations (4.4-4.5).

4.1. Form and distribution of the final morpheme. The locus of plural marking is the FM.[27] This FM has a basic form, but in specific plural contexts it exhibits a special form which indicates the plurality of participants – either of As or of Ps.

To isolate the formal means clearly, we take a specific context in which we only vary the A, who always acts on a 3rd singular P. Table 15 presents the forms of the FM for the imperfective and the perfective in the affirmative mood in this context. Note that we include the inclusive/exclusive distinction in this table, which we have not yet introduced in the context of the person indexes since it shows up only through the interaction with the plural marking FM (see section 4.3).

Table 15 – Forms of the FM

A > P3		FM	
		IPFV	**PFV**
SG	**1**	*-ὲ/-è*	*-í/-í*
	2	*-ὲ/-è*	*-í/-í*
	3	*-ὲ/-è*	*-í/-í*
PL	**1.excl**	*-ὲ/-è*	*-í/-í*
	1.incl	*-έ/-é*	*-ú*
	2	*-ὲ/-è*	*-í/-í*
	3	*-έ/-é*	*-ú*

There is a basic form of the FM in both aspects and we can state changes to this basic form (see grey shading). In its basic forms, the FM appears in five contexts: 1st, 2nd, 3rd singular, 1st exclusive and 2nd plural. The basic form has two vocalic allomorphs: [ɛ] and [e] in the imperfective, and [ɪ] and [i] in the perfective. The vowel assimilates according to the specification of the [ATR] feature of the root vowel, displaying vowel harmony. In two specific contexts, the FM has a different or marked form: in the 1st plural inclusive and in the 3rd plural. In the perfective, we find a high, round, back, [+ATR] vowel [u] [28] in these two contexts. In the imperfective, the suprasegmental device of tone is relevant.

Beria is a tone language. Tone can be observed not only on the lexical level but also as a marker of grammatical categories. Especially in the domain of number, tone is an important means of marking the plurality in nouns, but it also marks the plurality of participants in verb forms.

---

[27] Besides this plural marking, we often observe additional indications of plurality on the lexical level. As can be seen in examples like *kɛttɛ-r-ὲ* 'he/she/it falls' vs. *tɔgɔ-r-έ* 'they fall', two different verbal roots are selected: *kɛttɛ* 'fall,sg' and *tɔgɔ* 'fall,pl'. Many verbs have such suppletive singular and plural roots which can be interpreted as secondary plural markers. Since our focus is on verbal morphology, we will not further discuss this issue.

[28] In this case the vowel does not undergo vowel harmony. This is an indication of a more independent status of this element as a clitic, which needs more research since we cannot account for it yet.

Phonetically, Beria distinguishes at least three levels of tone: low (L), mid (M) and high (H). Furthermore, we find contour tones: high-low-falling (HL), mid-low-falling (ML) and low-high-rising (LH). The tonal patterns are complex and still lack a full description, but in the marked form of the FM we can identify a tonal change[29] from L to H in the imperfective. In the perfective, the tone on the FM is always high. Instead, there is a clear segmental distinction between [-round, front] vs. [+round, back] high vowels between the basic and the marked form.

> IPFV: basic = L; marked = H
> PFV: basic = *-ɪ/-i*; marked = *-u*

Importantly, the marked form of the FM relates not only to As but also to Ps. Therefore, in a transitive clause, depending on the person indexes, the plural marker is interpreted as plurality of A or P or both. Table 16 compiles all possible constellations of As acting on Ps. As are plotted in rows, Ps in columns. In the cells, it is stated which forms of the FM are basic (B) and which are marked (M). Various constellations do not make sense (n.a.).

Table 16 – Distribution of the FM and constellations of A and P

P ⟍ A		SG			PL			
		1	2	3	1.excl	1.incl	2	3
SG	**1**	n.a.	B	B	n.a.	n.a.	M	B
	2	B	n.a.	B	B	n.a.	n.a.	B
	3	B	B	B	B	M	M	B
PL	**1.excl**	n.a.	B	B	n.a.	n.a.	M	B
	1.incl	n.a.	n.a.	M	n.a.	n.a.	n.a.	M
	2	B	n.a.	B	B	n.a.	n.a.	B
	3	M	M	M	M	M	M	M

Already at first glance, it is striking that in all contexts with two singular arguments (A.sg > P.sg; see upper left side square) only the basic form of the FM occurs. The marked form, on the other hand, regularly occurs with 3rd plural As, with 2nd plural Ps and with 1st plural inclusive forms. In all these plural contexts no basic form is possible and plural marking is mandatory. But there are also forms which are not marked on the FM and exhibit the basic form in spite of a plural context. This concerns, for instance, all forms with a 2nd plural A. In the following sections, we will comment on some forms, taking them from the paradigm of *(ɪ)rɛ* 'hit' to show how the system works (see the full transitive paradigm of this verb in the imperfective and the perfective in the affirmative mood in the appendix). In a first step, looking at forms of the FM which are marked but also forms which lack marking, we demonstrate that the main effect of the occurrence of the marked form is disambiguation.

