Similarity demonstratives and complementation

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Abstract

Expressions of similarity are cross-linguistically common in quotation and clausal embedding constructions (Güldemann, 2008). This paper presents a case study from the Bantu language Nyala East of a similarity demonstrative that is multifunctional as a manner adverb, quotative, propositional anaphor, and complementizer. We build a uniform syntax and semantics that captures these various uses, connecting them to recent work on the syntax/semantics of quotation and clausal embedding(Kratzer, 2006; Rudin, 2024). Importantly, we also present a series of diagnostics that can be used to distinguish similarity-based complementizers from *say*-based complementizers, a kind of complementizer that has received a relatively large amount of attention in the recent literature (Major, 2021).

1 Introduction

A growing body of recent work has expanded our understanding of the syntax and semantics of embedded clauses. The result is that it is now common to suppose that complementizers are not just functional elements that link clauses, but rather they come with meaning which has empirical effects on the morpho-syntax and interpretation of the embedded clause and the utterance as a whole (Kratzer, 2006; Moulton, 2009; Bogal-Albritten, 2016; Elliott, 2017/2020; Bochnak & Hanink, 2022; Bondarenko, 2024). One strong piece of evidence that complementizers "do" something comes from the fact that complementizers

themselves are often "recruited" from lexical sources. In perhaps the most well-studied case, many languages have a complementizer that corresponds to a word meaning 'say' (both diachronically and synchronically) (Lord, 1976, 1993). The gist of the recent work on *say*-complementizers is that the syntax and semantics of the meaning 'say' is shared in some sense between its function as a verb and as a complementizer (Kratzer, 2016; Major, 2021; Rudin, 2024).

Our goal in this paper is to highlight in this paper a relatively under-studied shared meaning: *similarity*. The core data come from Nyala East, a Bantu language spoken in Western Kenya, and two representative examples are shown in (1). We see that the morpheme *-chi* acts as a similarity demonstrative in (1a) and as a complementizer in (1b). (A list of glosses is provided at the end of the paper.)

(1) a. *omwana* ***a-chi*** [pointing]
1NC.child 1AGR-SD
'a child like this [pointing]'

b. *Masika a-sover-a* ***a-chi*** *a-lwal-a.*
Masika 1SM-believe-FV 1AGR-SD 1SM-be.sick-FV
'Masika believes that he's sick.'

The observation that elements expressing similarity can be multifunctional as (or diachronically related to) complementizers is not new (Lord, 1993; Güldemann, 2002, 2008; Kuteva et al., 2019; Diessel & Breunesse, 2020, 398), but, outside of Baglini (2016); Bryant & Bhadra (2020), the formal relationship between similarity and complementation has been largely ignored. This question turns out to be critical to ask because there is often an overlap between words meaning 'say' and words expressing similarity (see for example discussion in Güldemann 2008), begging the question whether similarity-based comple-

mentizers can be classified as a kind of *say*-based complementizer. Lord (1993, Chapter 7) in fact wrestles with this exact question in various dialects of Akan which make use of two complementizers *se*, transparently related to the verb meaning 'say', and *sɛ*, apparently related to the verb meaning 'be like, resemble.' Lord entertains the hypothesis that *sɛ* is simply a "version" of *se*—a tempting idea given the phonological overlap.

Nyala East presents a language that has, we believe, a clear example of a similarity-based complementizer. We will therefore develop not only a syntactic and semantic analysis of a relatively understudied complementizer type, but we will also set up a system to establishing whether a given complementizer relies on 'say,' similarity, or something else.

Our paper will start with an overview of the data. We explore in section 2 four different uses of *-chi* and its "distal" form *-cho* in Nyala East. In the first function, they have adnominal and adverbial uses expressing similarity with an indicated or salient individual or eventuality; they are *similarity demonstratives*.[1] In their second use, they are *quotative markers*. In the third use, they function as *propositional anaphors* (e.g, *think so*). And in their fourth use, they are *complementizers*. Across these four uses, they are morphosyntactically identical and in section 3 we provide a uniform morpho-syntactic analysis, adopting directly from Carstens & Diercks (2013) and Gluckman (2023). In section 4 we address the category of *-chi/-cho*, arguing against the idea that they are related to a verb meaning 'say'—in any of their functions. In section 5 we turn to a formal model of similarity and the meaningful contribution of similarity demonstratives, extending to include the quotative, propositional anaphor, and complementizer uses. In section 6, we take a moment to compare different predictions that similarity-complementizers versus say-based comple-

[1]Terminologically, these have been called *similative demonstratives* and also *manner demonstratives.* We've chosen the term *similarity demonstrative* as the most transparent option, in our opinion.

mentizers are expected to have. We conclude in section 7 with a discussion of other kinds of complementizers from a typological perspective.

