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On the nature of adjectives: evidence from Dinka

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This paper presents a description of the adjective class in Dinka, and an exploration of its typological relevance to the existence of adjectives cross-linguistically. In Dinka, a subset of intransitive verbs can be defined by two morphophonological characteristics. The overwhelming majority of these are property concepts, despite the fact that the defining characteristics are unrelated to semantic properties. This calls into question whether or not properties provide a useful semantic context in the investigation of adjectives, even in languages where the adjective class is clearly a subclass of another lexical category. While the analysis is based primarily on the Bor South dialect of Dinka, it has been corroborated using evidence from other dialects. Therefore, it is likely that this characterization holds across the language.

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1 Introduction

The status of adjectives as a universal word class is widely debated. For that matter, the existence of universal word classes is equally contentious; opinions differ on whether the ways that different languages express the same concepts can or should be compared. One perspective posits cross-linguistically universal categories—nouns, verbs, and adjectives (cf. Dixon 2004)—arguing that every language must have at least these three categories. Adjectives can be a separate word class, or they can pattern with nouns or verbs. In the latter case, defining distinctions can be quite subtle. This perspective is based on the assumption of a semantically coherent set, which forms the basis for morphological or syntactic properties that are then shared within the set. According to Dixon (1982), this coherence takes the form of *property concepts*, which are a set of semantic types that are predictably lexicalized as adjectives cross-linguistically. Another perspective (cf. Dryer 1997; Haspelmath 2010) argues that lexical categories cannot be compared cross-linguistically—that comparative concepts based in meaning can be universal, but grammatical behaviour cannot be. Whereas the former perspective argues that subtle differences—as opposed to dramatically different syntactic behaviour, for example—can form the basis for postulating a lexical category or sub-category, the latter perspective argues that subtle differences cannot—that an adjectival subclass of verbs in one language, for example, should not be equated to a separate lexical category of adjectives in another language. In some sense, however, both views of lexical categorization converge on the same questions: are there items that pattern together both syntactically and semantically? Do the same items pattern together across languages?

This paper will demonstrate that the adjective class in Dinka (West Nilotic, South Sudan) is a subclass of intransitive verbs, defined by two morphophonological characteristics: a low-toned finite form and an overlong 'attributive construct state' (ACS), which is the form that appears when a postnominal modifier is followed by another modifier. Though they are clearly distinct morphologically, the adjectives are identical syntactically to non-adjectival intransitive verbs, and lack many characteristics posited as universal distinguishers of an adjectival class. For example, both adjectival and non-adjectival intransitive verbs can directly modify nouns, in contrast to what has been suggested as a key difference between verbs and verb-like adjectives (Dixon 2004: 19). Since the adjective class is distinguished without this feature, the Dinka language calls into question assertions that adjectives can be distinguished or defined by their ability to directly modify nouns. The Dinka adjective class also calls into question whether there is a syntax-semantics connection in lexical categorization; the status of a lexical item as a 'property' (in contrast to 'event' or 'action') is not a predictor of adjectivehood, but it should be noted that most adjectives in Dinka are indeed properties—that is, they are stative in meaning, though they should be classified as adjectives, not stative verbs. Dinka adjectives provide evidence that there may be a syntax-semantics connection with regards to adjectives, but also that semantics should not be used as a factor in lexical categorization.

In order to distinguish adjectival intransitive verbs, this paper will also describe a range of intransitive verb morphology in Dinka. Description of the language has focused considerably less on intransitive verb paradigms than on transitive verb paradigms. In addition, references to 'adjectival verbs' have appeared in several descriptions of other grammatical phenomena in the Agar dialect of Dinka (Andersen 2014; 2019; 2020), but it has not been categorically stated whether the adjective class in Dinka is a subclass of verbs, whether there is more than one lexical category that contains properties, or whether there are multiple adjective classes in the language. Therefore, to show that adjectives are a subset of intransitive verbs, I must first present some intransitive verb morphology in Dinka, so that the adjectives can be both readily identified as intransitive verbs and differentiated as a subclass. Considering that the intransitive verbs have received little attention, this description is also valuable in relation to the study of Dinka morphology as a whole.

Additionally, literature on Dinka tends to focus on single dialects (e.g. Andersen 1993; Storch 2005; Ladd et al. 2009). Dinka dialects can differ, sometimes considerably, in their morphosyntax. While dialect-specific work is, of course, necessary and important in its own right, I suggest that hypotheses about the morphosyntax of Dinka as a whole should not be made unless cross-dialect evidence exists. This paper focuses primarily on data from the Bor South dialect of Dinka. However, I also present evidence that my classification criteria for adjectives in Dinka hold cross-dialectally, which means that the typological contribution of this paper towards a definition of adjectives can be regarded as coming from the Dinka language as a whole, as opposed to a specific dialect of the language. Any references to data from the Agar dialect of Dinka are from Torben Andersen's extensive work on Dinka and are cited as such. All other data—from the Bor South, Hol, and Ngok dialects—are my own; data were collected with two speakers of Bor South, one speaker of Hol, and two speakers of Ngok.

The remainder of Section 1 provides background information on Dinka. Section 2 provides a description of aspects of the inflectional morphology and syntactic properties of adjectival and non-adjectival intransitive verbs. Section 3 provides the classification criteria for adjectival intransitive verbs, examines whether vowel grade (cf. Andersen 1993) can be used to classify the adjectival intransitive verbs, and rejects the possibility of grammatical adjectives in other Dinka lexical categories. Section 4 provides a cross-dialect comparison; Section 5 consists of a discussion, and Section 6 contains concluding remarks.

1.1 Language background

Dinka is spoken in South Sudan, though there are also sizeable Dinka communities in neighbouring countries such as Kenya and Uganda, as well as in the United States and Australia. Dinka is generally separated into four dialect clusters: Rek, Agar, Padang, and Bor (Roettger & Roettger 1989). The data for this paper are taken primarily from the Bor South dialect of

Dinka, which is spoken on the east side of the White Nile, near the Bor municipality. It is a dialect of the Bor cluster of Dinka, which includes (from north to south) Hol, Nyarweng, Twic East, and Bor South. I will use *Dinka* to refer to Bor South Dinka throughout most of this paper, but readers should be aware of the fact that dialects of Dinka can and do differ—sometimes considerably—in grammatical phenomena, which will become evident from cross-dialect comparison in Section 4.

Dinka phonology can be summarized as follows. The language has 20 consonants; plosives (both voiced and voiceless) and nasals are found at five places of articulation: bilabial /p, b, m/, dental /t̪, d̪, n̪/, alveolar /t, d, n/, palatal /c, ɟ, ɲ/, and velar /k, g, ŋ/. Also present are liquids /l, r/ and semivowels /ɯ, j, w/; the language has no fricatives. Dinka generally exhibits consonant place harmony (Mackenzie 2016), though this may not be entirely true for the Bor dialects. Dinka has seven phonemic vowels: /i, e, ɛ, a, ɔ, o, u/. There is, additionally, a voice quality contrast between breathy and modal voice. All vowels exhibit this except for /u/, which is invariably breathy. Dinka also has a three-level vowel length contrast (Andersen 1987; Remijsen & Gilley 2008; Remijsen 2014). All vowels exhibit this three-level contrast, except that /a/ and /ɛ/ are not contrastive in short vowels. In addition, Dinka is tonal; all dialects for which descriptions exist have either three or four tonemes. The Bor South dialect has four tones: Low (L, ̀v); High (H, ́v); Fall (HL, ̂v); and Rise (LH, ̌v) (Remijsen 2013). Finally, Dinka is largely monosyllabic, with the following syllable structure: C(w/j)V(V)(V)C, where parentheses represent optional syllabic elements. All following transcriptions are phonemic, rather than phonetic. Vowel length is represented by one (short) two (long) or three (overlong) vowel symbols; voice quality and tone are indicated on the first vowel symbol, as is the convention in recent literature on Dinka.

Dinka sentence structure is relatively constrained; an abridged version of the declarative root clause template is seen below. An optional conjunction is utterance initial. The next constituent is the topic, which is the noun phrase preceding the declarative prefix. The topic precedes the declarative prefix /ă/, which is followed by a finite verb; this finite verb may either be the main verb or an auxiliary. The finite verb is followed by either the subject or the object—whichever is not the topic—which is followed by a non-finite verb if the sentence expresses negation or is not present-tense.

(Conjunction) Topic Declarative Prefix-V_{fin} *Subj. Obj.* V_{nonfin} (Andersen 2007: 91)

It should be noted that topic and subject are not the same in Dinka (Andersen 1991). *Subject* refers to the semantic subject, whereas *topic* refers to the noun phrase preceding the verb. In a transitive clause, this may be the semantic subject, semantic object, or a third argument such as the instrument. In intransitive verbs, it is generally the subject.