4.2. Interaction of the final morpheme with person indexes – the effect of disambiguation. Our account of the distribution of the basic and the marked form of the FM builds on the interaction of

---

[29] This tonal change affects the whole verb form with its tonal pattern, including the tone on the verb root (see the forms in the paradigm in the appendix). We delimit our analysis, however, to the tonal difference of the FM, since – as already mentioned – the tone system of Beria with all its dialects needs more research (see Wolfe 2001 for a first appraisal).

the FM with the person indexes. In our overview of these indexes in table 14 we did not comment on 'number'. However, a closer look at the A- and P-markers reveals differences in distinguishing number depending on which person is indexed. Some but not all forms are identical in form in the singular and the plural, and this syncretism of person indexes by itself would yield forms which are underspecified for number. In these cases, the plurality of participants is signalled by the marked form of the FM with the effect of disambiguation.

In the pairs of verb forms in (8) and (9) there are two syncretic person indexes: *-r* 'A3' (see 8) and *lɛ-* 'P2' (see 9) index singular or plural participants. On the other hand, the other two person indexes unambiguously identify a singular participant: *ɛ-* 'P1sg' (see 8) and *-g* 'A1sg' (see 9).

(8)   a.   ɛ̀rɛ̄rɛ̀
              ɛ̀-rɛ̄-r-ɛ̀
              P1sg-hit-A3-IPFV.sg
              'He/she hits me.'
              zag_elicit_20180301_EOI_1-3

        b.   ɛ̀rɛ̀rɛ́
              ɛ̀-rɛ̀-r-ɛ́
              P1sg-hit-A3-IPFV.pl
              'They hit me.'
              zag_elicit_20180301_EOI_1-3

(9)   a.   lɛ̀rɛ̄gɛ̀
              lɛ̀-rɛ̄-g-ɛ̀
              P2-hit-A1sg-IPFV.sg
              'I hit you (sg).'
              zag_elicit_20180301_EOI_1-3

        b.   lɛ̀rɛ̀gɛ́
              lɛ̀-rɛ̀-g-ɛ́
              P2-hit-A1sg-IPFV.pl
              'I hit you (pl).'
              zag_elicit_20180301_EOI_1-3

In these examples, it is only in conjunction with the high tone on the FM that the syncretic person indexes can be interpreted as plural: a plural A in (8b) (= A3 + marked form) and a plural P in (9b) (= P2 + marked form). Consequently, the FM as a marker of plural participants has the effect of disambiguation.

Looking more closely at (9), in which the A is singular, we can state that the FM, although marking plurality, is not a plural marker in the sense of congruence, e.g. with the A. There are other cases where this system leads to a mismatch between the final marking and the A index. In the verb form in (10) the 2nd person A is plural, but the FM shows the basic 'singular' form in this plural context.

(10)   ɛ̀rɛ̀bí
        ɛ̀-rɛ̀-b-í
        P1sg-hit-A2pl-PFV.sg
        'You (pl) hit me.'
        zag_elicit_20180301_EOI_1-3

This is possible because the index *-b* 'A2pl' (as opposed to *-l* 'A2sg') is already distinct and uniquely identifies the participant and its number. Only if the person indexes of the singular and the plural are identical in form does the FM change to the marked form indicating plurality. This correlation is evidence that the FM has a disambiguating effect in specific underspecified plural contexts, wherein we define as 'underspecified' a context where the participant constellation is such that at least one participant is represented by a person index which is syncretic between singular and plural.

To understand the entire system, we now combine our findings on person indexes (from table 14) with our findings on the FM (from table 16). Table 17 focuses on all syncretic person indexes underspecified with regard to number: *-r/-l* 'A3', *l(V)-* 'P2' and *Ø-* 'P3'. These are the contexts where the interaction with the FM takes place. The distribution shown in the table allows for the following generalization: marked (M) forms are restricted to those contexts where ambiguities could arise (highlighted by means of light grey shading). In this way, Wagi distinguishes between A3sg (= A3 + basic form) and A3pl (= A3 + marked form), and between P2sg (= P2 + basic form) and P2pl (= P2 + marked form).

Table 17 – FM in correlation to syncretic person indexes[30]

P			SG			PL		
			1	**2**	**3**	**1**	**2**	**3**
A				*l(V)-*	*Ø-*		*l(V)-*	*Ø-*
SG	**1**		n.a.	B	B	n.a.	M	B
	2		B	n.a.	B	B	n.a.	B
	3	*-r/-l*	B	B	B	B	**M**	B
PL	**1**		n.a.	B	B	n.a.	M	B
	2		B	n.a.	B	B	n.a.	B
	3	*-r/-l*	M	**M**	M	M	**M**	M

There remain two participant constellations which are problematic in the light of this general pattern (highlighted in boldface). First, the verb form with two underspecified indexes, i.e. A3 (*-r/-l*) acting on P2 (*l(V)-*), plus the marked form of the FM, is ambiguous (boldface M). We will comment on this form in section 4.5. Second, the 3rd person P never distinguishes number (boldface B): the person index is zero in the singular and the plural, but the verb forms are not disambiguated for number by the marked form of the FM (always the basic form, the marked form occurring only in the case of a 3rd person plural A). Assuming that the FM serves a disambiguation function, we would have expected the marked form with the 3rd plural P. We will come back to this issue in section 4.4.