2 Multifunctionality of *-chi/-cho*

Below, we repeat the four distinct uses for the similarity demonstrative *-chi* and its "distal" counterpart *-cho* in Nyala East.[2] In this section we will give an overview of each of these uses.

(2) a. *-Chi/-cho* expresses similarity in degree/quality/manner.

b. *-Chi/-cho* is a quotative.

c. *-Cho* is a propositional anaphor.

d. *-Chi* is a *complementizer*.

Historically, *-chi/-cho* is derived from Proto-Bantu **tì*, and the reconstructed meaning is 'that, namely' in Guthrie (1970), with the deictic component *-o*. In many Bantu languages, this turned into a verb meaning 'say'—a common path for similarity demonstratives (Güldemann, 2002, 2008). This didn't happen in Nyala East. Instead, like its cognate *-ti* in Shona (S11) (Güldemann, 2002), *-chi/-cho* is part of the demonstrative paradigm, a point we will return to in section 4. We'll put aside discussion of the category of *-chi/-cho* until then. The purpose of this section is to explain some of the multifunctionality of this morpheme in Nyala East.

[2] In the Bantu classification system (called the "Guthrie codes"), Nyala East [nle] is classified as JE32f according to the updated classification in Hammarström (2019). It is in the Luhya language family, and is closely related to other more well-studied languages like Bukusu (JE31c) and Logoori (JE41).

2.1 Degree/Quality/Manner

In descriptive work on similarity demonstratives, it is helpful to distinguish three kinds (König, 2015). There are in fact languages that distinguish between these, though Nyala East does not.

(3) a. Similarity demonstratives can refer to *quality* ⇝ nouns

b. Similarity demonstratives can refer to *a degree* ⇝ adjectives

c. Similarity demonstratives can refer to *a manner* ⇝ verbs

This largely reduces to a category distinction in English. Quality reference is associated with nouns; degree reference is associated with adjectives; manner is associated with verbs. But since there is no one-to-one mapping between category and meaning across or even within languages, we find that this division is not strictly aligned with category. Still, each function of the similarity demonstrative in Nyala East falls into one of two syntactic camps. It is either an adnominal modifier or an adverbial modifier—where we understand the term "adverbial" to include the predicate classes of verbs and adjectives.

Starting with quality, *-chi/-cho* both can be used to describe a quality of an individual referring expression. *-Chi* is used for indicating something close to the speaker (proximal), and *-cho* for something far from the speaker (distal).

(4) a. *Pointing at a Honda in front of me,*

n-li na omutoka gu-chi
1SG-COP with 3NC.car 3AGR-SD
'I have a car like this.'

b. *Describing people who live in Rwanda,*

avana va-chi …
2NC.person 2AGR-SD
'people like this …'

(5) a. *omutoka gu-li mu-vi*
3NC.car 3AGR-DEM 1AGR-bad
'That car is bad.'

b. *n-li na omutoka gu-cho*
1SG-COP with 3NC.car 3AGR-SD
'I have a car like that.'

One morphosyntactic pattern should immediately be apparent: *-chi/-cho* exhibit morphological agreement in noun class with the head noun in their adnominal use. We will return to this fact in section 3.

Elements that likely qualify as degree-denoting expressions also employ *-chi/-cho* to indicate similarity of degree—though we note that we have not verified that Nyala East is a language that includes degrees in its ontological inventory.

(6) a. *Nekesa mu-leyi*
Nekesa 1AGR-tall
'Nekesa is tall.'

b. *Wekesa mu-leyi a-cho* [indicating towards Nekesa]
Wekesa 1AGR-tall 1AGR-MD
'Wekesa is tall like that [indicating towards Nekesa].'

Manner similarity works the same. Both *-chi* and *-cho* function as adverbial elements, indicating the manner that something is done. In this use, the agreement on *-chi/-cho* is always subject-oriented. It tracks the most local subject if there is one; otherwise it reflects class 15 infinitival agreement.

(7) a. *wa-khin-ire* *o-chi* [I do a little dance]
2SG.SM-dance-PERF 1AGR-SD
'You danced like this [I do a little dance].'

b. *Wekesa ka-khin-ire* *a-cho* [pointing towards Masika]
Wekesa 1SM-dance-PERF 1AGR-SD
'Wekesa danced like that [pointing towards Masika].'

c. *khukhina* *khu-cho* *vi-tinyu*
15NC.dance 15AGR-SD 8AGR-hard
'Dancing like that is hard.'

(8) *Describing how the police used a trap to catch a thief.*

va-nyol-a *omwivi* *va-cho*
2SM-find-FV 1NC.thief 2AGR-SD
'They caught the thief like that.'

