Intensifying ideophones in three Luhya languages[1]

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Abstract. Ideophones are typically described as "marked words that depict sensory imagery" (Dingemanse 2011, 25). This paper addresses ideophone data from three Luhya languages: Llogoori, Lunyore, and Lutiriki (Bantu, Kenya). Our primary claim is descriptive: we show that there is a closed class of (previously undescribed) Luhya ideophones. We illustrate how the Luhya data is consistent with what is known about ideophones cross-linguistically, and give a preliminary semantic analysis of the Luhya ideophones as degree intensifiers.

1 Introduction

This paper addresses ideophones in three Bantu languages in the Luhya subfamily: Llogoori, Lunyore, and Lutiriki.[2] In this paper, we make both descriptive and theoretical contributions to the ideophone literature. Descriptively, we add novel data to the existing typology of ideophones cross-linguistically. We illustrate that, despite looking superficially distinct from other documented ideophone systems, the Luhya ideophones have the core properties of ideophones. Theoretically, we give a preliminary semantic analysis of the Luhya ideophones as degree intensifiers.

Ideophones have been described across the world, including in the languages of Asia (Japanese; Hamano 1994), Australia (Yir-Yoront; Alpher 1994), the Americas (Tseltal; Henderson 2016), and Europe (Basque; Antuñano 2016). Some authors, including Voeltz and Kilian-Hatz (2001), argue that ideophones occur in every language. Despite their frequency, the debate for how to classify a given lexical item as an ideophone is far from settled. To this end, we begin by reviewing the existing ideophone literature to give a general definition for what makes a lexical item an ideophone.

1.1 How to classify a lexical item as an ideophone

Ideophones are lexical items that often describe sensory imagery and tend to be morphosyntactically "marked" in some way (Dingemanse 2011, Voeltz and Kilian-Hatz 2001, Childs 1994, Doke

[1]We would like to thank our wonderful Llogoori consultant, Mwabeni Indire, for generously sharing his time and his language with us. Additional Llogoori data in this paper comes from the second author's fieldwork in Kenya (summer 2016); we would like to thank Abigail Sanya for the Lunyore data, and Kelvin Alulu for the Lutiriki data. We thank audiences at AAA 4, ACAL 48, the UCLA American Indian Seminar, the UCLA Morphology Reading Group, and the UCLA Semantics Tea for their feedback on earlier versions of this project, as well as Mark Dingemanse and Jessica Rett.

[2]The Luhya subfamily (Guthrie: JE.41, JE.30, JE.18) consists of 25 (or so) closely related languages spoken in western Kenya, northwestern Tanzania, and eastern Uganda. There are approximately 5 million speakers of Luhya languages, with a relatively high degree of mutual comprehension between speakers of different languages (Simons and Fennig 2017, Marlo 2017). Llogoori is also referred to as Maragoli, Luragooli, and Logoori, among other names; Lutiriki is also referred to as Tiriki.

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1935, among many others).[3] Dingemanse (2012, 654) remarks that ideophones are "easy to identify, but difficult to define;" typological work has shown that ideophones have a wide range of phonological and morphosyntactic properties. We therefore begin by giving examples of typologically diverse ideophone data from Kisi (Niger-Congo), Wolaitta (Omotic), Tseltal (Mayan), and Tsonga (Bantu).

(1) **Kisi (Niger-Congo)**

ò kwé **dèèè**...
PRO go IDEO

'She went *dèèè* (slowly).'[4] (Childs 1988, 178-179)

(2) **Wolaitta (Omotic)**

Galláso-y **k'ap'k'áp'a**.
Gallasso-NOM IDEO

'Gallasso is *k'ap'k'áp'a* (greedy).' (Amha 2001, 57)

(3) **Tseltal (Mayan)**

pura ch'il-bil-∅, **tsok'** x-chi-∅ ta mantekat.
just fried-PERF-B3 IDEO NT-say-B3 P lard

'Just fried, it goes *tsok'* in the lard.' (Henderson 2016, from Pérez González 2012, 162)

(4) **Xitsonga (Bantu)**

Magezi u ri ti-**nka**, hi xihloka.
Magezi SC1 COP REFL-IDEO by axe

'Magezi chops himself *nka* with an axe.'

(Msimang and Poulos 2001, 240, from Marivate 1982)

The data in (1)-(4) demonstrates some of the grammatical properties that are often (but not always) described for ideophone systems cross-linguistically. Common phonological properties of ideophones include: (i) the ability to lengthen vowels for expressive effect, as in (1); (ii) the ability to partially or totally reduplicate the ideophone, as in (2); (iii) the presence of sound symbolism or onomatopoeia, perhaps as in (3); (iv) the presence of phonemes or tones not otherwise found in the language; and (v) unusual phonation such as creaky voice, breathy voice, or falsetto. These unusual phonological and phonetic properties have led linguists to propose that ideophones often contribute meaning that is "depictive rather than descriptive" (Essegbey 2013).

Common morphosyntactic properties of ideophones include: (i) occurring clause-peripherally, as in (1) and (2); (ii) co-occurring with a quotative marker or verb of saying or doing, as in (3); (iii)

[3]Here and elsewhere in this paper, we do not use the term "expressive" in the Pottsian sense. Instead, we follow the convention in the ideophone literature to use it as a conceptual description of the ideophones' often onomatopoeic or "depictive" properties.