---

[30] To give a better overview, in table 17 and 18 the 1st person plural is listed, as in table 14, ignoring the inclusive/exclusive distinction for a moment. We postpone the issue of this distinction to section 4.3.

Table 18 now focuses on those person indexes that unambiguously indicate number: *-g* 'A1sg' vs. *-d* 'A1pl'; *-l* 'A2sg' vs. *-b* 'A2pl', *(V)-* 'P1sg' vs. *t(V)-* 'P1pl'. In all cases, the basic form is used – even in plural contexts (indicated by light grey shading). The only exceptions (indicated by dark grey shading) are those cases where the other participant in these transitive contexts is underspecified for number (i.e. A3 and P2).

Table 18 – FM in unambiguous plural contexts

P			SG			PL		
			1	**2**	**3**	**1**	**2**	**3**
A			*(V)-*			*t(V)-*		
SG	**1**	*-g*	n.a.	B	B	n.a.	M	B
	2	*-l*	B	n.a.	B	B	n.a.	B
	3		B	B	B	B	M	B
PL	**1**	*-d*	n.a.	B	B	n.a.	M	B
	2	*-b*	B	n.a.	B	B	n.a.	B
	3		M	M	M	M	M	M

In sum, whenever the person index is unambiguous, the tonal pattern remains as in the 'singular' which, therefore, can be interpreted as the default, basic realization. The FM takes the marked form only when one person index is syncretic between singular and plural. As a marker of plural participants – either of As or of Ps – this has the effect of disambiguation and produces a further effect to be explained in the following section.

4.3. 1st person plural inclusive/exclusive distinction. The distinction between 1st plural exclusive and inclusive was already included in table 16. Here we take up the issue and show the distribution of the FM in this plural context. Table 19 focuses on the interaction of the 1st person plural indexes of A and P with the FM.

Table 19 – Interaction of 1st person indexes with the FM

P			SG			PL			
			1	**2**	**3**	**1.excl**	**1.incl**	**2**	**3**
A			*(V)-*			*t(V)-*	*t(V)-*		
SG	**1**	*-g*	n.a.	B	B	n.a.	n.a.	M	B
	2		B	n.a.	B	B	n.a.	n.a.	B
	3		B	B	B	B	M	M	B
PL	**1.excl**	*-d*	n.a.	B	B	n.a.	n.a.	M	B
	1.incl	*-d*	n.a.	n.a.	M	n.a.	n.a.	n.a.	M
	2		B	n.a.	B	B	n.a.	n.a.	B
	3		M	M	M	M	M	M	M

As is evident from the forms given, 1st person indexes show a clear segmental contrast between singular and plural: *-g* 'A1sg' vs. *-d* 'A1pl' and *(V)-* 'P1sg' vs. *t(V)-* 'P1pl'. Hence, we would expect the basic form of the FM to be used in both singular and plural contexts. This is, indeed, what we find for 1st singular and 1st plural **exclusive**. An exception is cases where the FM interacts

with other syncretic person indexes: thus constellations of 1st singular or 1st plural exclusive with A3pl or P2pl each get the marked form (dark grey shading in table 19; see section 4.2).

Interestingly, however, in Wagi the marked form is employed to introduce an additional distinction: that between 1st plural exclusive (B) and 1st plural inclusive (M, light grey shading). Note that this contrast is not found in the paradigm of independent pronouns or in the person indexes themselves. It is solely an effect of the interaction of the FM with the 1st plural indexes. This effect is illustrated in the pair of verb forms in (11).

(11)   *a.*   ìrɛ̄dɛ̀
              Ø-ìrɛ̄-d-ɛ̀
              P3-hit-A1pl-IPFV.sg
              'We (excl) hit it/him/her/them.'[31]
              zag_elicit_20180301_EOI_1-3

       b.   ìrɛ̀dɛ́
              Ø- ìrɛ̀-d-ɛ́
              P3-hit-A1pl-IPFV.pl
              'We (incl) hit it/him/her/them.'
              zag_elicit_20180301_EOI_1-3

Moreover, the distinction is not only made for the group of A arguments as in (11) but also for P arguments as in (12).