2 Inflectional morphology and syntactic properties of intransitive verbs

This section outlines the syntactic properties and the inflectional morphology of adjectival and non-adjectival intransitive verbs, emphasizing where they pattern together and where they diverge. The section is organized in terms of the base forms (Section 2.1), forms that inflect for person and number (Section 2.2), nominalized forms (Section 2.3), forms that modify nouns (Section 2.4), and plural inflections (Section 2.5). I also examine forms used in negation (Section 2.6), comparison, superlatives, and intensification (Section 2.7).

2.1 Base forms

Intransitive verbs present a finite form and a non-finite form, as seen in (1). These forms are found in predicational phrases, for which adjectival and non-adjectival intransitive verbs display identical morphosyntax. The finite form is found in the present imperfective and past imperfective tenses,[1] and is morphologically unmarked; for this reason, it is not marked in the glosses. Andersen (2020: 293) refers to it as the 'inflectionally unmarked' form in the Agar dialect. The non-finite form is used in phrases marked for present perfect, past perfect, habitual, and future. This pattern mirrors that of the transitive verb system. In (1), (1a) and (1c) display the finite form of an adjectival and non-adjectival intransitive verb, respectively; (1b) and (1d) display the corresponding non-finite forms. One can see that for the adjectival intransitive verb *pjàṯ*,[2] 'good,' the difference between the finite and non-finite forms is a matter of vowel length; the non-finite form, *pjàaṯ*, is longer than the finite form. For the non-adjectival intransitive verb *lɻ̈aŋ*, 'pray,' the difference between finite and non-finite form is instead a difference in vowel quality.

(1) a. ràaan ă-pjàṯ
person DECL.SG-good
'The person is good.'

b. ràaan ée pjàaṯ
person DECL.SG.HAB good\NF
'The person is always good.'

c. ràaan ă-lɻ̈aŋ
person DECL.SG-pray
'The person is praying.'

[1] The tense-aspect system of the Bor dialects of Dinka is currently under investigation.

[2] All Dinka items cited and italicized in the text are transcriptions.

d. ràaan ée lo̰ɔŋ
person DECL.SG.HAB pray\NF
'The person prays.'

(2) shows the tenses not displayed in (1): past imperfective (2a–b), present perfect (2c–d), past perfect (2e–f), and future (2g–h). Examples use the adjectival intransitive verb 'good' and the non-adjectival intransitive verb 'pray.' Note that (2a–b) combine an auxiliary with the finite form of the verb, despite the fact that auxiliaries usually appear with non-finite inflections.

(2) a. ràaan ĕe pjàt̰
person DECL.SG.PST good
'The person was good.'

b. ràaan ĕe la̰aŋ
person DECL.SG.PST pray
'The person was praying.'

c. ràaan ĕe pjàat̰
person DECL.SG.PST good\NF
'The person has become good.'

d. ràaan ĕe lo̰ɔŋ
person DECL.SG.PST pray\NF
'The person (has) prayed.'

e. ràaan ĕe-cɪ̰ pjàat̰
person DECL.SG.PST-PRF good\NF
'The person had been good.'

f. ràaan ĕe-cɪ̰ lo̰ɔŋ
person DECL.SG.PST-PRF pray\NF
'The person had prayed.'

g. ràaan ă-bɪ̰ pjàat̰
person DECL.SG-FUT good\NF
'The person will be good.'

h. ràaan ă-bɪ̰ lo̰ɔŋ
person DECL.SG-FUT pray\NF
'The person will pray.'

For some intransitive verbs, the finite and non-finite forms are identical, meaning that the past imperfect and present perfect will be identical as well. It is not clear whether the resulting homophony poses any issues. In any case, this ambiguity is likely unique to the Bor South dialect, as other dialects use *ă-cɪ́* instead of *ĕe* for the present perfect (2c–d).

The finite and non-finite forms of several adjectival intransitive verbs and several non-adjectival intransitive verbs are displayed in **Table 1**. One sees that the verbs display a variety of alternations between finite and non-finite forms: possibilities include alternations in vowel quality (10), vowel length (5), vowel quality and vowel length (2), tone (3), tone and vowel quality (1,4) or tone, vowel length, and voice quality (9). Alternatively, the non-finite form may be identical to the finite form, as in (6), (7), and (8).

Additionally, just as with transitive verbs, the declarative prefix agrees with the preverbal subject for number in adjectival and non-adjectival intransitive verbs, lengthening for a plural topic, as seen in (3).

(3) a. mìiir ă-mòr
giraffe.SG DECL.SG-fast
'The giraffe is fast.'

b. mìiir ă-nìin
giraffe.SG DECL.SG-sleep
'The giraffe is sleeping.'

c. mjɛ̀ɛɛr ăa-mòr
giraffe.PL DECL.PL-fast
'The giraffes are fast.'

No.	Gloss	Finite	Non-finite
1	'tall, long'	bə̰̀aar	bɛ̰́ɛɛr
2	'black'	còl	cwɔ̀ɔl
3	'big'	dɪ̰̀it	dɪ̰́it
4	'hot'	lɛ̰̀eʈ̰	lɛ̰́ɛʈ̰
5	'good'	pjàʈ̰	pjàaʈ̰
6	'near'	ʈ̰jɔ̰̀ɔk	ʈ̰jɔ̰̀ɔk
7	'fly'	pə̰̀aar	pə̰̀aar
8	'walk'	căaʈ̰	căaʈ̰
9	'start'	gò̰ol	gòl
10	'pray'	lə̰́aŋ	lɔ̰́ɔŋ

Table 1: Examples of adjectival verbs and non-adjectival intransitive verbs. Nos. 1–6 are adjectival intransitive verbs; nos. 7–10 are non-adjectival intransitive verbs.

d. mjɛ̀ɛɛr ăa-nìin
giraffe.PL DECL.PL-sleep
'The giraffes are sleeping.'

Adjectival and non-adjectival intransitive verbs are indistinguishable in morphosyntactic terms in relation to their marking in predicates. However, they diverge in this respect from nominal predicates, which have an inflection of the copular verb *be* preceding the predicate, as seen in (4a–b). Unlike the intransitive verbs, a nominal predicate cannot appear without this copular verb, as seen in (4c–d).

(4) a. ràaan ée tìik
person DECL.SG.COP woman
'The person is a woman.'

b. dèeŋ ée mòc
Deng DECL.SG.COP man
'Deng is a man.'

c. *ràaan ă-tìik
person DECL.SG-woman
'The person is a woman.'

d. *dèeŋ ă-mòc
Deng DECL.SG-man
'Deng is a man.'

Nominal predication is distinguished from intransitive verb predication in forms marked for tense-aspect as well. In nominal predicational phrases marked for tense-aspect, the inflected form is the copular verb, as opposed to the predicate, as seen in (5).

(5) a. ràaan ěe jèe tìik
person DECL.SG.PST COP woman
'The person was a woman.'

b. ràaan ěe jáa tìik
person DECL.SG.PST COP\NF woman
'The person has been a woman.'

c. ràaan ée jáa tìik
person DECL.SG.HAB COP\NF woman
'The person is always a woman.'

d. ràaan ěe-cɪ̈ jáa tìik
person DECL.SG.PST-PRF COP\NF woman
'The person had been a woman.'

Nominal predication requires a verb in addition to the predicate, whereas the predicates under investigation in this paper (i.e. adjectives) do not; they are clearly verbal. While this does not differentiate between adjectival and non-adjectival intransitive verbs, it supports the argument that the words discussed in this paper are verbs.

2.2 Inflections for person and number

Both adjectival and non-adjectival intransitive verbs inflect for person and number. There are two sets of inflectional paradigms, depending on the context; I call them Set A and Set B. The common characteristic between the sets is that they do not appear in main clauses. The verb must precede the subject (if the subject is overt, as in Set A inflections), and there is no syntactic topic.

Set A inflections are found following *tɛ̰̀*, which is a grammaticalized form of the word 'place,' but which functions as a relativizer. It can be interpreted as 'when,' 'where,' or 'how,' depending on the context. Set A inflections have only two phonological forms. As seen below for the adjectival intransitive verb *pjàt̰*, 'good,' and the non-adjectival intransitive verb *lą̰aŋ*, 'pray,' first person singular is differentiated, while all other person forms are identical. Set A inflections are obligatorily followed by a pronoun, which allows differentiation of the syncretic forms. (6) contains examples for an adjectival intransitive verb, and (7) contains examples for a non-adjectival intransitive verb.

