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SECOND PERSON AGREEMENT ALLOMORPHY IN MASARAK[1]

Ruth Brillman
New York University / Massachusetts Institute of Technology

Masarak (also known as Masalit, sometimes spelled Massaleit), an endangered Nilo-Saharan language spoken in Darfur, is characterized by complex agreement patterns, particularly in the second person. This article outlines Masarak agreement patterns in the declarative, imperative and prohibitive verb forms, paying particular attention to second singular declarative allomorphy. In addition, this article describes a series of verb root-form alternations. Understanding these alternations is necessary in understanding the interpretation of different declarative, imperative and prohibitive verb forms.

1. Overview of Masarak

Masarak (exonym: Masalit) is a Maban (Nilo-Saharan) language, spoken by the Masalit people of the Darfur region of western Sudan and eastern Chad. The primary goal of this article is to provide a comprehensive description of Masarak's second person agreement system, including the declarative, imperative and prohibitive verbal systems, contributing to the documentation of this endangered language. Very few works, either descriptive or theoretical, have been published on Masarak. The only grammar available is Edgar (1989), *A Masalit grammar: With notes on other languages of Darfur and Wada*. Limited other information can be found in Dimmendaal (1992), a short review of Edgar's book and König (2008:60-65), a short book chapter describing the Masarak case system, and a Masarak-French dictionary published by SIL in 2005. Some theoretical papers have recently been published on the language, including Leffel (2012), which analyzes the semantics of the

[1] Data for this paper, unless otherwise stated, was elicited during a field methods class at NYU, and is transcribed in IPA. Many thanks are owed to my wonderful consultant, D.S., who provided most of the data and judgments for this article. I am especially grateful for his patience in discussing the data. I am also grateful to the audience at NWLC 27 and my colleagues at NYU, particularly Jim Wood, John Singler and Chris Collins for their comments on earlier drafts of this article and previous presentations of the data. I would also like to thank two anonymous reviewers for their comments and feedback.

morpheme *–ti* (labeled a future tense morpheme by Edgar). Additionally, some literature is available for Maba, a closely related Maban language. This literature includes Ekkehard (1989) and Weiss (2009), a PhD Dissertation. Maba and Masarak share many properties, including complex second person allomorphy.

Edgar (1989:8) cites Masarak as an S-O-V, agglutinating language with person/number agreement realized through the use of cross-reference prefixes. Verbs show obligatory subject agreement in all persons and numbers, and also agree with all non-3rd person objects. An example of Masarak subject agreement is given in (1). This article will not discuss object agreement.

(1) ɑmɑ tiro ɑ-ŋoŋ-e[2]
I him 1SG-love-PRS
'I love him.'[3]

In this article, I describe the Masarak system of second person agreement marking in the indicative, imperative, and prohibitive moods, paying particular attention to the phonological nature of prefix alternations. This article is simultaneously more broad and narrow than Edgar (1989), in that it gives a more detailed analysis of a smaller set of morphological alternations. The remainder of this paper is organized as follows. Section 2 discusses finite declarative verb agreement and describes root-form alternations that occur with all verbs. Section 3 discusses the imperative system and Section 4 discusses the prohibitive. Section 5 summarizes the data and provides questions for future research.

2. Finite Subject Agreement

2.1 The form of prefixes. Ignoring object agreement, Masarak verbs show a relatively straightforward agreement paradigm for all persons other than the 2SG. This paradigm is presented in (2).[4] For the time being, I have left 2SG blank. For more detail on second person allomorphy, see Section 2.3.

[2] The examples in this article are unmarked for tone, despite the fact that Masarak is a tonal language. I have excluded tone from the examples because the Masarak tonal system is not yet entirely understood, and does not appear to directly affect 2SG verb morphology. When citing sources outside of my own fieldwork (e.g., Leffel 2012, Livitz 2010), I have followed the original authors in their decisions on whether or not to mark tone.

[3] This article consistently translates the 3rd singular as he/him, despite the fact that Masarak does not distinguish gender morphologically. These translations should therefore be taken as a shorthand for he/she/him/her throughout the article.

[4] For further discussion of Masarak object agreement, which obligatorily occurs when objects are not 3, see Wood (2010). Additionally, 1SG and 3PL allomorphy is not as straightforward as the chart in (2) suggests. However, Chu (2010) proposes a series of phonological rules that accounts for 1SG and 3PL prefix allomorphy.