(12)   a.   tɛ̀rɛ̄rɛ̀
              tɛ̀-rɛ̄-r-ɛ̀
              P1pl-hit-A3-IPFV.sg
              'He hits us (excl).'
              zag_elicit_20180301_EOI_1-3

       b.   tɛ̀rɛ̀rɛ́
              tɛ̀-rɛ̀-r-ɛ́
              P1pl-hit-A3-IPFV.pl
              'He hits us (incl).'
              zag_elicit_20180301_EOI_1-3

Therefore, the two forms of the FM have the effect of distinguishing between exclusive (i.e. 1+3) and inclusive (i.e. 1+2+3) in 1st plural verb forms. If we assume the function of the FM in (11) and (12) to be identical to its function when marking other participants, i.e. marking plurality, the question is whether and how the marking of the inclusive/exclusive distinction can be accounted for in terms of this 'plural' function. Against the background that 1st plural verb forms (with basic and marked FM) already refer to a plurality of participants by way of their person indexes, in Wagi a 'double plural form' leads to the inclusive interpretation. This use of a 'double plural' might be explained along the following lines. The inclusive/exclusive distinction builds on the central role of the speech act participants. Essentially, the marked 'plural' form picks out two

---

[31] The 3rd person P in these examples remains underspecified for number; see section 4.4 for this case.

participants who are situationally present in the speech context: namely the speaker and the addressee (i.e. 1 and 2). The unmarked basic form, on the other hand, picks out only one single speech act participant – the speaker (i.e. 1). Both forms additionally refer to some other participant(s) from the wider context (i.e. + 3) – a function which is achieved by the person indexes. But as for the plurality marking function of the FM, only with reference to the restricted context of the speech situation is the basic form a kind of 'singular' (= 1 + 3; exclusive) and the marked form a kind of 'plural' (= 1 and 2 + 3; inclusive). So we can keep up the notion of plurality marking of participants as the function of the FM if we apply it to the restricted domain of the speech situation. It seems reasonable to include this semantic-pragmatic restriction in the functional description of the inclusive/exclusive distinction in Wagi.

4.4. 3ʳᵈ person patients. We have already mentioned the problematic case of 3ʳᵈ person Ps which are also syncretic between singular and plural. In plural contexts with these participants, however, we do not find the marked form of the FM (highlighted in boldface B in table 17). Thus, 3ʳᵈ person P-markers behave differently from 2ⁿᵈ person P-markers and 3ʳᵈ person A-markers, as can be seen in (13).

(13)   ìrē̄gè̀
        Ø-ìrē̄-g-è̀
        P3-hit-A1sg-IPFV.sg
        'I hit it/him/her.' or 'I hit them.'
        zag_elicit_20180301_EOI_1-3

This verb form is unspecified with respect to the feature 'number of the P argument': it can be singular or plural. The form of the FM is basic, which, in combination with the underspecified 3ʳᵈ person P-marker, would induce a singular interpretation (the 1ˢᵗ singular A-marker has a distinct form). But contrary to this expectation, our consultants give an unspecific, sense-general translation and the number of Ps must be recovered from the context. This means that the FM is not oriented towards the P argument in (13). A hypothetical plural form with the marked form of the FM might be constructed as *Ø-ìrè̀-g-é 'P3-hit-A1sg-IPFV.pl; I hit them' (parallel to *lèrègé* 'I hit you (pl)'), but such a form does not exist. In (14), we even find the basic form of the FM in a constellation where one possible interpretation is that both arguments (A and P) are plural.

(14)   ìrē̄bè̀
        Ø-ìrē̄-b-è̀
        P3-hit-A2pl-IPFV.sg
        'You (pl) hit it/him/her.' or 'You (pl) hit them.'
        zag_elicit_20180301_EOI_1-3

Furthermore, in the only two cases of a marked form of the FM in constellations with a 3ʳᵈ person P-marker, the FM is unmistakenly oriented towards the A; compare the contrasting verb forms in (11a) and (11b) and the examples in (15):

(15)   a.   ìrɛ̄rɛ̀
          Ø-ìrɛ̄-r-ɛ̀
          P3-hit-A3-IPFV.sg
          'He hits it/him/her.' or 'He hits them.'
          zag_elicit_20180301_EOI_1-3

      b.   ìrɛ̀rɛ́
          Ø-ìrɛ̀-r-ɛ́
          P3-hit-A3-IPFV.pl
          'They hit it/him/her.' or 'They hit them.'
          zag_elicit_20180301_EOI_1-3

These forms clearly show that in transitive contexts the 3rd person P-marker behaves neutrally and is transparent for the plural marking of the FM. 3rd person A-markers, on the other hand, regularly interact with the FM to yield a plural interpretation, as in (15b).