(6) a. tɛ̰ pjáat̰ ɯ̰ɛ̂ɛn
REL good\1SG PRO.1SG
'when I am good'

b. tɛ̰ pját̰ jɪ̰̂in
REL good\2SG PRO.2SG
'when you are good'

c. tɛ̰ pját̰ jêen
REL good\3SG PRO.3SG
'when s/he is good'

d. tɛ̰ pját̰ wɔ̂ɔk
REL good\1PL PRO.1PL
'when we are good'

e. tɛ̰ pját̰ wêek
REL good\2PL PRO.2PL
'when you all are good'

f. tɛ̰ pját̰ kêek
REL good\3PL PRO.3PL
'when they are good'

(7) a. tɛ̤̀ lá̤aŋ ɰɛ̂ɛn
REL pray\1SG PRO.1SG
'when I am praying'

b. tɛ̤̀ lɛ̤́ɛŋ jî̤in
REL pray\2SG PRO.2SG
'when you are praying'

c. tɛ̤̀ lɛ̤́ɛŋ jêen
REL pray\3SG PRO.3SG
'when s/he is praying'

d. tɛ̤̀ lɛ̤́ɛŋ wɔ̂ɔk
REL pray\1PL PRO.1PL
'when we are praying'

e. tɛ̤̀ lɛ̤́ɛŋ wêek
REL pray\2PL PRO.2PL
'when you all are praying'

f. tɛ̤̀ lɛ̤́ɛŋ kêek
REL pray\3PL PRO.3PL
'when they are praying'

Set B inflections are found following the clause-initial conjunction *kṳ̀*, which can precede both declarative and non-declarative clauses. The inflected verb must directly follow the conjunction. It also seems to be the case that Set B inflections only appear when they are utterance final, though it is unclear whether this is for syntactic or prosodic reasons. Example (8) displays Set B inflections for an adjectival intransitive verb, and (9) displays them for a non-adjectival intransitive verb.

(8) a. kṳ̀ pjàaṯ
CONJ good\1SG
'and I am good.'

b. kṳ̀ pjáaṯ-ḛ̌
CONJ good\2SG
'and you are good.'

c. kṳ̀ pjɛ̀ɛṯ
CONJ good\3SG
'and he is good.'

d. kṳ̀ pjɛ̌ɛṯ-kṳ̀
CONJ good\1PL-1PL
'and we are good.'

e. kṳ̀ pjăaṭ-kạ̀
CONJ good\2PL-2PL
‘and you are good.’

f. kṳ̀ pjɛ̆ɛṭ-kṳ̀
CONJ good\3PL-3PL
‘and they are good’

(9) a. kṳ̀ lạ̀aŋ
CONJ pray\1SG
‘and I am praying.’

b. kṳ̀ lạ́aŋ-ɛ̌
CONJ pray\2SG
‘and you are praying.’

c. kṳ̀ lɛ̌ɛŋ
CONJ pray\3SG
‘and he is praying.’

d. kṳ̀ lɛ̌ɛŋ-kṳ̀
CONJ tall\1PL-1PL
‘and we are praying.’

e. kṳ̀ lằaŋ-kạ̀
CONJ tall\2PL-2PL
‘and you are praying.’

f. kṳ̀ lɛ̌ɛŋ-kṳ̀
CONJ tall\3PL-3PL
‘and they are praying.’

While the vowel quality alternations in Set A and Set B are similar, they do not match with regards to person—for example, the second person inflection in Set A has vowel quality /ɛ/ while in Set B it has /a/. These differences in alternations should be investigated in the future, particularly in the context of the grade system laid out by Andersen (1993). What is important for this paper, however, is not the inflections themselves, but the fact that the alternations for adjectival intransitive verbs and non-adjectival intransitive verbs are similar.

2.3 Nominalization

Both adjectival and non-adjectival intransitive verbs can be nominalized, as seen in (10).

(10) a. ă-nɔ̀ŋ pjàaṭ
DECL.SG-have good\NMZ
‘there is goodness’

b. pjáaṯ ḛ̈ ráaan
good\NMZ;CS POSS person\GEN
'the goodness of the person'

c. ă-nɔ̀ŋ lɔ̰̈ŋ
DECL.SG-have pray\NMZ
'there is praying'

d. lɔ̰̈ŋ ḛ̈ ráaan
pray\NMZ;CS POSS person\GEN
'the praying of the person'

The nominalized form of the verb is often identical to the non-finite form, as seen in **Table 2**. Since the forms are often homophonous, their status as actual nominalizations, as opposed to a single multifunctional inflection, might be questioned. The evidence for their status as nominalization comes from the construct state of the nominalizations. The construct state is the form a noun takes when it is followed by a modifier, though not every Dinka noun has a construct state. The nominalizations of several intransitive verbs and the construct states of those nominalizations are shown in **Table 2**.

The construct state of a noun is expressed by one or more of the following exponents in Bor South Dinka: nasalization of a coda consonant, a tone change, often to high tone, a vowel quality change, or a vowel length change. In the nominalized forms of intransitive verbs, the construct state is

No.	Gloss	Non-finite	Nominalization	Construct state
1	'tall'	bɛ̰̈ɛɛr	bɛ̰̈ɛɛr	bɛ̰̈ɛɛr
2	'black'	cwɔ̀ɔl	cwɔ̀ɔl	cwɔ́ɔl
3	'big'	dɪ̰̈it	dɪ̰̈it	dɪ̰̈it
4	'hot'	lɛ̰̈ɛṯ	lɛ̀̈ɛṯ	lɛ́̈ɛṯ
5	'good'	pjàaṯ	pjàaṯ	pjáaṯ
6	'near'	ʈjɔ̰̈k	ʈjɔ̂̈k	tjɔ́̈k
7	'fly'	pä̰ar	pă̈ar	pá̈ar
8	'walk'	căaṯ	căaṯ	căaṉ
9	'start'	gòl	gɔ́̈l	gɔ́̈l
10	'pray'	lɔ̰̈ŋ	lɔ̰̈ŋ	lɔ̰̈ŋ

Table 2: Tone alternations for nominalizations and construct states in intransitive verbs.

based on the non-finite form of the verb, and is expressed by a tone change to high (irrespective of the tone on the original non-finite form), and sometimes nasalization of the coda consonant. This is true of both adjectival intransitive verbs and non-adjectival intransitive verbs, though a minority of non-adjectival intransitive verbs may retain the non-high-toned nominalized form, as seen in no. 8 of **Table 2**, 'walk,' whose construct state also has a nasalized coda consonant. The construct states here are notably different from what Andersen (2020) refers to as the 'construct state' of an adjectival intransitive verb; I call that form the 'attributive construct state,' and it is explored in Section 2.4. Since the 'construct state' of an item in Dinka generally refers to a form of a noun, the relationship between the nominalized form of an intransitive verb and its form when followed by a possessor can only be expressed as 'construct state.' Accordingly, these nominalizations and construct states appear in environments that are normally occupied by a noun, as in (10).

2.4 Postnominal modification

In Dinka, modifiers follow the noun. The postnominal position is not diagnostic of any word class, as nouns and verbs, both transitive and intransitive, appear in this position, directly modifying nouns. Various examples of postnominal modification are seen in example (11).

(11) a. mwɔ̀ŋ akɪ̈im
man.CS doctor.SG
'man who is a doctor'

b. mwɔ̀ŋ bạ̀aar
man.CS tall
'tall man'

c. mwɔ̀ŋ kàat
man.CS run
'running man'

d. mwɔ̀ŋ màan ràaan
man.CS hate person
'man who hates the person'

When an intransitive verb occupies the postnominal position, it appears in its finite form, as seen in (12). This is true for both adjectival and non-adjectival verbs. Finite forms for the adjectival intransitive verb 'good' (12a) and the non-adjectival intransitive verb 'pray' (12b) can be seen in **Table 1**.

(12) a. mwɔ̀ŋ pjàṭ
man.CS good
'good man'

b. mwɔ̀ŋ lą̣̀aŋ
man.CS pray
'praying man'

In all of the constructions considered so far, adjectival and non-adjectival intransitive verbs pattern together in morphosyntactic terms. (13a–b) contain adjectival intransitive verbs; one can see that, followed by *another* modifier, the adjectival intransitive verbs ('big' or 'good') lengthen compared to their forms when not followed by another modifier; 'good' also has a vowel quality shift (13b). In contrast, (13c–d) compare an adjectival intransitive verb ('good') and a non-adjectival intransitive verb ('pray'); the adjectival intransitive verb lengthens and exhibits a vowel quality shift, but the non-adjectival intransitive verb does not.