Notice that *-chi/-cho* have *exophoric* uses (in Diessel's 1999 terminology) in that they make a spatial contrast between proximal and distal forms, but they also have *endophoric* uses, being used anaphorically to locate individuals/eventualities in the discourse. If we are talking about the Honda that Wekesa owned last year (which he has since sold away), we can compare Masika's car to this discourse salient car with *omutoka gucho* 'car like that', using the "distal" form of *-cho*. Likewise, if someone mentions that they know how to dance ballet, a felicitous response could be (7c) with *-cho*. Again, the comparison here is not purely spatial, but rather discourse-dependent. The ability for spatial meanings to extend to other domains is well-reported (e.g., Diessel 1999), and we will assume that there is a well-reasoned explanation for this dual-use. This paper will not engage with an analysis of the deictic component of *-chi/-cho*, though we will comment on some relevant factors as they come up.

2.2 Quotative

The second function for *-chi/-cho* is that they can be used to introduce (*-chi*) or refer back to (*-cho*) a quotation.

(9) a. *Masika ka-vol-ire a-chi "enywe"*
Masika 1SM-say-PERF 1SM-SD 2PL.PRO
'Masika said "you guys!"

b. *Masika ka-ol-ire a-chi "♫ hmmmm ♫"*
Masika 1SM-say-PERF 1SM-SD
'Masika went "♫ hmmmm ♫"

(10) a. Wekesa said "I'm sorry."

Masika yesi ka-vol-ire a-cho
Masika also 1SM-say-PFV 1AGR-SD
'Masika said that, too.'

Like quotatives in other languages, *-chi/-cho* can stand alone without a verbal predicate.[3]

(11) a. *Masika a-chi "o-che?"*
1NC.child 1AGR-SD 2AGR-how
'Masika said "How are you?"'

b. *Masika a-chi "♫ hmmmm ♫"*
Masika 1SM-SD
'Masika went "♫ hmmmm ♫"

[3]For reasons that are not entirely clear to us, not all speakers accept sentences like (11). In fact, most speakers we've worked with will only allow this kind of sentence if *-chi/-cho* is inflected for 1st/2nd person, but not for third person. We don't know what accounts for this level of variation among speakers.

2.3 Propositional anaphor

The third function is that *-cho* can be used as a propositional anaphor. In this case, it refers to a salient antecedent proposition.

(12) a. *Masika a-par-a a-chi Wekesa a-li Kisumu …*
Masika 1SM-think-FV 1AGR-SD Wekesa 1SM-COP Kisumu
'Masika thinks that Wekesa is in Kisumu…'

b. … *Bernard yesi a-par-a a-cho*
Bernard also 1SM-think-FV 1AGR-SD
'Bernard thinks so, too.'

(13) a. *khukhina khu-layi*
15.dance 15AGR-good
'Dancing is good.'

b. *Masika a-par-a a-cho*
Masika 1SM-think-FV 1AGR-SD
'Masika thinks so, too."

(14) a. *Wekesa neende Nekesa va-uk-a va-chi Masika a-lwal-a…*
Wekesa and Nekesa 2SM-be.surprised-FV 2AGR-SD Masika 1SM-be.sick-FV
Wekesa and Nekesa are surprised that Masika is sick…'

b. … *lakini si-na-uk-a n-cho ta*
but NEG-1SG-be.surprised-FV 1SG.AGR-SD NEG
'…but I'm not [surprised so].'

It is worth noting that the English translations do not match the Nyala East precisely. In English, we are using *so*, as this is the closest match (and in many cases this is what the consultants were asked to translate), but *so* comes with its own quirks in English (Cushing,

1972; Cornish, 1992; Snider, 2017) that are not observable in Nyala East. (The typical explanation is that *so* is connected to the discourse in some way.) Perhaps most salient, *-cho* is not restricted by verb class like *so* is in English. For instance, *so* is degraded with (certain) factives (Kiparsky & Kiparsky, 1971), but *-cho* is perfectly grammatical with all factive verbs, e.g., (14b).

Importantly, *-cho* as a propositional anaphor is still a verbal modifier rather than an argument. We can distinguish the difference by comparing *-cho* with the pronominal propositional anaphor, in this case a class 6 pronoun *ka-*.[4] The pronominal anaphor is argumental—it is only possible with verbs that can take a nominal object. For instance, it is grammatical with *khumanya* 'to know' in (15b) but ungrammatical with *khuonekhana* 'to seem' in (16b). *-Cho* is available for both verbs.

(15) a. *na-many-a n-cho*
1SG.SM-know-FV 1SG.AGR-SD
'I know so.'

b. *na-ka-many-a*
1SG.SM-6OM-know-FV
'I know it.'

(16) a. *vi-onekhan-a vi-cho*
8SM-seem-FV 8AGR-SD
'It seems so.'

b. * *vi-ka-onekhan-a*
8SM-6OM-seem-FV
Intended: '*It seems it.'

This difference tracks the selectional properties of the verbs. *Khumanya* 'to know' can take nominal objects, but *khuonekhana* 'to seem' cannot. As verbs, they both can be modified by adverbial elements.