The transparency and neutral behaviour of 3rd person Ps with regard to plural marking in effect leads to verb forms which are sense-general and need the wider context of discourse to be interpreted. This brings them close to ambiguous forms. There are, however, arguments to separate these sense-general forms from the ambiguous forms to be treated in the next section.[32]

4.5. Ambiguous forms. As discussed above, the FM has the effect of disambiguating between underspecified forms. Nevertheless, two identical surface forms remain: M_1 and M_2 (highlighted in boldface in table 20)[33]. These two syncretic forms have three interpretations each to be commented on here. One form (M_1) we have already mentioned in section 4.3 in the context of the inclusive/exclusive distinction. The inclusive form (12b) repeated here is identical in form with two other forms:

Table 20 – Ambiguous forms: M_1= A3 > P1pl; M_2= A3 > P2

	P	SG			PL			
A		1	2	3	1.excl	1.incl	2	3
SG	1	n.a.	B	B	n.a.	n.a.	M	B
	2	B	n.a.	B	B	n.a.	n.a.	B
	3	B	B	B	B	M_1	M_2	B
PL	1.excl	n.a.	B	B	n.a.	n.a.	M	B
	1.incl	n.a.	n.a.	M	n.a.	n.a.	n.a.	M
	2	B	n.a.	B	B	n.a.	n.a.	B
	3	M	M_2	M	M_1	M_1	M_2	M

---

[32] In accordance with Sennet (2021), we differentiate between ambiguity, vagueness and sense generality/underspecification in the field of semantic indeterminacy. Basically the term 'sense-general' means that features are left unspecified. In the syncretic P3 forms, this is the feature 'number'. On the other hand, the term 'ambiguous' refers to a more specific phenomenon where a form has two or more alternative, sharply defined senses. In Wagi, this holds for the verb forms in (16) and (17) in section 4.5. The details of this differentiation and the possibility of testing it are beyond the scope of this paper.

[33] Note that, as a rule, verb forms with the basic form of the FM are not underspecified (see table 18). The only verb forms with the basic form of the FM that are underspecified are verb forms with the 3rd person P-marker, discussed in section 4.4. We do not include these verb forms with a 3rd person P-marker here, since we consider them sense-general as argued above.

(16)   tὲrὲrέ
         tὲ-rὲ-r-έ
         P1pl-hit-A3-IPFV.pl
         a.   'He hits us (incl).'   A3sg > P1pl.incl
         b.   'They hit us (excl).'   A3pl > P1pl.excl
         c.   'They hit us (incl).'   A3pl > P1pl.incl
                zag_elicit_20180301_EOI_1-3

        Both participants – A and P – can 'attract' the plural marker. If the A is interpreted as singular the P receives the plural interpretation (16a). If the A is interpreted as plural, the P can be interpreted as exclusive (16b) or inclusive (16c). Consequently, the ambiguity in relation to the participant number arises from a conflict of possible orientations of the marked form of the FM.
        The second ambiguous form (M_2) is related to a constellation where A3 acts on P2. Consider the three possible interpretations of the verb form *lὲrὲrέ*:

(17)   lὲrὲrέ
         lὲ-rὲ-r-έ
         P2-hit-A3-IPFV.pl
         a.   'He hits you (pl).'   A3sg > P2pl
         b.   'They hit you (sg).'   A3pl > P2sg
         c.   'They hit you (pl).'   A3pl > P2pl
                zag_elicit_20180301_EOI_1-3

        Again in this form, the ambiguity arises because both person indexes are identical in form and, therefore, both participants can attract the plural marking of the FM. The ambiguity has to be resolved in the wider context.
        The syncretic forms in (16) and (17) originate from the fact that the plural marking described appears only once in a given verb form, irrespective of the number of participants indexed. Hence, transitive contexts involving two arguments might lead to ambiguous forms. In a general statement this has already been mentioned by Cyffer (1981a:193). But these ambiguous combinations are clearly delimited, since in most cases no conflict of possible orientations of the plural marker exists. The data presented shows clear differences related to which person is indexed. As a rule, only the syncretic person indexes of the 3rd person A-marker and the 2nd person P-marker interact with the plural marker. It is also used to differentiate between 1st plural exclusive vs. inclusive A or P. If only one of these person indexes is involved, this participant attracts the plural marking of the FM and the interpretation is unmistakably plural. On the other hand, ambiguities arise in participant constellations which involve two of these syncretic person indexes, both of which might attract the plural marker. We have seen that this concerns only two identical surface forms which we have identified as being ambiguous in the sense of a conflict of orientations as a source for the ambiguity. Contrary to this, the 3rd person P-marker never interacts with the plural marker and its feature 'participant number' remains underspecified in any participant constellation. In this sense its behaviour with regard to the plural marker is neutral or transparent and the resulting verb forms are sense-general. This is to be distinguished from the ambiguous forms (16) and (17), although in effect both sense-general and ambiguous forms have to be interpreted in the wider context of discourse.

4.6. Plural marking of arguments: summary. To conclude this section, we will sum up the described distribution of the FM and its function in participant constellations of transitive verb forms:

1. The 'singular' form is the default or basic form, the 'plural' the marked form;
2. The marked form of the FM occurs only in verb forms with person indexes that are syncretic between singular and plural;
3. The function of the FM as deduced from those contexts is to mark 'plurality' of participants and has the effect of disambiguation;
4. The marked form is additionally exploited to differentiate between 1st plural exclusive (=basic) and inclusive (=marked).
5. Both arguments – agents and patients – interact with the plural marker, and thus, plural marking is not a case of congruency with agents or patients.
6. The 3rd person P-marker behaves neutrally with regard to plural marking and remains underspecified for number, resulting in sense-general forms.