(13) a. mwɔ̀ŋ dị̀iit pjàt̪
man.CS big\ACS good
'big good man'

b. mwɔ̀ŋ pjɛ̀ɛɛt̪ dị̀it
man.CS good\ACS big
'good big man'

c. mwɔ̀ŋ lą̣̀aŋ pjàt̪
man.CS pray good
'praying good man'

d. mwɔ̀ŋ pjɛ̀ɛɛt̪ lą̣̀aŋ
man.CS good\ACS pray
'good praying man'

This lengthened form of adjectival intransitive verbs is what Andersen (2020) refers to as the *construct state*; to differentiate it from construct states described in the previous section, I refer to it as the *attributive construct state*, glossed ACS. The attributive construct state is the form taken when a postnominal adjectival intransitive verb is followed by another modifying element. Note that the adjectival intransitive verb does not need to be directly postnominal; for example, in a chain of three postnominal adjectival intransitive verbs, the first two will take the attributive construct state, as seen in (14).

(14) mwɔ̀ŋ bɛ̰́ɛɛr pjɛ̀ɛɛt̪ dị̀it
man.CS tall\ACS good\ACS big
'The big, tall, good man'

The final modifying element can be an intransitive verb, adjectival or non-adjectival, or a demonstrative, *-ɛ̰́/ɛ̰̀* (proximal) or *-ɛ̰̌* (distal). The attributive construct state is invariably overlong (VVV). Non-adjectival intransitive verbs do not have an attributive construct state; they take

No.	Gloss	NP-final	NP-medial
1	‘red’	t̪ìit̪	t̪ìiit̪
2	‘fast’	mòr	móoor
3	‘near’	ʧɟ̟ɔ̀k	ʧɟ̟ɔ́ɔk
4	‘rotten’	bòt̪	bòoot̪
5	‘leave’	ɟàl	ɟàl
6	‘climb’	jít̪	jít̪
7	‘swim’	kwáaŋ	kwáaŋ
8	‘remain’	dɟ̟ɔŋ	dɟ̟ɔŋ

Table 3: Noun phrase-final and noun phrase-medial inflections. Nos. 1–4 display adjectival intransitive verbs, while nos. 5–8 display non-adjectival intransitive verbs.

the finite form in this position. **Table 3** compares the forms of adjectival and non-adjectival intransitive verbs when they follow the noun (i.e. are noun phrase-final) and when they are followed by another modifying element (i.e. are noun phrase-medial).

One can see from the table that adjectival intransitive verbs lengthen when they are noun phrase-medial and non-adjectival intransitive verbs do not. Bor South Dinka does not specify the order in the post-nominal context between the individual subclasses of adjectival and non-adjectial verbs. However, there is a preference for adjectival verbs to precede non-adjectial verbs in a phrase with multiple modifiers. Therefore, (13c), in which the non-adjectival verb precedes the adjectival verb, is not ungrammatical, but (13d) is preferred. A similar phenomenon is reported by Andersen (2020: 300) for the Agar dialect.

2.5 Plural inflections

Five adjectival intransitive verbs in the elicited dataset have a plural form in Bor South Dinka. The plural form appears both when the verbs are used as predicates and when they are used as modifiers following the noun. This is illustrated in (15).

(15) a. kṵ̈uur ă-ŋɔ̀ɔɲ
stone.SG DECL.SG-rough
‘The stone is rough.’

b. kṵ̈uur ŋɔ̀ɔɲ
stone.SG rough
‘rough stone’

c. kṳ̀r ăa-ŋɔ̀ɲ
stone.PL DECL.PL-rough\PL
'The stones are rough.'

d. kṳ̀r ŋɔ̀ɲ
stone.PL rough\PL
'rough stones'

The singular and plural inflections of the five verbs are displayed in **Table 4**.

The plural inflections of these verbs involve a shortening of the stem vowel. Therefore, this pattern of exponence cannot distinguish a plural form in stems whose finite form is short. It is also important to note that there is no plural attributive construct state, so while the plural inflections described here can be used as postnominal modifiers, they must be noun phrase-final in order to appear. Adjectival intransitive verbs that follow plural nouns and are followed by another modifier take the same attributive construct state as those that follow singular nouns, as seen in (16).

(16) a. kɔ́ɔc móoor ràc
people fast\ACS bad\PL
'fast bad people'

b. kɔ́ɔc rɛ̌ɛɛc mòr
people bad\ACS fast
'bad fast people'

The length alternation between singular and plural finite forms is not a productive pattern in the language. In fact, it is likely an older singular/plural contrast in West Nilotic, as Andersen (2014) hypothesizes based on a contrast also found in Anywa (Reh 1996: 258–260). In Anywa, a member of the Luo sub-group of West Nilotic languages, 'monovalent static' verbs have a plural derivation that involves consonant strengthening, tone shift, and vowel shortening (Reh 1996: 259). Just as

No.	Gloss	Singular	Plural
1	'tall/long'	bạ̀aar	bạ̀r
2	'small'	kọ̀oor	kọ̀r
3	'red'	ṯ̀iiṯ	ṯ̀ṯ
4	'bad'	ràac	ràc
5	'rough'	ŋɔ̀ɔɲ	ŋɔ̀ɲ

Table 4: Adjectival intransitive verbs with a plural form.

in Dinka, vowels that are already short do not shorten. This shortening phenomenon is also found in Shilluk, another member of the Luo sub-group. In Shilluk, seven adjectives shorten; two of these—'long' (sg. *bʌ̂ʌr*, pl. *bʌ̀r-ɔ̀*) and 'bad' (sg. *râac*, pl. *rìc-ɔ̀*)—have clear cognates in Dinka (*bɛ̰̀aar* and *ràac*) (Remijsen & Ayoker 2020). Also notable is that the length of adjectival intransitive verbs (and all other verbs) can differ between Dinka dialects; for example, Andersen (2014) cites 'short' as an adjectival intransitive verb that can shorten in the plural, as do Remijsen & Ayoker (2020) for Shilluk. However, this verb, *cìk*, has a short vowel in its finite form in the Bor South dialect of Dinka, and is therefore unable to exhibit this vowel length alternation.

Two non-adjectival intransitive verbs also display number agreement when used as both predicates and attributes: *lɔ́*, 'go', and *bɛ̰́*, 'come.' Rather than vowel length, the exponent is tone, specifically a change from high tone in the singular to low tone in the plural, as seen in (17). It should be noted that these two verbs are exceptional in the sense that they do not have a coda consonant. However, this tonal alternation implies that number marking alone does not distinguish adjectival intransitive verbs from non-adjectival intransitive verbs.

(17) a. ràaan lɔ́
person go
'the going person'

b. kɔ́ɔc lɔ̀
people go\PL
'the going people'

c. ràaan bɛ̰́
person come
'the coming person'

d. kɔ́ɔc bɛ̰̀
people come\PL
'the coming people'

2.6 Negation

Negation in Dinka involves the use of the auxiliary *cɛ̰̀*,[3] which appears directly after the declarative prefix, in the slot that is occupied either by a verbal auxiliary or a finite verb. The negated verb is moved to the position occupied by a non-finite verb; in clauses with intransitive verbs, this position is directly after the auxiliary. Several examples are presented in (18); examples with singular and plural subjects appear for the adjectival intransitive verbs 'tall,' 'rough,' 'red,' 'bad,' and 'small.'

[3] In some dialects of Dinka, the negation auxiliary is *cɛ̰̀ɛ̀* (e.g. Remijsen & Gilley 2008: 328 for Luanyjang Dinka).

(18) a. ràaan ă-cị̈ bạ̀aar
person DECL.SG-NEG tall
'The person is not tall.'

b. kɔ́ɔc ăa-cị̈ bạ́ạ̀r
people DECL.PL-NEG tall\PL;NEG
'The people are not tall.'

c. kṵ̈uur ă-cị̈ ŋɔ̀ɔŋ
stone.SG DECL.SG-NEG rough
'The stone is not rough.'

d. kṵ̈r ăa-cị̈ ŋɔ́ŋ
stone.pl DECL.PL-NEG rough\PL;NEG
'The stones are not rough.'

e. mìiir ă-cị̈ ṯ̈iiṯ̈
giraffe.SG DECL.SG-NEG red
'The giraffe is not red.'

f. mjɛ̀ɛɛr ăa-cị̈ ṯ̈íṯ̈
giraffe.PL DECL.PL-NEG red\PL;NEG
'The giraffes are not red.'

g. ràaan ă-cị̈ ràac
person DECL.SG-NEG bad
'The person is not bad.'

h. kɔ́ɔc ăa-cị̈ rác
people DECL.PL-NEG bad\PL;NEG
'The people are not bad.'

i. ràaan ă-cị̈ kọ̈oor
person DECL.SG-NEG small
'The person is not small.'

j. kɔ́ɔc ăa-cị̈ kọ́ọ̈r
people DECL.PL-NEG small\PL;NEG
'The people are not small.'