(2) Declarative agreement prefixes

	SG	PL
1	ɑ-	mV
2	—	kV-
3	tV-	wV-

In (2) the 'V' stands for a vowel that is part of the cross-reference prefix. It is not clear what conditions the choice of the vowel, though the vowel of the verb root seems to be relevant, and the same vowel appears consistently throughout the paradigm, as shown in (3). When the verb stem is vowel initial, the 'V' is absent[5] from the prefix, as shown in (4).

(3) dʒiŋ 'sing'

	SG		PL	
1	ɑ-dʒiŋ-ɑ	'I sang'	mɑ-dʒiŋ-ɑ	'we sang'
	1SG-sing-PST		1PL-sing-PST	
2	lɑ-dʒiŋ-ɑ	'you sang'	kɑ-dʒiŋ-ɑ	'you sang'
	1PL-sing-PST		2PL-sing-PST	
3	tɑ-dʒiŋ-ɑ	'he sang'	wɑ-dʒiŋ-ɑ	'they sang'
	3SG-sing-PST		3PL-sing-PST	

(4) ij 'die'

	SG		PL	
1	ɑ-ij-ɑ	'I bought'	m-ij-ɑ	'we bought'
	1SG-die-PST		1PL-die-PST	
2	l-ij-ɑ	'you bought'	k-ij-ɑ	'you bought'
	2SG-die-PST		2PL-die-PST	
3	t-ij-ɑ	'he bought'	w-ij-ɑ	'they bought'
	3SG-die-PST		3PL-die-PST	

2.2 The forms of verb roots.[6] Masarak exhibits an alternation between two—often phonologically distinct—verb root-forms (Dimmendaal 1992)[7]. These alternations encode

[5] This article departs from Edgar (1989) in claiming that Masarak verb roots can be either vowel- or consonant-initial. As Masarak is largely a CV language, determining whether a vowel belongs to the prefix or stem of a verb is not always straightforward. However, analyzing the 2SG and 3PL prefix choice of a verb can often shed light on whether that verb has a vowel- or consonant-initial root.

[6] In this article, I distinguish between verb roots—called "bases" in Edgar (1989)—and verb stems, which I define as the verb root plus any additional, non-cross-referential morphology. This distinction is made because of the importance of the causative morpheme /nd/, discussed in Section 2.3.

[7] These alternations are noted by both Edgar (1989) and Dimmendaal (1992), but are not explained.

Tense/aspect/mood (TAM) information, particularly a difference between the imperfective (5) and the perfective (6).

(5) ti-**ŋ**-e 'he is eating'
3SG-eat-PRS

(6) ti-**ŋɑ**:**n**-ɑ 'he ate'
3SG-eat-PST

Further evidence for this claim comes from the interaction of verb root forms with tense. The perfective root form more commonly appears with past-tense morphology in its citation form, while the imperfective root form commonly appears with present-tense morphology. Despite this citation form preference, the imperfective root form is compatible with all tenses—it can appear with the past tense *–a*, the present tense *–e/i*, or the irrealis morpheme *–ti/tu* (8). The perfective root form, though, is incompatible with the present tense *–e*, and cannot contribute present tense semantics (7).

(7) a. ɑ-**kɑl**-ɑ
1SG-see-PST
'he saw'

b. *ɑ-**kɑl**-e
1SG-see-PRS

c. ɑ-**kɑl**-ti
1SG-see-IRR
'he will see'

(8) a. ɑ-**ser**-ɑ
1SG-see-PST
'he was seeing'

b. ɑ-**ser**-e
1SG-see-PRS
'he is seeing'

c. ɑ-**ser**-ti
1SG-see-IRR
'he will be seeing'

Further support for this analysis comes from the progressive interpretation of (9), which is not available in (10) (Leffel 2012:222).

(9) ámá hɑ́wà-kò á-sér-tì 'I will be looking at Hawa.'
I Hawa-ACC1 SG-see-ti

(10) ámá hɑ́wà-kò á-kál-tì 'I will see Hawa.'
I Hawa-ACC1 SG-see-ti *'I will be looking at Hawa.'

Within Nilo-Saharan more generally, an alternation between root forms for a given lexeme is not uncommon. Dimmendaal notes that the Saharan and Surma families show this behavior, as do the Tama and Nyimang languages[8] (both Eastern Sudanic). Additionally, Fur (Fur),

[8] Dimmendaal notes that these alternations are determined by whether a verb is "definite" or "indefinite," though it is not clear in what sense these terms are used. Describing a verb as "(in)definite" typically conveys one of two meanings. It refers either to the (in)definiteness of the object, which is

Turkana (Nilotic; Dimmendaal 1983:466) and Kanuri (Western Saharan; Hutchison 1981:337) have also been described as showing verb-root alternations based on TAM. Within Maban, Aiki also shows a perfective/imperfective verb root alternation (Dimmendaal 1992:613).