The two anaphoric expressions also differ in interpretation. The pronominal anaphor only allows strict interpretations of bound pronouns, while *-cho* permits both strict and

[4]Gluckman (2023) discusses four kinds of expletives in Nyala East. We restrict ourselves to *ka-* for readability; the same facts hold for all the expletives.

sloppy.

(17) *Masika a-sover-a a-chi a-lwal-a …*
Masika 1SM-believe-FV 1AGR-SD 1SM-be.sick-FV
'Masika believes that he's sick, …'

a. *neende Nekesa yesi a-sover-a a-cho*
and Nekesa also 1SM-believe-FV 1AGR-SD
'and Nekesa believes so, too

✓Nekesa believes: 'I'm sick.' (sloppy)

✓Nekesa believes: 'Masika is sick.' (strict)

b. *neende Nekesa yesi a-ka-sover-a*
and Nekesa also 1SM-6OM-believe-FV
'and Nekesa believes it, too

✗Nekesa believes: 'I'm sick.' (sloppy)

✓Nekesa believes: 'Masika is sick.' (strict)

There are two takeaways from this data. First, *-cho* is a verbal modifier. It doesn't act argumental, i.e., like a pronoun, because it isn't argumental. Second, *-cho* does not require strict reference to its antecedent, unlike the pronominal anaphor.

2.4 Complementizer

The final function of *-chi* is that it is used as a complementizer to introduce a finite clause.[5]

[5]Note that in some cases, because *-chi* can also be a quotative, it can lead to ambiguity.

(i) *Masika ka-ol-a a-chi n-lu-ire*
Masika 1SM-say-PERF 1AGR-SD 1SG.SM-be.tired-PERF

a. 'Masika said that $I_{speaker}$ am tired' or
b. 'Masika said, "I_{Masika} am tired."'

There may be additional prosodic cues that differentiates quotation from clausal complementation.

(18) a. *o-ver-a o-chi Ingwe ya-vich-ire*
2SG.SM-be.sad-FV 2AGR-SD Ingwe 9SM-win-PERF
'Are you sad that Ingwe won?'

b. *na-ul-iye n-chi Okwako ka-chi-a Nairobi*
1SG.SM-hear-PERF 1AGR-SD Okwako 1SM-go-FV Nairobi
'I heard that Okwako went to Nairobi.'

c. *Masika ka-echulil-a a-chi Wekesa ka-chi-a Nairobi*
Masika 1SM-remember-FV 1AGR-SD Wekesa 1SM-go-FV Nairobi
'Masika remembers that Wekesa went to Nairobi.'

As documented in Gluckman (2023), *-chi* is one of several options for complementizers in Nyala East. Distributionally, *-chi* is entirely productive and can occur with all embedding predicates that take finite clauses.

Clauses headed by *-chi* are syntactically relatively large. They can embed the full range of tense/aspect/mood and topic/focus structures (19a), as well as higher epistemic adverbs (19b). Notably, *-chi* clauses can also include the complementizer *mbo*, (19c), which provides something like hearsay evidentiality and speaker-doubt (Botne, 2020; Gluckman, 2023).

(19) a. *khwa-many-a khu-chi Masika nje o-mw-ich-ire*
1PL.SM-know-FV 1PL.AGR.SD Masika FOC 1AA-1OM-kill-PFV
'We know that Masika was the one who killed him.'

b. *va-sover-a va-chi aondi Masika a-lukhu-chi-a Nairobi*
2SM-believe-FV 2AGR-SD maybe Masika 1SM-FUT-GO-FV Nairobi
'They believe that maybe Masika will go to Nairobi.'

c. *Masika ka-on-a a-chi mbo efula i-kw-a*
Masika 1SM-see-FV 1AGR-SD COMP 9NC.rain 9SM-fall-FV
'Masika saw that it's raining (but I doubt it).'

All of this suggests that *-chi* clauses are not truncated in any significant respect. They are large—large enough to include functional structure in the left-periphery like topic/focus, evidentiality, and speaker-related meanings.

It should be clear that we consider the propositional anaphor *-cho* and complementizer *-chi* as counterparts differing only in deixis. A "distal" proposition is introduced with *-cho*, while a "proximal" proposition is introduced with *-chi*. In this case, the deixis refers simply to whether the similarity demonstrative has a following clause or not. This is consistent with the endophoric uses of demonstratives discussed in Diessel (1999) and it tracks the diachronic trajectory of similarity demonstratives crosslinguistically (Güldemann, 2008).

3 Agreement and grammatical role

Before turning to the meaning of *-chi/-cho*, we want to address some morpho-syntatic issues concerning the agreement found on the similarity demonstratives and the relationship between *-chi/-cho* and the main-clause verb. There is already a fairly extensive literature on explaining agreement on both demonstratives, adverbs, and complementizers within Bantu languages (Carstens, 2008; Diercks, 2013; Carstens & Diercks, 2013; Gluckman, 2023). We will not make any new claims here, but in this section we will spell out the precise mechanism that we are assuming. Our goal here is primarily to show that the same syntactic assumptions can explain the appearance of agreement in all the uses of *-chi/-cho*—an important point to make if we are claiming that these are all instances of the same morpheme.