Intransitive verbs exhibit a tonal alternation in negated clauses; the tone of the verb changes to high. This tone change is also found in the transitive verb stems of the Agar (Andersen 1992–1994; 2016), Luanyjang (Remijsen & Gilley 2008), and Bor dialects (Blum 2020). However, the tone change is only possible in verbs with short stem vowels (V). This condition is clearest in the five stems that agree for number, as seen in (18). In a negative sentence with a singular topic, the stem vowel of the verb is not short, and therefore is identical to the finite

form. In a negative sentence with a plural topic, however, the vowel of the verb shortens (as discussed in Section 2.5), and the tone of the verb becomes high. It should be explicitly noted that this alternation is due to vowel length, not to agreement for number, as it is seen in other short-stem intransitive verbs (i.e. ones that do not agree for number). Examples of other verbs that exhibit this alternation are seen in (19). (19a,c) show the uninflected forms of the verbs, and (19b,d) show the negative context, in which the short stem verb has a high tone.

(19) a. ràaan ă-mòr
person DECL.SG-fast
'The person is fast.'

b. ràaan ă-cɪ̀ mór
person DECL.SG-NEG fast\NEG
'The person is not fast.'

c. ràaan ă-ɟàl
person DECL.SG-leave
'The person is leaving'

d. ràaan ă-cɪ̀ ɟál
person DECL.SG-NEG leave\NEG
'The person is not leaving.'

2.7 Comparative, superlative, and intensification

Dinka marks neither comparative nor superlative constructions inflectionally. There is no superlative, and the comparative is expressed by the addition of an external argument using a preposition, as in (20).

(20) tìik ă-bə̀aar ɛ́ mòc
woman DECL.SG-tall PREP man
'The woman is taller than the man.'

Intensification is expressed by the use of the intensifier *arɛ̂ɛ̈et*. This is true for both adjectival and non-adjectival intransitive verbs, as seen in (21).

(21) a. ràaan ă-pjə̀ṭ arɛ̂ɛ̈et
person DECL.SG-good INTENS
'The person is very good.'

b. ràaan ă-bə̀aar arɛ̂ɛ̈et
person DECL.SG-tall INTENS
'The person is very tall.'

c. ràaan ă-căaṭ arə̰̀eet
person DECL.SG-walk INTENS
'The person is walking quickly.'

d. ràaan ă-dáal arə̰̀eet
person DECL.SG-laugh INTENS
'The person is laughing loudly.'

3 What defines adjectival intransitive verbs?

The descriptive analysis in Section 2 shows that adjectival intransitive verbs pattern with other intransitive verbs, as they behave identically to non-adjectival intransitive verbs in almost all of the contexts discussed. However, while I have consistently separated adjectival and non-adjectival intransitive verbs terminologically, I have not shown why they should be separated. This section shows primarily the defining characteristics of adjectival intransitive verbs, and also secondarily why vowel grade (cf. Andersen 1993; 2017; 2020) cannot be a defining feature of adjectives in Dinka. My classification is based on two conditions that lie entirely in the suprasegmental system of the language; it is not based at all on semantics. Andersen (2020) notes that the finite form of all adjectival intransitive verbs has a low tone in the Agar dialect, and I find this to be true for the Bor South dialect as well. This low tone is the first of the two conditions, which are as follows:

> **Condition 1:** The tone of the finite form of an adjectival intransitive verb is low.
> **Condition 2:** The attributive construct state form of an adjectival intransitive verb has an overlong vowel.

The presence of these two conditions defines the adjectival subclass of intransitive verbs. An intransitive verb in Dinka can only be classified as adjectival if these two conditions are satisfied; both of them are necessary, and neither of them are sufficient alone. The differences between the two classes can be seen in **Table 5**. In the table, Nos. 1–7 are adjectival intransitive verbs, which satisfy Condition 1 and Condition 2. Nos. 8–14 are non-adjectival intransitive verbs, which may satisfy one of the conditions but do not satisfy both.

Non-adjectival intransitive verbs can fulfill Condition 1; their finite forms can be low, as seen in Nos. 8 and 9 in **Table 5**. With regards to Condition 2, however, non-adjectival intransitive verbs do not have attributive construct states (ACS); their form in this position (postnominal but followed by another modifier) is identical to the finite form of the verb. Therefore, the length of a non-adjectival intransitive verb in this position can only be overlong if the finite form is over long as well; in this case, the unmarked form of a non-adjectival intransitive verb may superficially appear to be an ACS. In contrast, the ACS of an adjectival intransitive verb is only identical to the finite form in rare cases, and these cases can only occur when the finite form of the adjectival intransitive verb is overlong.

No.	Gloss	Finite form	ACS	Classification
1	‘small’	kọ̱oor	kọ̱oor	Adjectival
2	‘black’	còl	còool	Adjectival
3	‘white’	ɯ̱èr	ɯ̱éeer	Adjectival
4	‘near’	ʈjɔ̱̀ɔk	ʈjɔ́ɔɔk	Adjectival
5	‘hard’	rìr	ríiir	Adjectival
6	‘hot’	lɛ̱̀eṯ	lɛ̱̀ɛɛṯ	Adjectival
7	‘weak’	kɔ̱̀c	kɔ̱̀ɔɔc	Adjectival
8	‘sleep’	nìin	–	Non-adjectival
9	‘run’	kàat	–	Non-adjectival
10	‘walk’	căaṯ	–	Non-adjectival
11	‘start’	gɔ̱̂ol	–	Non-adjectival
12	‘sick’	béec	–	Non-adjectival
13	‘swim’	kwáaŋ	–	Non-adjectival
14	‘pray’	lą̱aŋ	–	Non-adjectival

Table 5: Finite and attributive construct states (ACS) of adjectival and non-adjectival intransitive verbs.

Though most adjectival intransitive verbs have meanings that are canonically adjectival—that is, distinguished as adjectives cross-linguistically (cf. Dixon 2004)—there are no *semantic* conditions for the classification of adjectival intransitive verbs. I find that meanings associated with adjectival classes in languages that have a small class of adjectives—dimension (long, big, small); colour (white, red, black); and value (good, bad)—are adjectival in Dinka. Other semantic types associated with adjective classes in languages that have a larger adjective class—physical properties, for example—can also be adjectival in Dinka. Human propensity, also cited by Dixon (2004) as a semantic type associated with medium/large adjective classes, generally involves the use of an adjectival verb, such as ‘good,’ ‘bad,’ or ‘sweet,’ along with a noun. For example, ‘kind’ translates literally to ‘sweet of the heart.’

However, not all properties are adjectival intransitive verbs, and not all adjectival intransitive verbs are properties. For example, as seen in **Table 6**, ‘angry with somebody’ is an adjectival intransitive verb, but ‘proud (in a positive sense)’ is a non-adjectival intransitive verb. Both are

No.	Gloss	Finite form	ACS	Classification
1	‘angry with somebody’	ɯ̟̀ok	ɯ̟̀ook	Adjectival
2	‘proud (positive)’	njàam	njàam	Non-adjectival
3	‘break’	ɖ̟òoŋ	ɖ̟wɔ̀ɔɔŋ	Adjectival

Table 6: Examples of a property that is not an adjectival verb and an adjectival verb that is not a property. ACS refers to the attributive construct state.

properties denoting emotions, and both have low-toned finite forms. They are differentiated in subclass only because *ɯ̟̀ok* lengthens to *ɯ̟̀ook*, showing that it is an adjectival intransitive verb, whereas *njàam* does not. In contrast, ‘break’[4] should be classified as an adjectival intransitive verb, as it fulfills both conditions, but it is not a property. The overlap between properties and grammatical adjectives will be discussed in Section 6.

Given the available evidence, it is not clear that items within the semantic types of ‘properties’ will be classifiable as adjectival, nor is it clear that an item whose meaning is not a property will be non-adjectival. Additionally, properties whose semantic types Dixon (2004) associates with a large adjective class are sometimes adjectival in Dinka, but there does not appear to be regularity with regards to which ones are adjectival and which are not. This seeming semantic instability with regards to the adjectival subclass will be discussed in Section 6.