The morphological relationship between perfective and imperfective Masarak verb root forms in not entirely clear. Nor is it clear if or how either root is "built upon" the other by the addition (or subtraction) of morphological material. However, across the language, four basic patterns of morphological alternation appear across imperfective and perfective verb forms. A summary of these patterns is given in (11), and more detailed examples are given in (12)-(17). An understanding of verb root-form alternations is necessary for the discussion of imperative and prohibitive forms in Sections 3 and 4.

(11) a. Pattern I: the final rime is dropped from the perfective form to yield the imperfective (12-13).
b. Pattern II: a perfective stem-final [n] alternates with an imperfective stem-final [k] (14-16).[9]
c. Pattern III: there is no alternation between perfective and imperfective forms (17-18).
d. Finally, there are exceptional patterns of suppletion (7-8).

An example of Pattern I was given in (5-6) with *ŋ/ŋaːn*, 'eat.' An example of other verbs that pattern with 'eat' is given in (12-13). In all cases, the dropped rime involves a vowel and a nasal.

(12)	Perfective	Imperfective
	a. ɡ-**imin**-ɑ	b. ɡ-**im**-i
	2SG-kick- PST	2SG-eat-PRS
	'you kicked'	'you are kicking'

sometimes encoded morphologically (e.g., Hungarian) or to grammatical aspect, with the "indefinite aspect" corresponding to the imperfective and the "definite aspect" corresponding to the perfective. As I was not able to find a definition or elaboration of these terms in Dimmendaal (1992), I remain agnostic about their meanings in this article.

[9] A reviewer notes than an *n/k* alternation is utilized in other Nilo-Saharan languages as a means to mark pluractionality (Weiss 2009 notes that Maba shows an *n/k* alternation that encodes a singular/plural distinction). However, in Masarak, these alternations do not appear to be sensitive to the features usually associated with pluractionality, such as the number of event participants. Verbs with *n/k* root-form alternations also pass the tests described in (7)-(10), where the perfective form cannot combine with present tense morphology and a progressive reading is available only when the imperfective form is used. That being said, how Masarak marks pluractionality, and whether or not pluractional marking interacts with aspect in Masarak, is still unknown.

(13) Perfective
a. to-**doron**-ɑ
3SG-hit- PST
'he hit'

Imperfective
b. to-**dor**-e
3SG-hit- PRS
'he is hitting'

Sometimes, more than the final rime is dropped from the perfective to form the imperfective, as in (14) where only the initial consonant of the perfective form is retained in the imperfective.

(14) Perfective
a. ɑ-**rinɑŋ**-ɑ
1SG-say-PST
'I said'

Imperfective
b. ɑ-**r**-e
1SG-say-PRS
'I am saying'

Another common alternation pattern involves changing the final consonant of the verb root, usual from [n] in the perfective to [k] in the imperfective (15)-(16).

(15) Perfective
a. ɑ-**ron**-ɑ
1SG-buy-PST
'I bought'

Imperfective
b. ɑ-**rok**-e
1SG-buy-PRS
'I was buying'

(16) Perfective
a. l-**ijen**-ɑ
2SG-get.lost-PST
'you got lost'

Imperfective
b. l-**ijek**-e
2SG-get.lost- PRS
'you were getting lost'

Other nasal/stop alternations have been recorded, as in (17), where the final nasal [ŋ] alternates with the final (prenasalized) stop [ndʒ].

(17) Perfective
a. wo-**ndoŋ**-ɑ
3PL-put-PST
'they put'

Imperfective
b. wo-**ndondʒ**-e
3PL-put-PRS
'they are putting'

Some Masarak verbs do not show an overt alternation between their perfective and imperfective forms (18)-(19). In these cases, the semantics of the past tense form are ambiguous between a perfective and imperfective reading. In the present tense, only the imperfective reading is available.

(18) Perfective
a. mo-**ŋoɲ**-ɑ
1PL-love-PST
'we loved/were loving'

Imperfective
b. wo-**ŋoɲ**-e
1PL-love-PRS
'we are loving'

(19) Perfective
a. g-**is**-ɑ
2SG-bite-PST
'you bit/were biting'

Imperfective
b. g-**is**-e
2SG-bite-PRS
'you are biting'

A handful of Masarak verbs exhibit a pattern of complete suppletion between their perfective and imperfective forms. An example is *kal/ser*, 'see,' given in (7)-(8).