5. Argument marking and Beria verb classes

We will finally look at the traditionally recognized Saharan verb classes in the light of our findings. We confined our morphological analysis to the classes I and II, excluding the classes III and IV which are set off by their morphological make-up as light verb constructions. The first two classes pose some difficulties for their definition. Recall that, in the first place, the defining feature of classes I and II is their morphological structure repeated here:

> Class I   **P**-root-A-FM
> Class II   (P)-root-**A**-FM

The argument put forward is that class I verbs are monovalent and index their only participant with P-markers. In class II, on the other hand, monovalent verbs index their argument with A-markers. However, as can be seen in the structures above, class I predicates are always morphologically transitive, i.e. they always have two person indexes – a P- and an A-marker. This brings them close to bivalent class II predicates, since on morphological grounds both are transitive. Thus, the behaviour of the two classes is not differentiated in a straightforward way and needs more refinement. The question that follows from this structural transitivity is how to support the claim that class I verbs are semantically monovalent and that the only supposed event participant is indexed by a P-marker. This question is connected to the issue of the alignment type to which Beria belongs (see Compes submitted). Here, we will briefly hint at consequences of our morphological analysis for establishing the classes. For one, our data supports the claim that both classes contain morphological transitive verbs in the way described; in our analysis of the person indexes we provided examples from both classes. However, our analysis was complemented by the analysis of plural marking on the basis of a bivalent class II paradigm. These findings pose the question of how the system of marking plural participants works in class I. For bivalent class II verbs we have shown that As and Ps are treated alike. Only 3rd person Ps do not interact with the FM. What are the facts in class I? Does the FM interact with both person indexes or only with P-markers, which are claimed to be the only event participants in class I predicates? What about 3rd person P-markers in class I predicates? In line with these questions more research is needed on the semantic and morphosyntactic characteristics of the verb classes.

6. Conclusion

In this paper we described the system of argument marking for the lesser known Wagi dialect of Beria. Argument marking is, first and foremost, realized by two sets of bound person affixes occupying two slots in the verbal template. We presented the paradigms, the allomorphs and the different allomorphic conditions for these so called A- and P-markers. Especially for the allomorphs of the 3rd person A-marker in the perfective, we were able to show that they correlate with the occurrence of the two distinct perfective markers which define the two subclasses of class II in the verb class system. This correlation results in two different lexically and morphologically conditioned patterns of the 3rd person A in this aspect form. The selected allomorph can, therefore, also be adduced as a further indicator of the two subclasses.

The paper complemented this description of the person indexes with an analysis of the marking of plural participants. This marking is mentioned in the literature on Beria (see Cyffer 1981a:193, 1981b:180-181, Jakobi & Crass 2004:50, 58-63, 70-71, Wolfe 2001:87) but has not been described in detail before. Here, we could show that it is realized in interaction with the form of the FM on verbs. The marked form of the FM signals plurality of participants. This, however, occurs only in contexts that are characterized as underspecified for the number of participants and, therefore, has a disambiguating effect. A further exploitation of this marking is to be found in the inclusive/exclusive distinction, which results from the interaction of the 1st person plural index with the marked form of the FM. As far as we know, this distinction is not attested in the better described Kube dialect, which shows remarkable dialect differences. Moreover, since in bivalent predicates both arguments – A and/or P – can interact with the plural marker, a conflict of orientations can arise and in those cases the system produces ambiguous forms with different interpretations that must be resolved in the wider context. Finally, we observed that 3rd person Ps do not interact with the FM and remain unspecified in relation to their number interpretation. 3rd person referents as opposed to speech act participants are at the core of the "indexicality hierarchy" proposed by Bickel & Nichols (2007:224-5; see also Siewierska 2004:46). They give typological evidence that speech act participants are "cognitively more accessible" and are thus more easily indexed. Agency is another factor which might be adduced to explain why patients are set off and behave differently. Bickel & Nichols point to the "various morphosyntactic effects" of this hierarchy, "number differentiation" being one of these. The case of Wagi concerns the category of number as it interacts with person indexing, showing an opposition between speech act participants and 3rd person As vs. 3rd person Ps. This opposition might be a manifestation of the indexicality hierarchy. However, further research on this system of plural marking on verbs is needed to verify whether and in what form it is cross-linguistically attested.