[4]Abbreviations used in this paper include: 1-20 'noun class,' 1 'first person,' 2 'second person,' 3 'third person,' AC 'anticausative,' ASP 'aspect,' AUX 'auxiliary,' CAUS 'causative,' CL 'noun class,' COP 'copula,' DEF 'definite,' EXPR 'expressive,' FUT 'future,' FV 'final vowel,' IDEO 'ideophone,' NEG 'negation,' NOM 'nominative,' PERF 'perfective,' PL 'plural,' POSS 'possessive,' PRO 'pronoun,' PROG 'progressive,' PRT 'particle,' QM 'quotative marker,' REC 'reciprocal,' REFL 'reflexive,' SC 'subject class,' SG 'singular,' TNS 'tense.'

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the inability to combine with other morphemes, as contradicted by (4); (iv) patterning morphosyntactically distinctly from other lexical categories in the language; and (v) the ability to stand alone as a complete utterance.

As shown by (1)-(4), there is a great deal of variation in ideophone systems cross-linguistically. We now review Dingemanse and Akita (2016)'s proposed ideophone typology, as this range of variation is relevant to our claim that the Luhya lexical items we discuss are in fact ideophones.

1.1.1 Variation in ideophone systems: Dingemanse (2017) and Dingemanse and Akita (2016)

Dingemanse (2017) and Dingemanse and Akita (2016) argue that ideophones occur along inversely correlated scales of "expressiveness" and "grammatical integration."[5] Their criteria for expressiveness and grammatical integration are based on existing typological observations about ideophone systems, as laid out in §1.1.

Dingemanse and Akita (2016) propose that an "expressive" ideophone shows some or all of the following properties: (i) intonational foregrounding through marked prosody, lengthened vowels, or so on; (ii) unusual phonation; (iii) the presence of tones or phonemes not found elsewhere in the language; and (iv) accompaniment by iconic gesture. A "grammatically integrated" ideophone shows some or all of the following properties: (i) inability to stand alone as a complete utterance; (ii) ability to occur clause-internally; (iii) ability to embed in morphosyntactic structure; and (iv) lack of syntactic optionality. These properties are summarized in Figure 1 below.

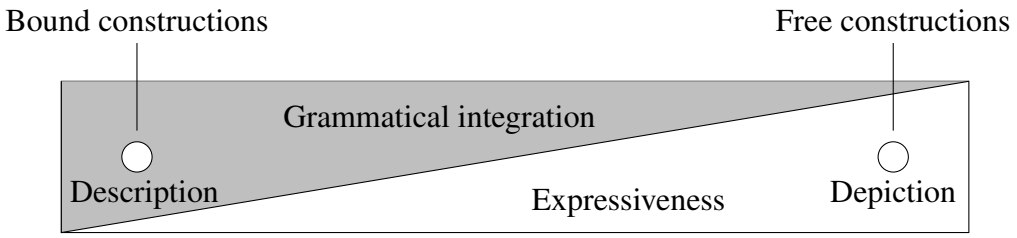

Figure 1: Inverse correlation between grammatical and expressive properties of ideophones (Dingemanse 2017, 133).

Dingemanse (2017) proposes that ideophone systems can vary with respect to their expressiveness versus grammatical integration. For instance, Dingemanse observes that ideophones in Semai (Mon-Khmer) tend to be highly expressive, whereas ideophones in Somali (Cushitic) tend to be more grammatically integrated. However, internal variation within a single language's ideophone system is also possible: one language may have both expressive and grammatically integrated ideophones. Indeed, Dingemanse (2017) argues that in Siwu (Niger-Congo), a single ideophone can be more or less expressive in different contexts.

In §2, we show ideophone data from Llogoori, Lunyore, and Lutiriki. We argue that (in Dingemanse and Akita 2016's terms) the Luhya ideophones are relatively highly grammatically integrated, with a corresponding relatively low degree of expressiveness.

[5]Dwyer and Moshi (2003) make a similar observation about ideophone classes. They propose to distinguish between "primary" ideophones (corresponding roughly to Dingemanse and Akita 2016's expressive ideophones) and "grammaticalized" ideophones (corresponding roughly to Dingemanse and Akita 2016's grammatically integrated ideophones).

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2 Basic Luhya ideophone data

We give examples of Llogoori, Lunyore, and Lutiriki ideophones in (5)-(7). (Hereafter, unless otherwise noted, we give examples in Llogoori, our primary language of study.) The Luhya ideophones select for a semantic class of lexical items that they can co-occur with. Luhya ideophones typically occur clause-finally and provide an "intensified" reading of the lexical item that they select. As suggested by (5)-(7), the Luhya ideophones tend to be cognate across the languages.

(5) **Llogoori**

a. amaaze ni ma-hiu **pa**.
6.water COP 6-hot IDEO
'The water is very hot.'

b. riawa ni ri-akanyu **khai**.
5.flower COP 5-red IDEO
'The flower is very red.'[6]

(6) **Lunyore**

a. maatsi ne ma-hiu **pa**.
6.water COP 6-hot IDEO
'The water is very hot.'

b. esausi ne i-nzakanyu **kha**.
9.sauce COP 9-red IDEO
'The sauce is very red.'

(7) **Lutiriki**

a. matse ni ma-hiu **pa**.
6.water COP 6-hot IDEO
'The water is very hot.'

b. intso ni y-amuchi **kha**.
9.house COP 9-red IDEO
'The house is very red.'

We list some Llogoori ideophones and their associated semantic classes in Table 1. The items within a given semantic class all have similar meanings; for instance, the ideophone *ti* combines with lexical items describing darkness or dirtiness, whereas *zi* combines with lexical items describing stillness or coldness. (The data in Table 1 is not an exhaustive list of all the lexical items each ideophone can co-occur with, nor is it an exhaustive list of all of the Llogoori ideophones.)