2.3 Focus on 2SG allomorphy. Masarak has two verb declensions, which I have labeled G-Class and L-Class. This labeling comes from the underlying form of the 2SG agreement prefix. The underlying form of the G-Class 2SG agreement prefix is /g/, while the underlying form of the L-Class 2SG agreement prefix is /lV/. Which declension a verb belongs to (i.e., whether it is a G- or L-Class verb) determines the phonological form of the verb's 2SG declarative and prohibitive prefix, as well as its imperative prefix. Declension membership may also influence the shape of the participial. Root alternation patterns (Section 2.2) have no effect on verb declension, e.g., both G- and L-Class verbs show all the root alternation patterns described in (11). Declension membership is unpredictable.

Each declension has its own set of 2SG allomorphs. Within a declension, allomorphy is determined by the phonological shape of the left-edge of the verb root. There are three G-Class 2SG prefixes, /g/, /Ø/ and /dʒ/ and two L-Class 2SG prefixes /l/ and /lV/. To determine the 2SG prefix of a verb, two pieces of information are needed: (i) declension membership and (ii) phonology of the left-edge of the verb root.[10] As seen in (20), phonology alone is not enough to determine which 2SG prefix will be used. Both verbs in (20) have an [r]-initial root, but take difference 2SG prefixes, [Ø] and [lɑ], respectively.

(20) a. **Ø**-rinɑŋ-ɑ
2SG-say-PST
'you said'

lɑ-riniŋ-ɑ
2SG-sleep-PST
'you slept'

The examples in (21-22) present similar data. In (21), two [ɑ]-initial stems are marked with different 2SG prefixes, [g] and [l]. In (22), two [s]-initial stems are marked with different 2SG prefixes, [dʒ] and [li].

[10] Or verb stem, if the verb is a causative. Recall that stem = root + non-cross-reference/tense morphology

(21) a. **g**-ɑr-ɑ
2SG-come-PST
'you came'

b. **l**-ɑŋɑn-ɑ
2SG-drink-PRS
'you drank'

(22) a. **dʒ**[11]-or-i
2SG-fight-PRS
'you are fighting'

b. **li**-siŋ-ɑ
2SG-step.on-PRS
'you stepped on (it).'

Data like that in (14-22) suggests that we can divide verbs into two categories: those that appear to show a regular 2SG prefix alternation between [l] and [lV] (recall the prefix chart in (2))—L-Class verbs—and those that show an apparently irregular 2SG prefix alternation between [g], [Ø] and [dʒ]—G-Class verbs. Looking only at the verbs that take [l] or [lV] as their 2SG prefix (i.e., L-Class verbs), a familiar pattern emerges. If an L-Class verb has a consonant-initial root, it takes [lV] as its 2SG prefix (23). If an L-Class verb has a vowel-initial root, it takes [l] as its 2SG prefix (24).[12] This mirrors the behavior of other Masarak agreement prefixes.

(23) Consonant-initial L-Class verbs

a. **li**-dʒiɲel-ɑ
2SG-woke-PST
'you awoke'

b. **li**-sen-ɑ
2SG-die-PST
'you died'

(24) Vowel-initial L-Class verbs

a. **l**-ɑij-ɑ
2SG-enter-PST
'you entered'

b. **l**-oij-ɑ
2SG-kill-PST
'you killed'

G-Class verbs (e.g., those verbs that take [g], [Ø] or [dʒ] as their 2SG prefix) also show a prefix alternation that is phonologically based. When a G-Class verb has a vowel-initial root, it takes [g] as its 2SG prefix (25). When a G-Class verb has an [s]-initial root, it takes [dʒ] as its 2SG prefix (26). The segment [dʒ] appears to be an affricate formed from the coalescence of the 2SG prefix [g] and the [s] of the verb stem, obscuring the left-edge phonology of the verbs in (26). The examples in (27) show the same verbs as in (26), conjugated for person

[11] To show that *sor*, 'fight,' has an [s]-initial stem, consider the 1SG form *a-**s**or-i* and the 3SG form *to-**s**or-i*

[12] See examples (4), (16), (20)-(22) for additional data supporting the [l]/[lV] alternation proposed.

and number combination that leave root phonology transparent. When a G-Class verb root begins with a consonant other than [s], it takes [Ø] as its 2SG prefix (28).[13]

(25) Vowel-initial G-Class verbs

a. **g**-ijɑn-ɑ
2SG-walk-PST
'you walked'

b. **g**-ur-e
2SG-talk-PRS
'you are talking'

c. **g**-en-ɑ
2SG-do-PST
'you do'

d. **g**-os-e
2SG-know-PRS
'you are knowing'

(26) [s]-initial G-Class verbs

a. **dʒ**-er-e
2SG-see-PRS
'you are seeing'

b. **dʒ**-ɑr-e
2SG-dance-PRS
'you are dancing'