3.1 Agreement

We assume the basic architecture for agreement from Carstens & Diercks's (2013) study of agreeing 'how' in two Bantu languages closely related to Nyala East, Saamia (JE34) and Bukusu (JE31c). Descriptively, the *wh*-word expressing 'how' is an adverbial element that obligatorily tracks agreement with the most local subject.

(20) *y-emba a-tie*
1SM-sing 1AGR-how
'How does s/he sing?' Saamia, (Carstens & Diercks, 2013, 180)

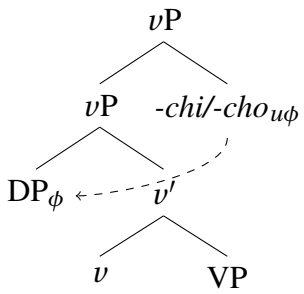
Nyala East has the same thing: *-che* is the agreeing manner-question word, (21). Indeed, *-tie* and *che* are cognate, and both are related to the non-interrogative *-chi/-cho*.

(21) *Masika ka-khin-ire a-che*
Masika 1SM-dance-PFV 1AGR-how
'How did Masika dance?'

Carstens and Diercks analyze this pattern by arguing that 'how' agrees with the subject in spec-*v*P (or lower for unaccusatives and passives), and the subject is subsequently free to undergo movement to spec-TP or higher. We adopt this same idea for adverbial *-chi/-cho*, (22), and assume that this is the mechanism for agreement in all of its adverbial functions (manner demonstrative, propositional anaphor, quotative, and complementizer).[6]

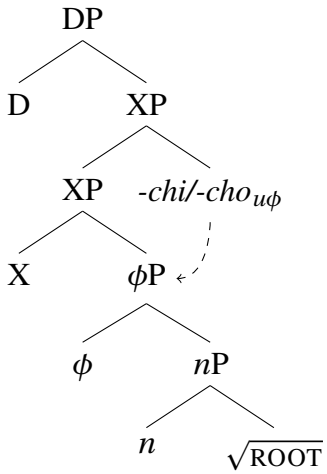
[6]Note that this is a slightly different idea from what Diercks (2013) argues for the agreeing complementizer in Bukusu (which is adopted for Nyala East in Gluckman 2023). In that analysis, the complementizer and the subject must have the same features via a matching algorithm. On the approach above adopted here, the agreement that appears on the matrix verb and the agreement that appear on the similarity demonstrative are only indirectly connected: they both agree with the same target, the subject.

(22)



The same architecture extends straightforwardly to the nominal domain. It is standardly assumed that Bantu DPs consist of a ϕ head which introduces the noun class features, projected above nP and the root (Carstens, 2008; Ndayiragije et al., 2012). We assume that *-chi/-cho* adjoin somewhere above this but below D. Functional sequences of DP typically put manner and kind related material in the DP "middlefield" (cf, Rizzi & Cinque 2016). However high it adjoins in the DP (below D), the closest target for agreement for *-chi/-cho* is ϕP above nP.[7]

(23)



This syntax matches the ordering of adnominal elements in Nyala East DPs. *-Chi/-cho*

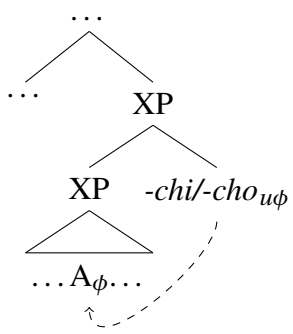
[7]We are assuming right adjunction in the nominal domain, but of course a right-branching structure with roll-up movement is also perfectly compatible with this idea. What is crucial is that the phi-features are calculated based on c-command and locality. See for instance Letsholo (2004); Giusti (2008) and Lusekelo (2013).

can appear before a demonstrative, but not anywhere closer to the noun—though we note that the ordering of DP-internal material is largely free. Determining a "neutral" word order is difficult.

(24) *emitoka (*ki-chi) mi-mali (*ki-chi) ki-tachu (ki-chi) ki-no*
4NC.car 4AGR-SD 4AGR.black 4AGR-SD 4AGR-three 4AGR-SD 4AGR-DEM
'these three black cars (like this)'

Thus, there is a generalizable schema for the similarity demonstrative. In all of its functions, is a right-adjoined phrasal modifier, which looks in its c-command domain for the closest target with ϕ-features, and agrees. The precise target for agreement depends on whether it is adnominal or adverbial.

(25)



The core point here is that the syntactic mechanism for agreement is consistent across uses: *-chi/-cho* finds a local agreement target in its c-command domain. In the case of adverbial *-chi/-cho*, the target is a DP inside of vP. For adnominal uses, the target is the noun itself.