Ideophone	**Lexical item(s)**[7]	**Meaning**
mno[8]	*kuyaanza* (verb)	'to be happy,' 'to like'
	mahooru (noun)	'longing'
	-ndugi, -noru (adjective)	'sweet'
pa	*-hiu* (adjective)	'hot'
	kuhia (verb)	'to be hot'
	-roro (adjective)	'spicy,' 'bitter'
ti	*-mwamu* (adjective)	'black'
	-chafu (adjective)	'dirty'
zi	*-zilu* (adjective)	'cold,' 'still'
	-chinganu (adjective)	'quiet'

Table 1: Lexical items selected by Llogoori ideophones.

[6]The voiceless velar fricative *kh* in (5b) is an uncommon phoneme in Llogoori, although it is frequent in many of the other closely related Luhya languages.

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The Luhya ideophones cannot occur with lexical items outside of the semantic class that they select. For instance, the Llogoori ideophones *pa* and *khai* in (5) cannot be substituted for the other, as in (8). The ideophone *pa* is restricted to lexical items describing hotness or spiciness, whereas *khai* is restricted to lexical items describing redness. Furthermore, ideophones can pick out only a subset of meanings within their given semantic class. The ideophone *du* can occur with lexical items describing fullness in the sense of a cup or a room, as in (9a); however, it cannot occur with an expression describing a person's sensation of being full, as in (9b).

(8) a. * amaaze ni ma-hiu khai.
6.water COP 6-hot IDEO
Intended: 'The water is very hot.'

b. * riawa ni ri-akanyu pa.
5.flower COP 5-red IDEO
Intended: 'The flower is very red.'

(9) a. kikoombe ki-ikwizor-a du.
7.cup 7-full-FV IDEO
'The cup is very full.'

b. * Sira y-a-ku-i-goot-a du.
Sira 1-TNS-ASP-REFL-sate-FV IDEO
Intended: 'Sira is very full.'

This property of semantic class selection distinguishes the Luhya ideophones from the Luhya degree intensifier *saana* 'really.' We show Luhya degree intensifier data, and discuss how *saana* 'really' differs from the ideophones, in §3.

2.1 Grammatical properties of the Luhya ideophones

Luhya ideophones can occur with adjectival predicates, as in (5), and with verbal predicates, as in (10)-(11).[9]

[7]We give verbs in their infinitival form, including the class 15 infinitival prefix *ku-*. We give adjectives in their root form; Luhya adjectives obligatorily host a prefix indicating the noun class of the noun that they combine with.

[8]Mike Marlo (p.c.) notes that in Swahili, *muno* is a canonical degree intensifier (like English *really*) that is not restricted to any lexical class. While Llogoori *mno* is likely a borrowing from Swahili, its distribution differs from Swahili in that it is in fact subject to lexical restrictions. This could be a point of variation across Luhya; in Lutiriki, *mno* appears to pattern more like Swahili.

[9]Luhya ideophones almost always combine with stative predicates. However, a very small number of ideophones given to us by our Lunyore consultant can combine with eventive predicates:

(1) **Lunyore**

a. esaal'a si-mekukh-il-e piap.
9.stick 9-break-TNS-FV IDEO
'The stick broke *piap*.'

b. ya-khu-pak-il-e pap.
1-ASP-hit-TNS-FV IDEO
'He just hit me *pap*.'

Unlike the other Luhya ideophones that we've discovered, our speaker reported that *piap/pap* is the sound that breaking and hitting make; that is, they are iconic. These ideophones, like the others, are limited to combining with a particular semantic class: *pap* can only describe a hitting event, whereas *piap* can only describe a breaking event.

We ultimately choose to exclude these ideophones from our analysis. We suspect that they are borrowings from a Luo language; our Lunyore consultant also speaks fluent Luo, is married to a Luo speaker, and regularly uses Luo in her daily life. Furthermore, these ideophones resemble typical Nilotic ideophone data (Mark Dingemanse, p.c.).

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(10) **Llogoori**
Sira yi-zuriz-i kikoombe du.
1.Sira 1-fill-FV 7.cup IDEO
'Sira filled the cup to the brim.'

(11) **Lunyore**
rishirti ri-n-nyik-il-e ka.
5.shirt 5-1SG-be.tight-APPL-FV IDEO
'The shirt is very tight (on me).'

A small number of Luhya ideophones can combine with nouns, as in (12)-(13).[10]

(12) a. inzankanyu khai
9.redness IDEO
'intense redness'

b. uvwizulu du
11.fullness IDEO
'extreme fullness'

c. mahooru mno
6.longing IDEO
'intense longing'

(13) m-v-ey-e na mahooru mno.
1SG-COP-ASP-FV NA 6.longing IDEO
'I really miss you.'
(Lit. 'I am with intense longing.')

The Luhya ideophones cannot stand alone as predicates; that is, they cannot occur without any associated lexical item, as in (14).[11]

(14) amaaze ni *(ma-hiu) pa.
6.water COP 6-hot IDEO
Intended: 'The water is very hot.'

The ideophones also cannot stand alone as complete utterances, as in (15)-(16). (We return to this issue in §3.2.3.)