(27) a. ɑ-**s**er-e
1SG-see-PRS
'I am seeing'

b. ɑ-**s**ɑr-e
1SG-dance-PRS
'I am dancing'

(28) Other C-initial G-Class verbs

a. **Ø**-desirn-ɑ
2SG-angred-PST
'you got angry'

b. **Ø**-dor-ɑ
2SG-fall-PST
'you fell'

Dimmendaal (1992:613) notes that "uncovering the phonological features of the 2SG […] requires a systematic investigation of the verb forms in combination with the causative marker." While such an investigation was not necessary to determine the distinction between G- and L-Class declensions, it is helpful in highlighting the importance of left-edge phonology within the two declensions. Wood (2010) and Edgar (1989:33) show that Masarak causative verbs are distinguished by the causative marker *n-* or *nd-*. This marker appears to the right of the verb root, and to the left of person/number prefixes.

Both *ar*, 'go,' and its causative form *n-ar*, 'bring' (cause-to-come) are (G-Class) verbs, and they differ in which 2SG prefix they select. This is predicted by a phonologically based account of 2SG prefix alternation within verb declensions. In (29), we see that *ar* predictably takes [g] as its 2SG prefix while *n-ar* takes [Ø]. In (30) we see the same effect in L-Class

[13] See examples (3), (12), (19)-(22) for additional data supporting the [g]/[Ø]/[dʒ] alternation proposed.

causative pairs, where the vowel-initial non-causative form takes [l] as its prefix while the consonant-initial causative fore takes [lV].

(29) G-Class causative verbs

a. **g**-ɑr-ɑ
2SG-come-PST
'you came'

b. **Ø**-n-ɑr-ɑ
2SG-CAUS-come-PST
'you brought (something)'

(30) L-Class causative verbs

a. **l**-okɑn-ɑ
2SG-wash-PST
'you washed'

b. **lu**-nd-okɑn-ɑ
2SG-CAUS-wash-PST
'you washed (something)'

As in other Nilotic languages, the addition of a causative morpheme to a Masarak verb can change the verb's declension (31). In these cases, the G-Class verb shows the expected G-Class 2SG prefix, while the L-Class verb shows the expected L-Class 2SG prefix.

(31) Declension shifting causative verbs

a. **l**-ijen-ɑ
2SG-lose-PST
'you got lost'

b. **Ø**-nd-ijen-ɑ
2SG-CAUS-lose-PST
'you got something lost'

The data in (20-31) shows that two kinds of information are needed to predict the 2SG prefix that a verb will take. First, we must know which declension a verb belongs to. Declension membership is unpredictable, and each declension has its own set of 2SG prefixes. Second, we must know the left-edge phonology of the verb root (or stem, if causative morphology is present). Within a declension, the 2SG prefix choice is determined phonologically.

Finally, there is no correlation between what root alternation pattern a verb exhibits and whether it is a G- or L-Class verb. Examples of G-Class verbs that show a rime-drop and n/k alternation patterns are seen in (32) (cf., (19) for an example of a 2SG G-Class verb that does not show a root alternation).

(32) a. Rime-drop (cf. 5-6)
Ø-ɲɑːn-ɑ
2SG-eat-PST
'you ate'

b. *n/k* alternation (cf. 14)
Ø-ron-ɑ
2SG-buy-PST
'you bought'

Similar data is given for L-Class verbs in (33-34). An L-Class verbs that shows a rime-drop alternation pattern is given in (33), while an L-Class verb that does not show a root alternation is given in (34) (cf., (16) for an L-Class verb that shows an n/k alternation).

(33) a. lɑ-dʒiŋ-ɑ
2SG-sing-PST
'you sang'

b. lɑ-dʒ-e
2SG-sing-PRS
'you are singing'

(34) a. lɑ-ndir-ɑ
2SG-return-PST
'you returned/were returning'

b. lɑ-ndir-e
2SG-return-PRS
'you are returning'

3. Imperative Forms

Masarak shows both a morphologically dedicated singular and morphologically dedicated plural imperative form. Masarak imperative and declarative verbs encode number differently. Unlike the declarative second person prefixes, which are marked for number, the imperative prefix does not encode number. The singular imperative is the unmarked form, consisting only of the imperative prefix and the verb root, while the plural imperative is marked with the suffix *–i*.[14] This is true of both L-Class (35) and G-Class verbs (36). Imperative verbs do not combine with tense suffixes.

(35) a. mɑŋ ndisiŋgo **lu**-toroŋ
you.SG door IMP-open
'You, open the door!'

b. ki ndisiŋgo **lu**-toroŋ-i
you.PL door IMP-open-PL
'You all, open the door!'