With regards to vowel ‘grade,’ Andersen (2020: 303) claims that a characteristic of adjectival intransitive verbs in Dinka is a Grade 1 vowel in the finite form and a Grade 2 vowel in the attributive construct state form. The vowel ‘grade’ alternations—systematic combinations of vowel quality and vowel length—are a key aspect of the morphology of transitive verb inflections and derivations (Andersen 1992–1994; 1993; 2017) as well as the nominal system (Storch 2005; Andersen 2014; Ladd & Blum, to appear). Therefore, it makes sense to examine the vowel grade alternations for intransitive verbs. In contrast to Andersen (2020), however, I argue that vowel grade is not a defining characteristic of adjectival intransitive verbs. The verbs discussed in Andersen (2020) clearly are the adjectival intransitive verbs; they have a low tone in their finite (his ‘unmarked’) form and are overlong when preceded by a noun and followed by another modifier. But while Andersen (2020)’s claims about grade may be true for the Agar dialect, they are not true for the Bor South dialect, and therefore not true for Dinka as a whole. Because the intransitive verbs do not exhibit the same regular length alternations as the transitive verbs, it is not possible to consistently analyze their vowel grades.

[4] This is ‘break’ in the unaccusative sense, as in *bîn ă-ɖ̟òoŋ* ‘the cup is breaking.’ The transitive verb ‘to break something’ is *kwèm*.

The basic principle underlying the grade system, a version of which is displayed in **Table 7**, is that each verb has an underlying 'root vowel' upon which various inflections alternate. For example, the unmarked form of the transitive verb *màan*, 'hate,' has a Grade 1 long vowel; the third person singular inflection, *mèɛɛn*, has a Grade 2 long vowel. The unmarked form of every transitive verb has a Grade 1 vowel, and the third person singular inflection of every transitive verb has a Grade 2 vowel. Transitive verbs in Dinka also exhibit regular lexical quantity: they are either 'lexically short,' alternating between short (V) and long (VV) vowels, or 'lexically long,' alternating between long (VV) and overlong (VVV), in the base paradigm.[5] The intransitive verb system does not exhibit this regular lexical quantity alternation. It is clear, however, that the same vowel alternations that appear in the transitive verb system (Andersen 1993; 2017) and nominal system (Andersen 2002; 2014) appear in the intransitive verb system.

In Bor South Dinka, the grade of the ACS is not consistently a Grade 2 vowel, as seen in **Table 8**. Because the ACS is always overlong, it is by default either Grade 2 or 3, which invariably differ in vowel quality. In **Table 8**, grades of the ACS of four adjectival intransitive verbs are clearly classifiable based on the root vowel. With a verb that has /e/ as its root vowel,

Root vowel → Grade ↓	**i**	**e**	**a**	**ɔ**	**o**	**u̟**	**i̟**	**e̟**	**a̟**	**o̟**	**ɔ̟**
1 short	i	e	a	ɔ	o	u̟	i̟	e̟	a̟	o̟	ɔ̟
2 short	ii	ee	ɛɛ	ɔɔ	oo	u̟u	i̟i	e̟e	ɛ̟ɛ	o̟o	ɔ̟ɔ
3 short	jɛɛ	ɛɛ	aa	aa	wɔɔ	(wo̟o)	je̟e	ɛ̟ɛ	a̟a	ɔ̟ɔ	a̟a
1 long	ii	ee	aa	ɔɔ	oo	u̟u	i̟i	e̟e	a̟a	o̟o	ɔ̟ɔ
2 long	iii	eee	ɛɛɛ	ɔɔɔ	ooo	u̟uu	i̟ii	e̟ee	ɛ̟ɛɛ	o̟oo	ɔ̟ɔɔ
3 long	jɛɛɛ	ɛɛɛ	aaa	aaa	wɔɔɔ	(wo̟oo)	je̟ee	ɛ̟ɛɛ	a̟aa	ɔ̟ɔɔ	a̟aa

Table 7: Vowel quality grade alternations of both lexical lengths. This chart is based on the system in Andersen (1993), but applies to the Bor South dialect; the switch in dialect involves the addition of a long-grade /a̟a/ series. It should also be noted that the Grade 3 form of the /u̟/ series is /wo̟o(o)/ for Agar, and /wɔ̟ɔ(ɔ)/ for Luanyjang; it is not clear which set appears in Bor South, and thus both Grade 3 forms of the /u̟/-series are in parentheses.[6]

[5] The derivational paradigms in Dinka's transitive verb system are expressed via changes in vowel length, voice quality, and tone. This paper deals primarily with the base paradigm. For a comprehensive overview of derivation in Agar Dinka, see Andersen (1992–1994) and Andersen (2017).

[6] It should be noted that this chart postulates a set of alternations based on /a̟/; the long grades of this set do not exist in the Agar transitive verbal system. However, these long grades are present in the intransitive verbal system of Bor South Dinka, as well as in the nominal system of the Luanyjang dialect (Ladd & Blum, to appear).

an attributive construct state form with /ɛ/ can only be Grade 3; similarly, a root vowel /a/ can only have /ɛ/ as Grade 2.

While the grade of the ACS can be determined in a straightforward manner, classifying the grade of a given finite form is difficult. It is important to note that analysis of these vowel grades, particularly long (VV) vowels, is not possible without more than one inflection of a paradigm. The vowel grades exist in the context of a verbal paradigm; /aa/ could be Grade 1 long just as easily as it could be Grade 3 short. Indeed, some adjectival intransitive verbs have a short finite form and an overlong attributive construct state form, which violates regular lexical quantity. Several examples are presented in **Table 9**.

It is worth noting that the distinction between long (VV) and overlong (VVV) is potentially lost in Dinka preceding a coda /r/ (Remijsen & Gilley 2008). Therefore, one might consider the attributive construct state forms of 'white' and 'strong' to be both lexically short and phonetically overlong, and thus not a violation of regular lexical quantity. Even so, 'black,' 'light,' and 'weak' still pose a problem with regards to regular lexical quantity. The finite and

No.	Gloss	Finite	Non-finite	ACS
1	'far'	mèc	mèɛc	méɛɛc (3)
2	'hot'	lɛ̈̀eṭ	lɛ̈̂ɛṭ	lɛ̈̀ɛɛṭ (3)
3	'bad'	ràac	ràac	rɛ̌ɛɛc (2)
4	'good'	pjàṭ	pjàaṭ	pjèɛɛṭ (2)

Table 8: Vowel grades of attributive construct states (ACS) of adjectival intransitive verbs. The grade is in parentheses.

No.	Gloss	Finite	Grade	Non-finite	Grade	ACS	Grade
1	'black'	còl	1 short	cwɔ̀ɔl	3 short	còool	2 long
2	'white'	ɯ̀ɛ̀r	1 short	ɯɛ̂ɛɛr	3 short	ɯéeer	2 long
3	'strong'	rìr	1 short	rjɛ̀ɛɛr	3 short	ríiir	2 long
4	'light'	pjàl	1 short	pjàal	3 short	pjɛ̀ɛɛl	2 long
5	'weak'	kɔ̰̀c	1 short	kɔ̰̀ac	3 short	kɔ̰̀ɔɔc	2 long

Table 9: Grade alternation patterns for adjectival intransitive verbs with a short vowel length in the finite form.

non-finite forms of these three verbs fit a lexically short (V/VV) paradigm, and the attributive construct state does not. All three forms—finite, nonfinite, and attributive—should be taken into account, just as multiple forms are taken into account in the transitive verb system. Otherwise, the alternation is analyzed solely on vowel quality, not on the combination of vowel quality and vowel length. In addition, even if lexical quantity between the base forms is treated as regular, and the overlong quality of the attributive construct state is accounted for via a morphophonological lengthening process (cf. Andersen 1993), it is still not possible to have both consistent lexical quantity and an invariably Grade 1 vowel in the finite form. This is because in many cases the finite and non-finite forms of adjectival verbs have the same vowel length and *differing vowel quality*.

To illustrate the importance of this matter to the classification of Dinka adjectives, I take the example of 'hot.' The finite form is *lɛ̈ɛ̈ɛ̱t*, the non-finite form is *lɛ̈ɛ̂ɛ̱t*, and the attributive construct state is *lɛ̈ɛ̈ɛɛ̱t*. Relative to the attributive construct state, which can only be analyzed as Grade 3 long, the finite form can be analyzed as Grade 1 long. However, the non-finite form can only be analyzed as Grade 3 short, and relative to the non-finite form, the finite form would be Grade 2 short. This is a consequence of the grade system. While it is true that there is a consistent overlap in the grade system—for example, Grade 2 short of the /e/ root vowel will always be homophonous with Grade 1 long of the same root vowel—the system is described with these homophonous grades because it is so regular in the transitive verbal system, where a given form cannot be analyzed as multiple grades. In adjectival intransitive verbs, however, this is clearly not the case. A finite form might be Grade 1 relative to the attributive construct state form in some cases, and Grade 1 relative to the non-finite form in others. Therefore, while it is the case that the finite form seems to consistently have a vowel *quality* that could potentially be analyzed as Grade 1, depending on the other forms, a Grade 1 finite form cannot be taken as a defining property of adjectival intransitive verbs in Dinka.