(15) **Hot bathwater context:** You run a bath, then touch the bathwater and discover that it's extremely hot. You exclaim:

a. * pa!
IDEO

b. ɬ:↓ha̰!
EXPR
'Ouch!'[12]

[10]We previously postulated that the ideophones can combine with "prepositional predicates," consisting of the preposition *na* 'with' followed by the noun and ideophone, as in (13). However, given the new data in (12), we now assume they combine directly with the noun, which then in turn can combine with *na*.

[11]A possible exception to this is the ideophone *du*, which one Llogoori consultant accepts as a predicate. Curiously, this ideophone is only accepted in combination with the copula *kova*, and not the copula *ni*. We currently have no explanation for these facts, and do not account for them in our analysis in §3.

(1) a. kikoombe ki-v-ey-e du.
7.cup 7-COP-ASP-FV IDEO
'The cup is full.'

b. * kikoombe ni du.
7.cup COP IDEO
'The cup is full.'

[12]Here we use the Extended IPA symbol ↓ to represent ingressive airflow during the production of the lateral fricative. So far, we have collected approximately 15 Llogoori (Pottsian) expressives that are akin to English expressives like *ouch* and *oops*. These morphemes pattern syntactically very differently from the Luhya ideophones; they can stand alone as complete utterances, and they necessarily precede the proposition they co-occur with.

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(16) **Sweet tea context:** Imali makes you some tea and asks how sweet it is with the question in (16a). You respond as in (16b).

a. icha i-v-ey-e na uvunoru vuri?
9.tea 9-COP-ASP-FV with 11.sweetness how.much
'How sweet is the tea?'

b. i. * mno!
IDEO

ii. saana!
really
'Very!'

iii. ni i-noru mno!
COP 9-sweet IDEO
'It is very sweet!'

The Luhya ideophones cannot be moved away from their associated lexical item, as the cleft construction in (17) illustrates, and do not combine with complementizers, quotative markers, or light verbs of saying or doing, as in (18).

(17) * du ni sia Sira y-izuriz-i kikoombe.
IDEO COP how 1.Sira 1-fill-FV 7.cup
Intended: 'To the brim is how Sira filled the cup.'

(18) * maaze ni ma-hiu {kuresia / ndee / ga-vor-a} pa.
6.water COP 6-hot {like / COMP / 6-say-FV} IDEO
Intended: 'The water is hot like *pa*.' / 'The water goes *pa*.'

The Luhya ideophones behave in many ways like adverbial elements; they typically occur at the right edge of the clause, and are always syntactically optional, as in (19). In expressions with verbal predicates, ideophones occur immediately after the direct object, inside of other verbal modifiers such as manner adverbs, as in (20). In the presence of an applied object, such ideophones occur after both objects, as in (21).

(19) (*pa) kibiribiri ni (*pa) ki-roro (pa).
IDEO 7.pepper COP IDEO 7-spicy IDEO
'The pepper is (very) spicy.'

(20) Imali yi-zuriz-i (*du) kikoombe (du) {geraha / na maaze} (*du).
Imali 1-fill-FV (IDEO) 7.cup (IDEO) {slowly / with 6.water} (IDEO)
'Imali filled the cup to the brim slowly/with water.'

(21) Imali yi-zuriz-il-i (*du) Sira (*du) kikoombe (du).
Imali 1-fill-APPL-FV (IDEO) Sira (IDEO) 7.cup (IDEO)
'Imali filled the cup for Sira to the brim.'

If the adjective that the ideophone selects for is in an attributive position, the ideophone must occur immediately after it; it cannot occur at the end of the clause, as in (22b). (We are agnostic as to whether Luhya attributive adjectives involve relative clauses.)

(22) a. maaze ma-hiu pa ga-v-ey-e mu kikoombe.
6.water 6-hot IDEO 6-COP-ASP-FV in 7.cup
'The very hot water is in the cup.'

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b. * maaze ma-hiu ga-v-ey-e mu kikoombe pa.
6.water 6-hot 6-COP-ASP-FV in 7.cup IDEO
Intended: 'The very hot water is in the cup.'

If multiple adjectives modify a single noun, the order of the adjectives is free. However, the ideophone must immediately follow the adjective that it selects for.

(23) a. riaua ri-nini ri-akanyu khai
5.flower 5-big 5-red IDEO
'the big very red flower'

b. riaua ri-akanyu khai ri-nini
5.flower 5-red IDEO 5-big
'the big very red flower'

c. * riaua ri-akanyu ri-nini khai
5.flower 5-red 5-big IDEO
Intended: 'the big very red flower'

All of the data so far is generally consistent with treating the Luhya ideophones as adverbs. However, we argue in §2.3 that the Luhya ideophones should be treated as a unique class, distinct from adverbs.

2.2 Expressiveness of the Luhya ideophones

All Luhya ideophones can be reduplicated to express a more intense meaning.[13] A small set of ideophones can also undergo triplication, which results in a further intensified meaning and occurs with a unique prosodic contour that is used for all triplicated ideophones. (We return to the triplicated ideophones in §3.2.3.)

(24) amaaze ni ma-hiu pa pa.
6.water COP 6-hot IDEO IDEO
'The water is extremely hot!'

(25) amaaze ni ma-hiu papapa.
6.water COP 6-hot PAPAPA
'The water is BOILING hot!'

The Luhya ideophones are not inherently associated with either negative or positive evaluations. That is, the utterance in (26) is felicitous in a context in which the water being very hot is a good thing (26a), a bad thing (26b), or neither.

(26) a. **Positive evaluation context:** You fill a bath for your wife, who is cold and wants to warm up. You tell her that the water is ready (i.e., it's very hot).

b. **Negative evaluation context:** You try to enter a hot tub and discover that the water is too hot to be comfortable. You warn another nearby bather about its temperature.