Appendix
Paradigm of the verb *(ɪ)rɛ* 'hit' in the affirmative mood

A > P	Free translation	IPFV	PFV
P1sg			
2sg>1sg	'you (sg) hit me'	*ɛ̀-rɛ̄-l-ɛ̀*	*ɛ̀-rɛ̀-l-í*
3sg>1sg	'he hits/hit me'	*ɛ̀-rɛ̄-r-ɛ̀*	*ɛ̀-kkɛ̀-rɛ̀ɛ̄-Ø-í*
2pl>1sg	'you (pl) hit me'	*ɛ̀-rɛ̄-b-ɛ̀*	*ɛ̀-rɛ̀-b-í*
3pl>1sg	'they hit me'	*ɛ̀-rɛ̀-r-ɛ́*	*ɛ̀-kkɛ̀-rɛ̄-l-ú*
P2sg			
1sg>2sg	'I hit you (sg)'	*lɛ̀-rɛ̄-g-ɛ̀*	*lɛ̀-rɛ̀-g-í*

A > P	Free translation	IPFV	PFV
3sg>2sg	'he hits/hit you (sg)'	*lè-rē̄-r-è*	*lè-kkè-rèē̄-Ø-í*
1pl.excl>2sg	'we (excl) hit you (sg)'	*lè-rē̄-d-è*	*lè-rè-d-í*
1pl.incl>2sg	n.a.		
3pl>2sg	'they hit you (sg)'	*lè-rè-r-é*	*lè-kkè-rē̄-l-ú*
P3sg			
1sg>3sg	'I hit him'	*Ø-ìrē̄-g-è*	*Ø-ìrè-g-í*
2sg>3sg	'you (sg) hit him'	*Ø-ìrē̄-l-è*	*Ø-ìrè-l-í*
3sg>3sg	'he hits/hit him'	*Ø-ìrè-r-è*	*Ø-kì-rèè̄-Ø-í*
1pl.excl>3sg	'we (excl) hit him'	*Ø-ìrē̄-d-è*	*Ø-ìrè-d-í*
1pl.incl>3sg	'we (incl) hit him'	*Ø-ìrè-d-é*	*Ø-ìrē̄-d-ú*
2pl>3sg	'you (pl) hit him'	*Ø-ìrè-b-è*	*Ø-ìrè-b-í*
3pl>3sg	'they hit him'	*Ø-ìrè-r-é*	*Ø-kì-rē̄-l-ú*
P1pl (excl/incl)			
2sg>1pl.excl	'you (sg) hit us (excl)'	*tè-rē̄-l-è*	*tè-rè-l-í*
2sg>1pl.incl	n.a.		
3sg>1pl.excl	'he hits/hit us (excl)'	*tè-rē̄-r-è*	*tè-kkè-rē̄-í*
3sg>1pl.incl	'he hits/hit us (incl)'	*tè-rè-r-é*	*tè-kkè-rē̄-l-ú*
2pl>1pl.excl	'you.pl hit us (excl)'	*tè-rē̄-b-è*	*tè-rè-b-í*
2pl>1pl.incl	n.a.		
3pl>1pl.excl	'they hit us (excl)'	*tè-rè-r-é*	*tè-kkè-rē̄-l-ú*
3pl>1pl.incl	'they hit us (incl)'	*tè-rè-r-é*	*tè-kkè-rē̄-l-ú*
P2pl			
1sg>2pl	'I hit you (pl)'	*lè-rè-g-é*	*lè-rē̄-g-ú*
3sg>2pl	'he hits/hit you (pl)'	*lè-rè-r-é*	*lè-kkè-rē̄-l-ú*
1pl.excl>2pl	'we (excl) hit you (pl)'	*lè-rè-d-é*	*lè-rē̄-d-ú*
1pl.incl>2pl	n.a.		
3pl>2pl	'they hit you (pl)'	*lè-rè-r-é*	*lè-kkè-rē̄-l-ú*
P3pl			
1sg>3pl	'I hit them'	*Ø-ìrē̄-g-è*	*Ø-ìrè-g-í*
2sg>3pl	'you (sg) hit them'	*Ø-ìrē̄-l-è*	*Ø-ìrè-l-í*
3sg>3pl	'he hits/hit them'	*Ø-ìrē̄-r-è*	*Ø-kì-rèē̄-Ø-í*
1pl.excl>3pl	'we (excl) hit them'	*Ø-ìrē̄-d-è*	*Ø-ìrè-d-í*
1pl.incl>3pl	'we (incl) hit them'	*Ø-ìrè-d-é*	*Ø-ìrē̄-d-ú*
2pl>3pl	'you (pl) hit them'	*Ø-ìrē̄-b-è*	*Ø-ìrè-b-í*
3pl>3pl	'they hit them'	*Ø-ìrè-r-é*	*Ø-kì-rē̄-l-ú*

References

Abdu El-Dawi Abdalla, Maha. 2010. *The morphosyntactic structure of the Zaghawa language in Sudan. Focus: the Wegi dialect*. Unpublished PhD thesis, Department of Linguistics, University of Khartoum.

Bickel, Balthasar & Nichols, Johanna. 2007. Inflectional Morphology. In Timothy Shopen (ed.). *Language typology and syntactic description (3), Grammatical categories and the lexicon*. 169–240. Cambridge: CUP.