3.2 Grammatical role

There is one last syntactic point we wish to make. We are assuming that *-chi/-cho* are modifiers in *all* of their adverbial functions—including when *-chi* introduces a finite clause. This predicts that embedded clauses headed by *-chi* should act like adjuncts rather than complements. In fact, Major et al. (2021) argue for related Bukusu that clauses headed by the agreeing complementizer *-li* (cognate with *-chi*) are adjoined. The same facts pan out in Nyala East as well. For instance, unergative manner of speech predicates like *khumonya* 'to whisper' can appear with *-chi* clauses (cf, Grimshaw 2015; Kratzer 2016)

(26) *Nekesa ka-mony-a a-chi Masika ka-chi-e Nairobi*
Nekesa 1SM-whisper-FV 1AGR-SD Masika 1SM-go-FV Nairobi
'Nekesa whispered that Masika went to Nairobi.'

(27) *Nekesa ka-mony-a a-chi "Shhh"*
Nekesa 1SM-whisper-FV 1AGR-SD
'Nekesa whispered "Shhh".'

An adverb can also appear between the verb and *-chi/-cho*, (28).

(28) *na-uk-ere sana n-chi Ingwe ya-vich-ere*
1SG.SM-be.surprised-PFV very 1AGR-SD 9NC.Ingwe 9SM-win-PFV
'I'm very surprised that Ingwe won.'

And finally, unlike true complements, clauses headed by the agreeing complementizer cannot be clitic-doubled—though this perhaps tells us something more about the category rather than the grammatical role. Non-DP material cannot clitic-double in general.

(29) a. *Masika ka-yi-ul-iye embosi*
Masika 1SM-9OM-hear-PFV 9NC.rumor
'Masika heard it, the rumor.'

b. * *Masika ka-ka-ul-iye a-chi Wekesa ka-chi-e Nairobi*
Masika 1SM-6OM-hear-PFV 1AGR-SD Wekesa 1SM-cho-PFV Nairobi
Intended: 'Masika heard it that Wekesa went to Nairobi.'

We therefore conclude that *-chi/-cho* are always modifiers in all of their functions, including as a complementizer. This is reflected in the uniform syntax we assume in (25).

4 Verb, speech-verb, or demonstrative?

At this point we believe it would be helpful to ask some questions about category, specifically whether *-chi/-cho* are not in fact defective verbs—at least in their quotative and complementizers functions. In fact, the diagnostics that we'll discuss below momentarily are somewhat equivocal, though we believe that the evidence suggests that they are always demonstrative in nature. However, we will also ask a narrower question as well: Are *-chi/-cho speech* verbs? That is, do they mean 'say'? If so, then these are *say*-complementizers, and we can appeal to one of the many analyses of *say*-complementation that has previously been proposed. Indeed, other Bantu languages certainly have cognates of *-chi/-cho* that are true verbs, like Zulu's *-thi* 'say'. Moreover, it is common to find that similarity demonstratives develop into verbs of speech (Güldemann, 2008; Kuteva et al., 2019). And finally, Major et al. (2021) argue for closely related Bukusu's agreeing complementizer *-li* that it is a stative 'say' verb. We therefore want to address head-on whether the same approach extends to Nyala East.

4.1 Verb or demonstrative

At first blush, the subject-oriented agreement that appears on *-chi/-cho* would appear to be a strong argument that *-chi/-cho* are verbal. In fact, this is a red herring. The agreement markers that appear on *-chi/-cho* are near identical to what is found for both subject agreement as well as on demonstrative forms.[8] For instance, the distal demonstrative *-no* has the exact same agreement paradigm as the similarity demonstrative. (Note that Nyala East has a voicing dissimilation rule, commonly known as Dahl's Law, found broadly in Bantu languages, that creates that the *ku-/gu-* alternation.)

(30) a. *mutoka ku-no*
3car 3AGR-DEM1
'this car'

b. *mutoka gu-cho*
3car AGRSD
'a car like that'

(31) a. *omukhasi a-no*
1woman 1AGR-DEM1
'this woman'

b. *omukhasi a-chi*
1woman 1AGR-SD
'a woman like this'

A complete list of the agreement paradigm is shown in Table 1.

[8]We note incidentally that if *-chi/-cho* are verbs, then the agreement that appears on them in their adverbial use is actually somewhat difficult to explain. The issue is that verbal subject agreement in Bantu is strictly associated with finite tense. In formal terms, subject agreement is a realization of a ϕ-probe on finite T. But as we note below, *-chi/-cho* don't inflect for tense at all (finite or nonfinite), so it's not clear where the subject features could come from. Still there are technical ways around this problem, so we do not believe it is strong evidence against a verbal analysis.