(36) a. mɑŋ ɲuguru **Ø**-ɲɑːn
you.SG food IMP-eat
'You, eat the food!'

b. ki ɲuguru **Ø**-ɲɑːn-i
you.PL food IMP-eat-PL
'You all, eat the food!'

As (35-36) show, some Masarak imperative prefixes show a surface resemblance to 2SG declarative prefixes. This similarity is maintained across L-Class verbs, and the L-Class imperative prefix is either [l] or [lV]. The same phonological rules that condition 2SG declarative prefix choice apply to L-Class imperatives. Verbs with a consonantal-initial root take [lV] as their imperative prefix (35) while verbs with a vowel-initial root take [l] as their imperative prefix (37).

[14] The Masarak plural system is complex and not entirely understood. While I do not believe that *–i* is used elsewhere in the language to mark plurality, a further examination of the Masarak plural-marking system is left to future research.

(37) a. **l**-ijen
IMP-get.lost
'you, get lost!'

b. **l**-ijen-i
IMP-get.lost-PL
'you all, get lost!'

Phonology also determines the shape of G-Class imperative prefixes. Like in the declarative, verbs with a consonant-initial root take [Ø] as their prefix (cf., 34). Imperatives are unlike declaratives in that [Ø] appears as the prefix of all consonant-initial roots, even s-initial roots which take [dʒ] in the declarative (38, cf. 22).

(38) a. Ø-soron
IMP-fight
'you, fight!'

b. Ø-soron-i
IMP-fight-PL
'you all, fight!'

G-Class verbs with vowel-initial stems takes [k] as their imperative prefix (39). While [k] is used in the declarative to convey 2PL, [k] cannot convey a plural number when used as an imperative prefix.

(39) a. k-imin
IMP-kick
'you (*all), kick!'

b. k-imin-i
IMP-kick-PL
'you all, kick!'

cf. k-imin-ɑ
2PL-kick-PST
'you all kicked'

Again, when the addition of the causative morpheme does not change the declension of the verb, causative verbs can be used to show that imperative prefix selection is phonologically determined. G-Class causative verbs always take [Ø] as their imperative prefix (40) while L-Class causative verbs always take [lV] as their imperative prefix (41).

(40) a. Ø-n-osiŋ
IMP-CAUS-learn
'you, teach!'

b. k-osiŋ
IMP-learn
'you, learn!'

(41) a. lu-nd-okɑn
IMP-CAUS-wash
'you, wash someone!

b. l-okɑn
IMP-learn
'you, wash!'

This shows that the imperative prefix, like the 2SG declarative prefix, is chosen based on phonology; it not unpredictably assigned to a given verb. Similarly, simply inserting the causative morpheme into a non-causative imperative verb is not a valid of forming a causative imperative (42, cf., (40)-(41)).

(42) a. *k-n-osiŋ
IMP-CAUS-learn
'you, teach!'

b. *l-nd-okɑn
IMP-CAUS-learn
'you, wash someone!'

3.1 Root alternations in the imperative. Recall that each Masarak verb has two root forms. Like declarative verbs, Masarak imperatives can be formed using either root form. Choice of root form determines the aspectual semantics of the conjugated imperative verb. The data in (43-45) show that there are two imperative forms for each Masarak verb, regardless of which root-alternation pattern (rime drop, n/k alternation, suppletion) the verb displays. The following are a mix of L- and G-Class verbs, as root-alternation pattern does not affect declension membership (Section 2.3).

(43) Rime-drop

Perfective
a. Ø-rinaŋ
IMP-say
'you, say!'

Imperfective
b. Ø-r-o
IMP-learn-o
'you, keep learning!'

(44) n/k alternation

Perfective
a. l-ijen
IMP-get.lost
'you, get lost!'

Imperfective
b. l-ijek-o
IMP-get.lost-o
'you, keep being lost!'

(45) Suppletion

Perfective
a. Ø-riniŋ
IMP-sleep
'you, sleep!'

Imperfective
b. Ø-bij-o
IMP-sleep-o
'you, continue sleeping!'

Imperatives formed using the perfective verb root (perfective imperatives) have no additional morphology to the right of the verb root (recall that Masarak imperatives do not combine with tense). Imperatives formed using the imperfective verb root (imperfective imperatives) end in the suffix *–o*. While the nature of *–o* is not entirely clear, it appears to be linked to progressive or continuous semantics, and appears in at least one other context where a

progressive interpretation is present. Preliminary analysis suggests that Masarak verbs have two participial forms, distinguished by root form choice and aspectual semantics. When *–o* is present on the participial verb, there sentence has a progressive interpretation (46) that is not available in participials that lack *–o* (47) (data from Livitz 2010:6).