[13] The sole trisyllabic ideophone in Llogoori, *zululia*, expresses this additionally intensified meaning by lengthening the second vowel: /zuluːlia/. (This ideophone combines with predicates describing vertical height, e.g. *-tambe* 'tall'.)

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amaaze ni ma-hiu pa.
6.water COP 6-hot IDEO
'The water is very hot.'

The Luhya ideophones only occasionally display marked phonation or intonation (typically a raised pitch), and are only occasionally accompanied by iconic gestures (Mike Marlo, p.c.). They are also able to be used naturally in written language. Speakers do not report that the Luhya ideophones are interpreted iconically; one possible exception to this is *pa*, which may be interpreted as the sound of water boiling. Finally, the Luhya ideophones are not "productive;" speakers cannot spontaneously coin new ones, unlike reports of spontaneous ideophone generation in languages like Semai (Mon-Khmer) (Diffloth 1972). The Luhya ideophones form a closed class; we have identified fewer than 15 ideophones in each of the languages that we investigated.

2.3 Why do we call these morphemes ideophones?

In the terminology of Dingemanse (2017) and Dingemanse and Akita (2016), the Luhya ideophones display a relatively low degree of expressiveness and a relatively high degree of grammatical integration, as shown in Figure 2. (Compare with Figure 1.) The Luhya languages pattern similarly to languages like Somali (Cushitic) in having consistently "non-expressive" ideophones (Dhoorre and Tosco 1998).

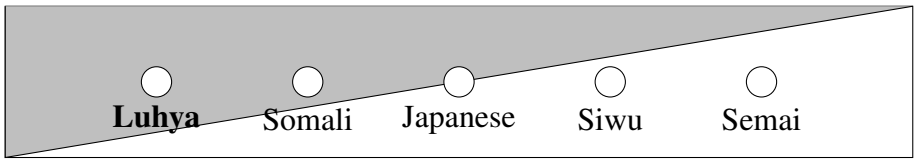

Figure 2: Approximation of different ideophone systems on a scale of grammatical integration/expressiveness; adapted from Dingemanse (2017, 136).

Given the lack of expressiveness and their syntactic similarity to other adverbial items, the reader may question why we choose to call these lexical items ideophones. However, like other described ideophone systems, the Luhya ideophones: (i) are constrained in their distribution by the semantic class of the lexical item they select for; (ii) undergo reduplication to express additional intensification; (iii) (almost always) have a fixed number of syllables; (iv) have a consistent syllable shape (i.e., they are almost always open syllables); (v) can contain phonemes that are otherwise infrequent in the languages; and (vi) denote "exaggerated" shades of meaning (i.e., *extremely hot*, not *lukewarm*).

Furthermore, a number of other languages have similar ideophone systems. We give examples in (27)-(31) of intensifying ideophones in Hausa (Chadic), Siwu (Niger-Congo), Wolof (Niger-Congo), Xitsonga (Bantu), and Zulu (Bantu). In each of these examples, the relevant ideophone patterns like the Luhya ideophones in (i) selecting for a particular lexical item or semantic class, and (ii) contributing an intensified reading of the lexical item that it selects for. Note that several of these languages are typically thought of as having canonical examples of highly depictive ideophone systems.

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(27) **Hausa (Chadic)**

a. fari **fat**
white IDEO
'snow white'[14]

b. tsofo **kutuf**
old IDEO
'very old' (Newman 1968, 109)

(28) **Siwu (Niger-Congo)**

i-tì si i-fudza-ɔ ↑**futututututututu**↑.
C.I-head if S.I-be.white-2SG.O IDEO.pure.white.EM4

'That your head may become white ↑*futututututututu*↑ [pure white].'[15]
(Dingemanse 2017, 123)

(29) **Wolof (Niger-Congo)**

daf-a ñuul **kukk**.
do-COP black IDEO

'It's pitch black.' (Harold Torrence, p.c.)

(30) **Xitsonga (Bantu)**

khuwani ri tele **ntlwi**!
clay.pot COP be.full IDEO

'The clay pot is very full.' (Kubayi 2009, 43)

(31) **Zulu (Bantu)**

w-a-thula **du**.
1SG-PST-be.silent IDEO

'(S)he was absolutely silent!' (Claire Halpert, p.c.)

Furthermore, we observe that there are ideophones in many non-Luhya Bantu languages that are cognate with the Luhya ideophones (Samarin 1971). Indeed, previous classifications of similar items in other Bantu languages directly refer to these lexical items as ideophones (Schadeberg 2003). Thus, given the previous classification, the ideophonic properties of the relevant Luhya lexical items, and the existence of other intensifying ideophones cross-linguistically, we feel justified in our proposal to treat these items as ideophones.

3 Towards an analysis

Since Luhya ideophones intensify the predicate that they combine with, we propose to treat them as degree modifiers akin to English *very* or *really*. In the following section, we lay out our proposal to treat the Luhya ideophones as cross-categorial degree modifiers. We begin by providing a brief background on degree semantics.

[14]We note that a small set of English adjectives combine with similarly lexically restricted intensifiers; these include *jet black* and *bitter cold*, among others. However, English expressions like *jet* and *bitter* occur elsewhere in the language as fully fledged lexical items. We therefore do not believe that these lexical items should be considered ideophones.

[15]Dingemanse (2017) uses arrows ↑ to indicate general prosodic foregrounding.