In short, the vowel quality and vowel length alternations present in adjectival intransitive verbs are similar to those found in the transitive verb system. However, the patterns are different enough that postulating a classification on vowel grade is not possible. Having multiple analyses within the same lexical item—for example, the finite form as Grade 1/Grade 3—is not satisfactory given the regularity of the transitive verb system and the fact that this ambiguity is not consistent across lexical items.

3.1 Absence of non-verbal adjectives

It should also be noted that there is no evidence of grammatical adjectives in other lexical categories. Items whose meanings are properties also exist in the nominal class—however, they are not grammatical adjectives. For example, 'blue' and 'true,' displayed in (22), both behave fully like nouns.

(22) a. ké̤-pjàt̪ ée jìic
thing.SG;CS-good DECL.SG.COP true.SG
'The good thing is true.'

b. kṳ̆uur ée mà-làak
stone.SG DECL.SG.COP M-blue.SG
'The stone is blue.'

As can be seen in (22), *jìic* and *mà-làak* behave like the nominal examples in (4)—that is, when used as predicates they are preceded by the copular verb *ée*. Unlike intransitive verbs, when inflected for tense-aspect, the predicates of these sentences (*jìic* and *mà-làak*) do not change; the copular verb is inflected, as with other nouns in (5). These nouns, like other nouns, are also able to act as the subject of a sentence and to inflect for a construct state, as seen in (23).

(23) a. mà-làak ǎ-pjàt̪
M-blue.SG DECL.SG-good
'The blue is pretty.'

b. mà-làaŋ ě ɲjé̤eel
M-blue.SG;CS POSS.SG python.SG
'the blue of the python'

These nouns can also be the object of an existential predicate marker, which the finite forms of adjectival intransitive verbs cannot. In order for an adjectival intransitive verb to be in the existential context, it must undergo nominalization, as seen in (24c).

(24) a. ǎ-nɔ̀ŋ jìic
DECL.SG-have true.SG
'There is truth.'

b. *ǎ-nɔ̀ŋ t̪ìit̪
DECL.SG-have red
'There is red.'

c. ǎ-nɔ̀ŋ t̪jɛ̀ɛt̪
DECL.SG-have red\NMZ
'There is redness.'

These nouns can also inflect for number, as seen in (25).

(25) a. mà-lɛ́ɛɛk ǎa-pjàt̪
M-blue.PL DECL.PL-good
'The blues are pretty.'

b. jíiṭ ăa-pjàṭ
true.PL DECL.PL-good
'The truths are good.'

In summary, I find no evidence of a difference between nouns whose meanings are properties or attributes, such as *blue* and *true*, and other nouns.

4 Cross-dialect comparison

Dinka dialects tend to retain the binary voice quality and ternary vowel length contrasts, but tone systems vary both in number of tonemes and tonal behaviour. Vowel length of specific items may vary across dialects, even though the three-way contrast is preserved. In addition, morphosyntactic phenomena vary cross-dialectally. The classification conditions presented in this paper rely on both tonal specification (Condition 1) and specification for vowel length (Condition 2). Therefore, in order to claim that these conditions hold for the Dinka language as a whole, other dialects must be examined, because it would not be surprising if cross-dialect variation invalidated the conditions in other dialects. However, at least three other dialects of Dinka—Agar (Andersen 2020), Hol, and Ngok—follow the patterns found in Bor South; Condition 1 and Condition 2 are satisfied by a group of intransitive verbs whose meanings are generally properties—specifically, lexical items that one expects to be adjectival in a given language if anything is, such as big/small, black/white, and good/bad. This is true despite cross-dialect variation involving, for example, the vowel length of specific items; these differences do not affect Conditions 1 and 2. Cross-dialect evidence of the validity of these classification criteria, therefore, shows that this subclass of intransitive verbs is common to the language, independent of the many differences between dialects, and may have been present in an earlier stage of the language.

The Hol dialect follows the patterns laid out in this paper for Bor South almost exactly. One key difference between the Hol and Bor South dialects appears with the adjectival intransitive verbs whose finite form inflects for plural number. Recall that these have been observed to be common to West Nilotic in general (cf. Reh 1996, Andersen 2014, Remijsen & Ayoker 2020). Singular and plural forms of adjectival intransitive verbs in the Hol dialect can be seen in **Table 10**. Just as in the Bor South dialect, the two items with a coda /r/ (Nos. 1 and 2) shift from overlong in the singular to short in the plural. However, it is worth noting that 'tall/long' has an overlong /ɛ/ vowel quality in the singular, whereas Bor South has /a/. 'Red' behaves in Hol exactly as it does in Bor South, shortening from long in the singular to short in the plural. 'Bad,' however, does not shorten but shifts to breathy voice quality, which is entirely unexpected in this context. 'Rough' does not shorten as we expect it to. There is also an additional item: 'black' shortens in Hol. I take the lack of a singular/plural differentiation for 'black' in Bor South to be

No.	Gloss	Singular (Hol)	Plural (Hol)	Singular (Bor South)	Plural (Bor South)
1	‘tall/long’	bɛ̱̀ɛɛr	bə̱̀r	bə̱̀aar	bə̱̀r
2	‘small’	kọ̱̀oor	kọ̱̀r	kọ̱̀oor	kọ̱̀r
3	‘red’	ṯ̱ìiṯ̱	ṯ̱ìṯ̱	ṯ̱ìiṯ̱	ṯ̱ìṯ̱
4	‘bad’	ràac	rə̱̀ac	ràac	ràc
5	‘rough’	ŋɔ̀ɔɲ	ŋɔ̀ɔɲ	ŋɔ̀ɔɲ	ŋɔ̀ɲ
6	‘black’	còol	còl	còl	còl

Table 10: Singular and plural adjectival verb forms in the Hol dialect of Dinka, compared with the corresponding forms in the Bor South dialect.

morphophonological; ‘black’ will shorten in the plural if it is able to, but it cannot in Bor South because the finite form is already short. These differences call into question the validity of the assertion, both in Section 2.5 of this paper and in Andersen (2014), that the few items with both singular and plural forms are evidence of an older contrast common to West Nilotic. However, a more comprehensive study of this phenomenon is clearly necessary, and it does not interfere with the classification of adjectival intransitive verbs.

The behavior of the plural finite forms differs in the Agar dialect as well. In Agar Dinka, a plural noun can appear with both the finite singular and finite plural (shortened) form of these adjectival intransitive verbs (Andersen 2014). Andersen hypothesizes that ‘the plural form indicates that each member of a plural set is an individual’ (Andersen 2014: 260), relying on a partial semantic explanation. However, it appears that this is not true in the Bor South dialect; a plural subject is ungrammatical if it appears with the singular finite form.

The Ngok dialect of Dinka also has a sub-group of intransitive verbs that satisfy Conditions 1 and 2; the finite forms are low-toned, and the attributive construct states exist and are invariably overlong. However, the specific items that fit the criteria differ slightly from the Bor cluster dialects,[7] emphasizing the subtlety of the classification system presented in this paper. **Table 11** displays the finite forms and attributive construct states (i.e. Conditions 1 and 2, respectively) of a number of adjectival intransitive verbs in Ngok Dinka. One sees that **Table 11** follows the patterns found in other dialects of Dinka. That is, Condition 1 is satisfied because all items have low-toned finite forms, and Condition 2 is satisfied because all items have overlong attributive construct state forms.

[7] In the Ngok dialect, *ŋɔ̀ɔɲ*, ‘rough,’ does not have an ACS.

No.	Gloss	Finite	ACS
1	‘tall/long’	bɛ̰̀ɛɛr	bɛ̰́ɛɛr
2	‘big’	dɪ̰̀it	dɪ̰̀iit
3	‘small’	kʊ̰̀oor	kʊ̰̀oor
4	‘black’	còol	còool
5	‘white’	ɯ̰èr	ɯ̰ěeer
6	‘red’	ṯ̰ìiṯ̰	ṯ̰ìiiṯ̰
7	‘good’	pjàṯ̰	pjěɛɛṯ̰
8	‘bad’	ràac	rěeec
9	‘strong’	rìl	rǐiil
10	‘weak’	njòop	njǒoop
11	‘near’	tjɔ̰̀ɔk	tjɔ̰̌ɔɔk
12	‘far’	mèc	měeec[8]

Table 11: Finite forms and attributive construct states of adjectival intransitive verbs in the Ngok dialect of Dinka.