(46) a. ɑdɑm kuŋo rok-o ɑmbro ɑndi[15]-kɑl-ɑ
Adam fish sell-o me AGR-see-PST
'Adam saw me while I/he was selling the fish.'
*'Adam saw me after I/he sold the fish.'

b. kuŋo Ø-rok-o
fish IMP-sell-o
'Keep selling fish!'

(47) a. ki: kɑ-dʒiŋ-ɑ ɲuguru ken
you.PL 2SG-sing-PST food make
'You sang after you prepared the food.'
*'You sang while preparing the food.'

b. ɲuguru k-en
food IMP-make
'Make food!'

To form the plural of the imperfective imperative, the final vowel *–e* replaces the final *–o* of the singular imperative form (48). This *–e* might be a combination of the plural morpheme *–i* (found in imperatives formed from a perfective verb root) and *–o*.

(48) a. Ø-r-o
IMP-say-*o*
'you, keep saying!'

b. Ø-r-e
IMP-say-PL
'you all, keep saying!'

4. Prohibitives and negation

Masarak has a prohibitive that is morphologically distinct from both the imperative and the declarative verb, and prohibitive sentences feature their own negation strategies found nowhere else in the language. The most common method for expressing negation in Masarak

[15] This verb agrees with both the subject and object of the sentence. The interaction between subject and object agreement in Masarak is complex and beyond the scope of this paper, so I have glossed the morpheme simply as "AGR." For more information on Masarak object marking, see Wood (2010) and Edgar (1989).

involves the placement of the morpheme *–de/nde* at the right edge of the verb (49). The negated verb still shows subject (and object, when relevant) cross-reference prefixes, but tense morphology is no longer visible.

(49) a. ɑmɑ ɲuguru ɑ-ɲɑːn-ɑ
I food 1SG-eat-PST
'I ate the food'

b. ɑmɑ ɲuguru ɑ-ɲɑːn-de
I food 1SG-eat-NEG
'I didn't eat the food'

Negation can also be expressed by the word *kuje*, as in (50)

(50) a. hɑbutu gim
something here
'Something's here.'

b. hɑbutu gim kuje
something here NEG
'There's nothing here.'

Additionally, negation can also be indexed by the morpheme *-kede/keda*, a post-position that attaches to subordinate or embedded verbs and appears to carry negative force (51).

(51) a. kɑltɑm ɲuguru tɑ-dʒin-kede t-en-ɑ
Kaltam food 3SG-sing-NEG 3SG-make-PST
'Kaltam cooked without singing.'

b. ɑmɑ ɑ-uron-kedɑ ɑ-ɲɑːn-ɑ
I 1SG-speak-NEG 1SG-eat-PST
'I ate without speaking.'

Unlike in (49-51), the Masarak prohibitive is formed by adding the suffix *–an* to a declarative verb already inflected for person and number. Like both the imperative and declarative, Masarak has both a perfective and imperfective prohibitive form. Unlike the imperative, the prohibitive uses the same second person agreement morphology as declarative verbs. Examples of L-Class prohibitives are given in (52) and G-Class prohibitives are given in (53). All verbs, regardless of which root-form alternation pattern they display, form the prohibitive the same way.

(52) L-Class prohibitive verbs

a. l-oij-ɑn
2SG-kill-PROH
'don't kill!'

b. li-dʒiŋ-ɑn
2SG-sing-PROH
'don't sing!'

(53) G-Class prohibitive verbs

a. g-ɑn-ɑn
2SG-come-PROH
'don't come!'

b. Ø-r-ɑn
2SG-say-PROH
'stop saying!'

c. dʒ-oron-ɑn
2SG-dance-PROH
'don't dance!'

Unlike imperative verbs, prohibitive verbs index number through the use of the dedicated 2PL prefix *k-/kV*. Prohibitive verbs cannot index number by the suffix *–i*. L-Class and G-Class verbs both use *k-/kV*-as their 2PL prefix.