Class	Noun marker	Subj. agr.	Dem. agr.	Adj. concord	Example
1	(o)mu-	a-/ka	a-/o-	mu-	omusomi, ‘student’
2	(a)va-	va-	va-	va-	avasomi, ‘students’
3	(o)mu-	ku-	ku-	mu-	omusaala, ‘tree’
4	(e)mi-	ki-	ki-	mi-	emisaala, ‘trees’
5	e-	li-	li-	e-	ekhene, ‘monkey’
6	(a)ma-	ka-	ka-	ma-	amakhene, ‘monkeys’
7	(e)si-	si-	si-	si-	esitau, ‘book’
8	(e)vi-	vi-	vi-	vi-	evitau, ‘books’
9	e-	e-	e-	e-	emoosi, ‘cow’
10	e-	chi-	chi-	e-	emoosi, ‘cows’
11	(o)lu-	lu-	lu-	lu-	olusia, ‘string’
12	(a)kha-	kha-	kha-	kha-	akhalang’o, ‘small door’
13	(o)chu-	chu-	chu-	chu-	ochulang’o, ‘small doors’
14	ou-	ou-	ou-	ou-	oulayi, ‘lie’
15	(o)khu-	khu-	khu-	khu-	okhuchia, ‘to go’
21	(o)ku-	ku-	ku-	ku-	okupusi, ‘big cat’

Table 1: Noun classes and demonstrative agreement in Nyala East

This is a typical Bantu phenomenon. Generally, elements that bear agreement (which is a large class of elements) take either the “pronominal” agreement forms or the “concordial” agreement forms. The elements that take the pronominal agreement are (i) verbs, (ii) demonstratives, (iii) possessive pronouns, (iv) certain quantifiers, and (v) the linker/connective. The elements that take the concordial agreement are (i) adjectives and (ii) numbers. In other words, the particular agreement forms that appear on *-chi/-cho* are not specific to verbs. So the argument from agreement does not go through—nor the does the argument that the agreement on *-chi/-cho* is subject-oriented. As we discussed above, the agreement mechanism that Carstens & Diercks (2013) set up tracks subjects via locality, not grammatical role. The agreement simply finds a target in its c-command domain. As a

*v*P-modifier, it happens to find the subject, regardless of category.

Another argument that *-chi/-cho* are verbal is that they can stand alone as the sole predicate in a sentence, (32), repeated from earlier.

(32) *Masika a-chi "o-che?"*
1NC.child 1AGR-SD 2SM-how
'Masika said "How are you?"'

However, these are slightly misleading. First, again, true demonstratives are also possible as the "predicate"—using the term loosely. (Note that Nyala East requires a null copula in certain non-verbal predicational sentences; see (6a) above.)

(33) *avana va-no*
2NC.child 2AGR-DEM
'These are the children.'

More importantly, non-verbal quotatives can often appear as the sole "predicate" in a clause crosslinguistically—a point that is extensively discussed in Güldemann (2008, 53ff). This is shown for German *so* (34a) and Komnzo *nima* (34b) and even the English translation of (34a) with 'like' (cf, Davidson 2016).

(34) a. *und ich so: "Okay, das ist deine Chance."*
and I thus: okay this is your chance
'And I am like, "Okay, this is your chance."' German

b. *naf nima "Nakre, wimäs=en mni*
3SG.ERG like.this Nakre mango.tree=LOC fire
b=ŋasog".
MED=2:3.SBJ.NPST.IPFV.climb
'He (said): "Nakre! The fire is climbing up the mango tree".' Komnzo

(Diessel & Breunesse, 2020, 12)

As Güldemann (2008, 56) ultimately concludes, "verbs in general are probable, but not indispensable QI-elements [quotative index elements]".

And finally, *-chi/-cho* can bear no other verbal morphology—no infinitives/gerunds, no negation, no tense/aspect/mood, no valency, etc. ('To say' is the unrelated verb *okhwola/okhuvola*.)

(35) a. * *okhu-chi*
15NC-say
Intended: 'to say/saying'

b. * . . . *si-a-chi*
NEG-1AGR-SD
Intended: 'not like this'

c. * . . . *a-chi-ang-a* . . .
1SM.PAST-SD-PROG-FV
Intended: 'saying this / being like this'

d. * *ka-ol-a* *a-n-chi-ir-a*
1SM-say-PERF 1AGR-1SG.OM-SD-APPL-FV
Intended: 'She said so to me.'

We believe then that the data on the whole do not demonstrate that *-chi/-cho* are verbs. But of course, a case could still be made. We could simply claim that these are "defective" verbs (Bantu languages also have plenty of those) and stipulate that this kind of verb is morphologically very restricted. We want to be clear that this is an extant possibility. In fact, this is the approach that Major et al. (2021) take with respect to Bukusu's agreeing complementizer *-li* (again, cognate with *-chi*). But merely showing that *-chi/-cho* is a verb does not tell us what its meaning it. This is the question we'll turn to next.