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3.1 Degrees

Degree theories of gradable adjectives argue that gradable predicates combine with both a degree argument ($d \in D_d$) and an individual argument ($x \in D_e$), and assert that the adjective holds of the individual *x* to degree *d* (Bartsch and Vennemann 1972, Cresswell 1976, Heim 2001, among many others). We give a basic denotation for the English gradable adjective *hot* in (32).

(32) $[\![\text{hot}]\!] = \lambda d \lambda x.\ \text{hot}(x,d)$ ("x is hot to degree d")

English degree intensifiers like *really*, *very*, *extremely*, and so on contribute the meaning that the degree of the adjective with respect to the individual is above some contextual standard.[16] We give a basic denotation for the English degree intensifier *really* in (33a), and provide a denotation for the intensified adjective *really hot* in (33b).

(33) a. $[\![\text{really}]\!] = \lambda G_{<d<et>>} \lambda x.\ \exists d\text{: } G(x,d) \ \&\ d > \text{standard}$
b. $[\![\text{really hot}]\!] = \lambda x.\ \exists d\text{: hot}(x,d) \ \&\ d > \text{standard}$

("there exists a degree *d* such that *x* is hot to degree *d* and *d* exceeds the contextual standard of hotness")

3.2 Luhya ideophones as cross-categorial degree intensifiers

We propose that the Luhya ideophones, like English *really*, are fundamentally degree intensifiers. The ideophones provide an extremely intensified reading of the predicate that they combine with. In combination with gradable adjectives, the ideophones assert that the degree to which the gradable adjective holds greatly exceeds the contextual standard (represented in (34) with "!!>").[17] We give the truth conditions for a Llogoori expression containing the ideophone *pa* in (35).

(34) a. $[\![\text{IDEO}]\!] = \lambda G_{<d<et>>} \lambda x.\ \exists d\text{: } G(x,d) \ \&\ d \ !!> \text{standard}$
b. $[\![\text{hot IDEO}]\!] = \lambda x.\ \exists d\text{: hot}(x,d) \ \&\ d \ !!> \text{standard}$

(35) maaze ni ma-hiu pa.
6.water COP 6-hot IDEO
'The water is very hot.' = 1 iff $\exists d$: hot(water,d) & d !!> standard

The Luhya ideophones differ from the canonical Luhya degree intensifier *saana* 'really' in three main ways. First, speakers report that *saana* contributes a less intensified reading of the predicate that it combines with. Second, *saana* is not restricted to combining with any particular semantic class; it freely combines with all gradable predicates. Third, *saana* can stand alone as a felicitous answer to degree questions (16b-ii), whereas ideophones cannot (16b-i).

This analysis of the ideophones as degree intensifiers can easily account for their ability to co-occur with adjectival predicates, as shown in (5)-(7). All of the adjectives that the ideophones

[16] In utterances without any degree intensifier or measure phrase, we assume that the predicate combines with some phonologically null morpheme that contributes the meaning that the individual that the predicate combines with "stands out" with respect to the property denoted by the predicate (Kennedy 1999, Rett 2008). We remain agnostic with respect to the precise denotation for this morpheme, since it is not crucial to our proposal.

[17] This notation is inspired by Kennedy and McNally (2005, 373)'s proposal for English *much*.

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co-occur with are uncontroversially associated with degree scales (e.g. *-hiu* 'hot,' *-zilu* 'cold,' *-noru* 'sweet,' and so on).[18] In the following subsections, we address how we can extend this proposal to account for the ability of the ideophones to combine with nominals and verbal predicates.

3.2.1 Ideophones in combination with nominals

Only three of the Luhya ideophones can combine with nominals in addition to adjectives. We show examples of these three ideophones in (36), repeated from (12).

(36)

a.	b.	c.
inzankanyu khai	uvwizulu du	mahooru mno
9.redness IDEO	11.fullness IDEO	6.longing IDEO
'intense redness'	'extreme fullness'	'intense longing'

To account for this data, we assume that a subset of Luhya nouns (*mahooru* '6.longing,' *vuyaanzi* '11.happiness,' and *uvwakanyu* '11.redness,' among others) include degrees in their denotations. Proposing to introduce degrees into the nominal domain is not novel; several authors have previously argued that some nouns include degrees (Morzycki 2009 for English, Bochnak 2013 for Luganda, among others).

We roughly assume Bochnak (2013)'s analysis of verbal nominalizations in Luganda (Bantu). Bochnak proposes that Luganda nominalized gradable predicates are relational: that is, they denote relations between individuals and degrees. (This follows prior proposals for relational nouns by Nicolas 2004 and Moltmann 2009.) We assume this analysis for the relevant Luhya nominals, which we also term "relational." However, we note that the Luhya relational nouns differ from Bochnak (2013)'s Luganda nominals in that they do not have a verbal core. The Luhya relational nouns are of type $<e<d,t>>$; we use the variable R to refer to items of this type. We give a denotation for the Llogoori relational noun *mahooru* '6.longing' in (37).

(37) $[\![\text{mahooru}]\!] = \lambda x \lambda d.\ \text{longing}(x,d)$ "the individual *x* instantiates longing to degree *d*"

To account for the ability of ideophones to combine with the relational nouns, we assume that the ideophones in (36) have the denotation in (38a), termed IDEO_N. This is identical to the denotation for ideophones that combine with adjectives, as in (34a), with the exception of the semantic type of the first argument that the ideophone combines with.