(54) a. ki-rinɑŋ-ɑn
2PL-say-PROH
'you all, don't say!'

b. ki-r-ɑn
2PL-say-PROH
'you all, stop saying!'

c. *ki-rinɑŋ-ɑn-i
2PL-say-PROH-PL

d. *ki-r-ɑn-i
2PL-say-PROH-PL

5. Conclusions

Masarak verbs are divided into two declensions, G-Class and L-Class. Membership in a given declension determines at least the 2SG declarative, imperative, and prohibitive form of a Masarak verb. Each declension has its own distinct set of 2SG prefixes. Prohibitive verbs are formed using the same prefixes found in the declarative, while imperative prefixes are specially designated. Within a given declension, 2SG and imperative prefix selection is determined by the phonological properties of the morpheme immediately to the right of the prefixes; either the left-edge of the verb root, or the left edge of the verb stem, if causative morphology is present. The allomorphic distribution of 2SG declarative prefixes is summarized in (55). The distribution of imperative prefixes is summarized in (56).

(55) 2SG declarative allomorphy

L-Class	**G-Class**
[l] before V-initial root	[ɡ] before V-initial root
[lV] before C-initial root	[dʒ] before [s]-initial root
	[Ø] elsewhere

(56) Imperative allomorphy

L-Class	**G-Class**
[l] before V-initial root	[k] before V-initial root
[lV] before C-initial root	[Ø] before C-initial root

Masarak declarative and prohibitive verbs encode both person and number in their agreement prefix. The designated 2PL prefix for all declarative verbs is *k-/kV*. Imperative verbs encode number differently. The unmarked form of a Masarak imperative verb is the singular form; plurality is encoded by the addition of the suffix *–i*. As the Masarak plural-marking system is not yet entirely understood, it is not clear if *–i* is used to mark plurality elsewhere in the language. Prohibitive verbs are formed using either a 2SG declarative prefix (if the prohibitive is singular) or a 2PL declarative prefix (if the prohibitive is plural) and the suffix *-–an*. Declarative verbs are marked morphologically for tense. Imperative and prohibitive verbs are not.

Additionally, all Masarak verbs have two root forms (referred to as "bases" in Edgar 1989). While Edgar remains agnostic about the nature of these roots and how to characterize their alternations, I claim that these root forms encode aspectual information. Specifically, one root encodes the perfective aspect, while the other encodes the imperfective. There are at least three different root-form alternation patterns in Masarak (rime-drop, n/k alternation, suppletion, cf. 12-17). Declension membership and root-form alternation pattern do not bear on one another in the language.

The aim of this paper has been to contribute to the documentation of Masarak, an endangered and understudied Maban language, by providing a detailed outline of the morphology and morphophonology of its second person declarative, imperative and prohibitive systems. These systems are complicated, and each exhibits prefix allomorphy conditioned by verb class and phonology. This paper has also described a series of verb root-form alternations, and claimed that those alternations encode grammatical aspect. Understanding the formation and interpretation of declarative, imperative and prohibitive verbs involves understanding verb root-form alternations. Hopefully, future research will develop a better and more complete understand of Masarak grammar; the present work is a step toward that goal.

Abbreviations

1	First person	IRR	Irrealis
2	Second person	NEG	Negation
3	Third person	PROH	Prohibitive
ACC	Accusative	PRS	Present tense
AGR	Subject and object agreement	PST	Past tense
CAUS	Causative	PL	Plural
IMP	Imperative	SG	Singular

References

Chu, Edward. 2010. The vowel phonology of Masarak: regarding the back vowels and subject agreement forms of verbs. MS. New York: Department of Linguistics, New York University.

Dimmendaal, Gerrit J. 1992. Review of John Edgar: A Masalit grammar with notes on other languages or Darfur and Wadai. *Bulletin of the School of Oriental and African Studies* 55. 612-14.

Dimmendaal, Gerrit J. 1983. *The Turkana Language*. Dordrecht, Holland: Foris Publications.

Edgar, John. 1989. *A Masalit Grammar: with Notes on Other Languages of Darfur and Wadai*. Berlin: D. Reimer.

Hutchison, John P. 1981. *A Reference Grammar of the Kanuri Language*. Madison, WI: African Studies Program, University of Wisconsin.

Leffel, Timothy. 2012. Modality and future reference in Masalit. *Selected Proceedings of the 42nd Annual Conference on African Linguistics,* Michael R. Marlow (eds.). Somerville, MA: Cascadilla Proceedings Project. 221-230.

Livitz, Inna. 2010. Embedded clauses in Masarak. MS. New York: Linguistics Department, New York University.

König, Christina. 2008. *Case in Africa*. New York: Oxford University Press.

Weiss, Doris. 2009. Phonologie et morphosyntax du Maba. Thèse de doctorat. Université Lumière Lyon 2.

Wood, Jim. 2010. Argument structure, case and agreement in Masarak. MS. New York: Department of Linguistics, New York University. <http://homepages.nyu.edu/~jpw287>

Ruth Brillman
Massachusetts Insitute of Technology
ruth_b@mit.edu

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