The Ngok dialect also differs from other dialects in its marking of number on verbs, both transitive and intransitive. Instead of marking plural topics with lengthening of the declarative prefix, Ngok marks plural topics with a suffix and a tone change on the verb, as seen in (26).

(26) a. mìiir ă-ṯ̰ìiṯ̰
giraffe.SG DECL-red
‘The giraffe is red.’

b. mjɛ̀ɛɛr ă-ṯ̰ɪ̌ṯ̰-kɪ̰́
giraffe.PL DECL-red-PL
‘The giraffes are red.’

One can also see that the length of the verb stem in (26b) has shortened, mirroring the behaviour of ‘red’ in other dialects, despite the differing inflectional form. A natural following question is how the dialect behaves with regards to the handful of adjectival intransitive verbs that shorten

[8] Nos. 11 and 12 are subject to some between-speaker variation; ‘near’ and ‘far’ were judged ungrammatical in the postnominal position by one speaker.

No.	Gloss	Finite	Plural Predicational	Plural Attributive
1	‘tall/long’	bɛ̰̀ɛɛr	bɛ̰̆ɛɛr-kɪ̰́	bə̰̀r
2	‘small’	kɔ̰̀oor	kɔ̰̆or-kɪ̰́	kɔ̰̀r
3	‘red’	ʈ̰ìiʈ̰	ʈ̰ɪ̆ʈ̰-kɪ̰́	ʈ̰ìʈ̰
4	‘bad’	ràac	ràc-kɪ̰́	ràc
5	‘black’	còol	cŏol-kɪ̰́	còl
6	‘rough’	ŋɔ̀ɔŋ	ŋɔ̆ɔŋ-kɪ̰́	ŋɔ̀ŋ

Table 12: Singular and plural adjectival verb forms in the Ngok dialect of Dinka.

in the plural in other dialects. In Ngok, these items differ depending on the context. Verb stems can shorten in the predicational context, which invariably involves the /kɪ̰́/ suffix, but shortening does not seem to be predictable in the same way that it is in other dialects. However, in the postnominal position (*plural attributive* in **Table 12**) the shortening appears on the same verbs as other dialects, shortening in the same way.

In summary, cross-dialect comparison of intransitive verbs confirms that the classification criteria of adjectival intransitive verbs can be used across dialects of Dinka, despite the fact that dialects can differ considerably both morphosyntactically and tonally. Number marking can differ cross-dialectally, but this has no bearing on the satisfaction of Conditions 1 and 2.

5 Discussion

It is clear that there is a sub-group of intransitive verbs that can be defined by the presence of two morphophonological properties: a low-toned finite form and an overlong attributive construct state. But while these two characteristics indicate that adjectives are a distinct subclass of intransitive verbs, they are syntactically identical to other intransitive verbs. In all dialects of Dinka examined in this paper, and to the best of my knowledge, there is no syntactic position that can be occupied by an adjectival intransitive verb that cannot be occupied by a non-adjectival intransitive verb. Therefore, the adjective class in Dinka poses a problem for claims (cf. e.g. Dixon 2004) that, cross-linguistically, there is a syntactic difference between adjectives and non-adjectives, particularly in their capacity to directly modify nouns. Moreover, the difference between adjectives and other intransitive verbs in Dinka is very subtle, exemplified by the fact that there is at least one item which cannot be classified as adjectival or non-adjectival because it is ambiguous. The finite and non-finite forms of the item ‘fly,’ as well as the form when it is postnominal and followed by another modifier, are all *pə̀aar*. Since the stem has a coda /r/, it is not possible to tell whether there is an underlying length alternation between the finite

and attributive construct state forms. Additionally, *pà̱aar* is not used postnominally in the Ngok dialect, which suggests that it is not adjectival, but it is used postnominally in other dialects, so classification remains unclear. Fully answering this question will require a comprehensive overview of the intransitive verbal system in Dinka.

Dinka also presents an issue for the claim that 'property' does not predict adjectivehood. Clearly, being a property does not mean that an item will be an adjective in Dinka, nor does not being a property mean that an item will be non-adjectival. However, the items in the Dinka adjectival subclass are overwhelmingly properties, despite the fact that the means of classification are entirely morphophonological. Moreover, the Dinka adjectives are of the semantic types that Dixon (2004) predicts will be adjectives if anything in a given language is a grammatical adjective. In addition, calling these 'stative' verbs (as Reh (1996) does for Anywa) is not appropriate; there are other intransitive verbs that are stative in meaning and are not adjectival. For example, the verb 'sit' has a high-toned finite form, *rɛ́ɛɛr*, and therefore cannot be adjectival. What is an adjective if morphosyntactic or morphophonological criteria do not reveal some sort of semantic pattern?

This question relates to the larger issue of identifying adjectives cross-linguistically. Determining whether or not a language has a class of adjectives may be in large part a matter of initial perspective. That is, if one begins an investigation assuming that there is a class of adjectives in every language—even subtly defined—one is likely to find that class. On the other hand, if one undertakes the description of a language with the understanding that adjectives must conform to specific, pre-determined criteria, a distinct class of adjectives might not be identifiable. This is the case for Korean, for example: Kim (2002) asserts that Adjective is an abstractly defined entity, and that the stative verbs of Korean do not fulfill the requirements to be a member of this class, because they do not directly modify nouns. Sohn (2004: 241) on the other hand, uses the same verbs to assert that the adjective class in Korean *does* exist, noting that adjectives can modify a noun via relativization (cf. Dixon 2004: 19). To classify adjectives, Sohn describes various other morphological criteria that allows them to be distinguished from other verbs. Additionally, both authors describe a class that consists of properties in the same way that the Dinka class does, including colours, physical properties, and speed (Sohn 2004: 237). The question of whether Korean has adjectives, therefore, seems to be potentially unresolvable between these two perspectives, but only because they do not share criteria for adjectivehood.

I argue that the subclass laid out in this paper is the adjective class of the Dinka language—a subclass of intransitive verbs defined by two morphophonological features, syntactically indistinguishable from non-adjectival intransitive verbs. But if one is to approach the search for adjectives with the perspective that, for example, 'adjective' as an abstract concept that requires inflection for comparison, then the Dinka adjectives either cannot be considered adjectives or pose significant problems for the definition of adjectives. In fact, the Dinka adjectives do not

exhibit several of the features that have been suggested as defining characteristics of ‘adjective’: they are not defined by an exceptional role in adnominal modification; they do not have a degree system; and they cannot be reliably predicted by semantic types. In contrast to this final point, however, the Dinka adjectives do provide some evidence that there is a correlation between properties and adjective, despite the fact that semantic type is not a defining feature of the lexical category.

6 Conclusion

Adjectives in Dinka, as explained in Section 3, are a subclass of intransitive verbs defined by two characteristics: a Low-toned finite form and an overlong (VVV) attributive construct state, which is found in the position after a noun and before another modifier. Importantly, this system is found across dialects and dialect clusters of Dinka. Dialects of Dinka can differ in number of tonemes, tonal behaviour, and morphosyntax, and while the presence of a binary voice quality contrast and a ternary vowel length contrast is consistent cross-dialectally, cognates can have differing vowel length and (less commonly) differing voice quality. Therefore, the fact that cross-dialectally, the same intransitive verbs satisfy Conditions 1 and 2—conditions based on suprasegmental features, not semantic types—supports the analysis of these verbs as a subclass. The items in the subclass can differ slightly across dialects, which should perhaps be expected given the cross-dialect variability in suprasegmental features. However, it should be noted that semantic types that tend to appear in the smallest adjective classes (cf. Dixon 2004), such as size (big/small), color (red/white/black), and value (good/bad) are consistently adjectival across dialects of Dinka.

Abbreviations

1 = first person, 2 = second person, 3 = third person, ACS = attributive construct state, COP = copula, CS = construct state, DECL = declarative, GEN = genitive, HAB = habitual, INTENS = intensifier, M = masculine, NF = non-finite, NMZ = nominalized form, PL = plural, POSS = possessive, PREP = preposition, PRF = perfect, PRO = pronoun, REL = relativizer, SG = singular

Data accessibility statement

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Ethics and consent

This research was approved by the PPLS Research Ethics Committee at the University of Edinburgh (Ref. Nos. 132-1920/2, 318-1920/2). Informed consent to participate in the study was obtained from all participants.

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Competing interests

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