(38) a. $[\![\text{IDEO}_N]\!] = \lambda R_{<e<dt>>} \lambda x.\ \exists d\text{: } R(x,d)\ \&\ d\ !!> $
b. $[\![\text{mahooru IDEO}_N]\!] = \lambda x.\ \exists d\text{: longing}(x,d)\ \&\ d\ !!> \text{standard}$

To account for data like (39), we assume that *na* is of type $<<e,t><e,t>>$.

[18] An apparent possible counterexample to this is the ability of the ideophone *zi* to combine with the verb *kukuzila* 'to be cold'/colloquially, 'to be dead.' In these cases, we assume the gradable meaning of 'to be cold' as the basic meaning of *kukuzila*. Our Llogoori consultant reports that such uses of *zi* are a colloquialism meaning 'to be dead.'

(1) imbwa y-a-kuzil-a zi.
9.dog 9-TNS-cold-FV IDEO
'The dog is dead as a doornail.'

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(39) m-v-ey-e na mahooru mno.
1SG-COP-ASP-FV NA 6.longing IDEO
'I really miss you.' (Lit. 'I am with intense longing.')
= 1 iff ∃d: longing(I,d) & d !!> standard

Postulating a second denotation for the Luhya ideophones introduces a bit of messiness into our analysis. However, the ambiguity proposed here is consistent with the overall distribution and use of ideophones cross-linguistically. As we discussed in §1.1.1, following Dingemanse (2017) and Dingemanse and Akita (2016), one language may have many different kinds of ideophones. Given what we know about the diversity of ideophone systems both within and across languages, we have no reason to assume that the Luhya ideophones should form a homogenous class with respect to their semantics.

3.2.2 Ideophones in combination with verbal predicates

We observed in §2.1 that the Luhya ideophones can also combine with verbal predicates, as in (40)-(41).

(40) **Lutiriki**

Sira yi-tsurits-a shikoombe tu.
1.Sira 1-fill-FV 7.cup IDEO
'Sira filled the cup to the brim.'

(41) **Llogoori**

marova ga-uum-i gada.
6.earth 6-dry-FV IDEO
'The earth dried a lot [until it was hard].'

All of the verbs that can co-occur with ideophones have a gradable adjectival core, including *kumwama* 'to blacken' (from *-mwamu* 'black'), *kwuuma* 'to dry' (from *-uumu* 'dry'), and so on. As shown in (34), it is simple to treat the ideophones as degree modifiers of gradable adjectives. Although we do not give a full semantics for the Luhya ideophones in combination with verbs in this paper, we believe that the gradable adjectival core of these verbs can provide a starting point as to their semantics.

Kennedy and Levin (2008) give a semantics for English degree achievement verbs (e.g. *to cool*, *to widen*) that uses degrees. They link the use of degrees in the semantics to the gradability of the verbs' adjectival cores. They propose that degree achievement verbs include a derived measure of change function that measures the degree to which an object changes along a scalar dimension as the result of participating in an event.[19] We set aside the precise formal implementation of this theory for now; however, we note that a proposal along these lines that either includes or introduces degrees in the denotations of verbs derived from gradable adjectives could account for the data in (40)-(41). If we follow Kennedy and Levin (2008)'s proposal, the paraphrased meaning of (40),

[19] This measure of change function $m_{\triangle}$ is defined formally as follows (Kennedy and Levin 2008, 18):

(1) For any measure function m, $m_{\triangle}$ = λxλe. m$\uparrow_{m(x)(init(e))}$(x)(fin(e)),
where *init(e)* and *fin(e)* refer to the initial and final temporal intervals of an event, and m$\uparrow_d$ is a difference function that takes an individual and returns the difference between the individual's projection on a degree scale and the (arbitrary) comparative standard.

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including the ideophone, would be something like "Sira filled the cup to a degree that greatly exceeds the contextual standard of what counts as 'full.'"

3.2.3 Triplicated Luhya ideophones

Some of the Luhya ideophones can undergo triplication. When triplicated, the ideophones pattern very differently from non-triplicated ideophones. The triplicated ideophones can be clefted (contrary to (17)), and can stand alone as complete utterances (contrary to (15)-(16)).[20]

(42) dududu ni sia Sira y-izuriz-i kikoombe.
DUDUDU COP how 1.Sira 1-fill-FV 7.cup
'*Dududu* (to the brim) is how Sira filled the cup.'

(43) Sira y-izuriz-i kikoombe ndi nang'ga?
Sira 1-fill-FV 7.cup how in.what.sense
'How did Sira fill the cup?'

a. geraha.
slowly
'Slowly.'

b. dududu.
DUDUDU
'To the brim.'

c. * du.
IDEO

We propose that the triplication data in (42)-(43) involves the formation of (non-degree intensifying) adverbs. The semantics of the triplicated ideophones differs from the semantics of the non-triplicated ideophones in (34a) in that the triplicated ideophones (i) do not combine with a gradable predicate (i.e., something of type $<d<e,t>>$), and (ii) do not existentially quantify over degrees. We propose that the triplicated ideophones are similar to English "extreme" adjectives like *gigantic* and *gorgeous* in that they inherently pick out high degrees on their associated scale; in the case of *dududu*, the scale is one of fullness. These adverbs then freely distribute like other adverbs.

4 Conclusion

In this paper, we described the distribution and interpretation of ideophones in Llogoori, Lunyore, and Lutiriki. We sketched a preliminary proposal to treat Luhya ideophones as cross-categorial degree intensifiers, assuming the inclusion of degrees in the Luhya semantic ontology.