Crass, Joachim & Angelika Jakobi. 2000. Der Kube-Dialekt des Beria (Zaghawa) im Tschad – eine erste Skizze. *Afrika und Übersee* 83. 3–46.

Coenen, Pascal. 2017. *Der Kausativ in Zaghawa*. Unpublished MA thesis, Department of Linguistics, University of Cologne.

Compes, Isabel. 2017. *Zaghawa-Wagi: Towards documenting the Sudanese dialectal variant of Zaghawa*. Endangered Languages Archive. Handle: http://hdl.handle.net/2196/00-0000-0000-000F-BF52-A. Accessed on 2021/03/16.

Compes, Isabel & Hellwig, Birgit. 2020. *Zaghawa Field Methods Corpus 2014–2020*. Cologne: Data Center for the Humanities. Data deposited at the Language Archive Cologne (LAC). https://lac2.uni-koeln.de/de/zaghawa-wagi-dialect-sudan/. Accessed on 2021/03/16.

Compes, Isabel. submitted. Argument coding and the alignment system in Beria.

Cyffer, Norbert. 1981a. The person elements in Saharan languages: A step towards the creation of Proto-Saharan. In Thilo C. Schadeberg & M. Lionel Bender (eds.). *Nilo-Saharan: Proceedings of the first Nilo-Saharan linguistics colloquium (Leiden, September 8–10, 1980)*. 185–200. Dordrecht: Foris Publications.

Cyffer, Norbert. 1981b. Pluralization in Saharan Languages. *Afrika und Übersee* 64.2. 161–186.

Dowty David R. 1991. Thematic proto-roles and argument selection. *Language* 67. 547–619.

Dryer, Matthew. 1986. Primary objects, secondary objects, and antidative. *Language* 62.4. 808–845.

Jakobi, Angelika. 2002. Medium im Beria (Saharanisch). In Theda Schumann, Mechthild Reh, Roland Kießling & Ludwig Gerhardt (eds.). *Aktuelle Forschungen zu afrikanischen Sprachen. Sprachwissenschaftliche Beiträge zum 14. Afrikanistentag. Hamburg, 11–14 Oktober 2000*. 157–170. Köln: Rüdiger Köppe.

Jakobi, Angelika. 2006. Focus in an active/agentive alignment system – the case of Beria (Saharan). *Zentrum für Allgemeine Sprachwissenschaft: Papers in Linguistics* 46. 129–142.

Jakobi, Angelika. 2010. Morphosyntax und Semantik der Medium-Verben im Beria (Saharanisch). In Armin R. Bachmann, Christliebe El Mogharbel & Katja Himstedt (eds.). *Form und Struktur in der Sprache, Festschrift für Elmar Ternes*. 161–185. Tübingen: Narr Francke Attempto.

Jakobi, Angelika. 2011. Split-S in Beria. In Doris Löhr, Eva Rothmaler & Georg Ziegelmeyer (eds.). *Kanuri, Borno and beyond: Current studies on the Lake Chad region*. 91–116. Köln: Rüdiger Köppe.

Jakobi, Angelika & Crass, Joachim. 2004. *Grammaire du beria (langue saharienne).* Köln: Rüdiger Köppe Verlag.

Kellenberger, Joshua. 2008. On classifying Beria verbs. Paper to be published in the Proceedings of the 10th Nilo-Saharan linguistic colloquium, Paris 2007.

Sennet, Adam. 2021. Ambiguity. In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy* (Summer 2021 Edition). https://plato.stanford.edu/archives/sum2021/entries/ambiguity/. Accessed on 2021/05/31.

Siewierska, Anna. 2004. *Person*. Cambridge: Cambridge University Press.

Van Valin, Robert D. & LaPolla, Randy J. 1997. *Syntax: Structure, Meaning, and Function*. Cambridge: Cambridge University Press.

Veit, Nataliya. 2016. *Pronominale Markierung von Argumenten am Verb in Zaghawa (Wagi-Dialekt).* Unpublished MA thesis, Department of Linguistics, University of Cologne.

Wolfe, Andrew M. 2001. *Towards a generative phonology and morphology of the dialects of Beria*. Unpublished BA thesis, Harvard University, Cambridge.

Wolfe, Andrew M. 2010. *Splits in the Middle: On the confluence of split-intransitive and middle voice systems*. Unpublished term paper, Canada Institute of Linguistics.

Wolfe, Andrew M. & Tajeldin Abdalla Adam. 2018. Optional ergativity and information structure in Beria. In Jason Kandybowicz, Travis Major, Harold Torrence & Philip T. Duncan (eds.). *African linguistics on the prairie: Selected papers from the 45th Annual Conference on African Linguistics*. 341–358. Berlin: Language Science Press. DOI:10.5281/zenodo.1251748

Isabel Compes
Institut für Linguistik
Abteilung Allgemeine Sprachwissenschaft
Universität zu Köln
Albertus-Magnus-Platz
50923 Köln
icompes@uni-koeln.de