The Luhya ideophone data demonstrates the heterogeneity of ideophone systems cross-linguistically. Descriptively, the Luhya ideophones pattern very differently from highly depictive ideophone systems, which are often taken to be the norm. Theoretically, our degree-based proposal differs from other formal accounts of ideophones as depictions (Baglini 2016 for Wolof) and demonstrations (Henderson 2016 for Tseltal). Given the diversity of ideophone systems across languages, it is reasonable to postulate similar diversity in the formal theories used to account for them.

Finally, the data in this paper raises interesting questions with respect to the behavior of ideophones diachronically. Poulos (1999) posits that ideophones can undergo "grammaticalization,"

[20]The clefting data in (42) is only available in Llogoori; it is unavailable in Lutiriki and we do not have the relevant data for Lunyore.

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which he associates with the loss of the ideophones' onomatopoeic properties and their eventual inclusion within an existing lexical category such as verbs or adverbs. We tentatively claim that the Luhya ideophones are in the process of being integrated into the set of Luhya adverbs. Some of the ideophones are less restrictive in their semantic class selection than others, suggesting that they are transitioning into being general degree intensifiers. For instance, *mno* picks out lexical items having to do with sweetness, happiness, and loneliness in Llogoori, whereas it distributes more freely in Lutiriki. Since Luhya speakers often live in highly multilingual environments, they may have begun borrowing ideophones from other languages (footnote 9); Mark Dingemanse (p.c.) notes that ideophones are among the first lexical items lost when speakers are no longer immersed in their language. However, much further diachronic study is needed to understand the trajectory of the Luhya ideophones.

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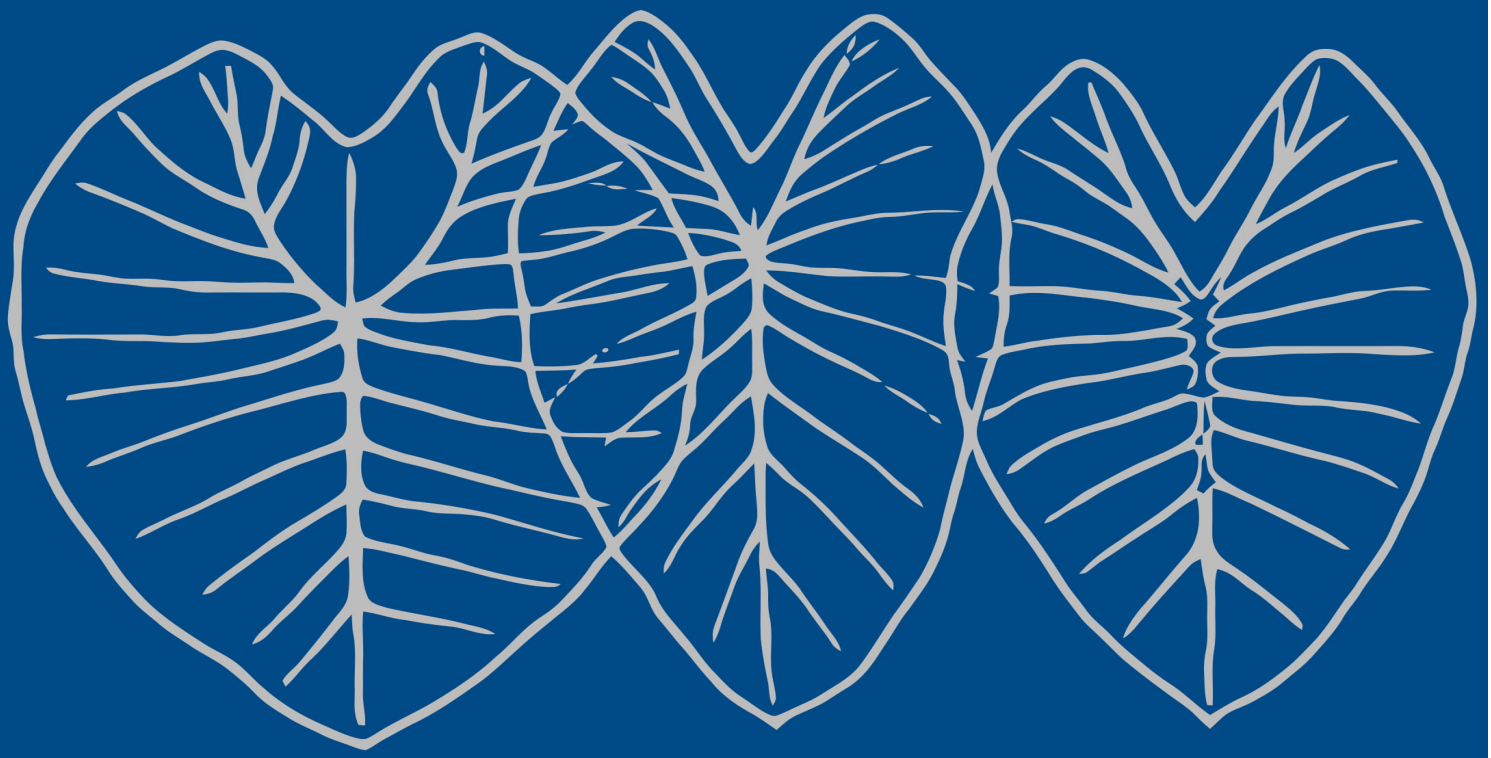

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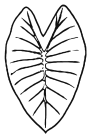

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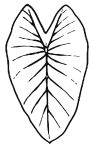

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