4.2 The meaning of 'say' and 'like'

Putting aside the category of *-chi/-cho*, we can ask a somewhat narrower question: are *-chi/-cho* 'say'-complementizers? Do they mean 'say'? Alternatively, it is possible that *-chi/-cho* retain the meaning of a similarity demonstrative as verb, meaning something like 'be/do/act like this/that'.[9] We can tease apart this difference. As observed in Grimshaw (2015), an event of saying has an entailment, which is that some "linguistic material" must be produced. This observation explains why (36a) is odd.

(36) a. # Ayka said, *performs enthusiastic karate gestures*

b. Ayka was like, *performs enthusiastic karate gestures*

(Rudin, 2024)

The object of *say* can't just be a gesture or act, it has to be language or speech in some form. Not so with the similarity marker *like* in English in (36b), which readily accepts both linguistic material as well as simply a gesture (Davidson, 2016). Note that the term "linguistic material" is quite broad. It corresponds to speech/sign, but also thought, i.e., anything that is roughly interchangeable with speech/sign (Rudin, 2024). Crucially, this is why *say* can be a complementizer; linguistic material includes propositions. (See subsection 5.2 below for more discussion.) As we can see in (**??**), *-chi/-cho* do not require linguistic material. This is trivially true in the quality/degree/manner use, but it also true in the quotative use (38)

(37)

[9]For instance, this is what Güldemann (2002) ultimately concludes for Shona's *-ti*. See also Devos & Bostoen (2012), who argue that multiple Bantu languages have a complementizer which developed from proto-Bantu *-gìd-* 'do'.

(38) *Describing the face that Masika made when he screamed,*

Masika ka-kukul-ye *a-chi* [opens mouth, scrunches eyes]
Masika 1SM-scream-PFV 1AGR-SD

'Masika screamed like [gesture].'

Importantly, when we compare *-chi/-cho* with the verb *okhwola/okhuvola* ''to say' we see a clear difference: *-chi/-cho* can embed gestures and acts, but *okhwola/okhuvola* cannot.

(39) a. *Looking at this sign:*

esaini *e-chi* [hand gesture of fingers illustrating walking man]
9NC.sign 9AGR-SD

'a sign like [hand gesture].'

b. # *esaini* *e-wol-a* [hand gesture of fingers illustrating walking man]
9NC.sign 9SM-say-FV

'The sign says [hand gesture].'

(40) a. *We are watching Nekesa slipping on some wet rocks and falling while crossing a stream.*

Masika yesi a-cho
Masika also 1SM-SD

'Masika is also like that [falling on wet rocks].'

b. # *Masika yesi a-ol-a*
Masika also 1SM-say-FV

'Masika also says (that) [falling on wet rocks].'

(41) a. *Masika a-chi* [flailing arms above his head]
Masika 1AGR-SD

'Masika is like [flailing arms above his head]

b. # *Masika ka-ol-a* [flailing arms above his head]
Masika 1SM-say-FV
'#Masika said [flailing arms above his head]

In other words, *-chi/-cho* do not have the meaning expected of 'say'. Instead, they are consistent with the meaning expected from a similarity demonstrative.

Our conclusion differs from that of Major et al. (2021), who argue for Bukusu that the agreeing complementizer *-li* is a stative verb. We summarize their findings in Table 2. In our paper, we have not included the majority of their diagnostics because they do not address the question that is relevant here: whether *-chi/-cho* is a verb or a demonstrative. For instance, consider the first row of Table 2. We have shown above that *-chi/-cho* is not possible with aspectual morphology. While this fact is not consistent with an eventive 'say' (or 'do like'), it is entirely consistent with either a stative 'say' according to Major et al. (2021) or a demonstrative; neither are expected to be able to bear aspectual morphology. For the stative verb, this is because it lacks the right functional structure and/or semantics. For the demonstrative, this is because it is not the right category.

In the end, the only definitive tests are (i) *-chi/-cho* can embed or make reference to gesture, i.e., non-linguistic material, and (ii) the fact that *-chi/-cho* share a form with "true" manner demonstratives.[11] This last point should not be overlooked. Assuming that *-chi/-*

[10]"Manner modification" refers to whether it can be modifier by a manner adverbial. The eventive verb *say* can ('say slowly'), but the stative verb and demonstrative cannot.

[11]We note one argument from Major et al. (2021) that does not pan out in Nyala East. In Bukusu, clauses can be concatenated with minimal inflection on the second verb, (i). Thus, morphologically, the agreeing complementizer looks identical to this second "reduced" verb. In Nyala East, however, while the verb can also be relatively uninflected (bearing only subject agreement), there must also be a coordinating conjunction, (ii).

(i) *Wekesa a-kha-engil-e mu-nju a-tim-a*
1NC.Wekesa 1SM-FUT-enter-FUT 18NC-house 1SM-run-FV
'Wekesa will enter the house running.' Bukusu, (Major et al., 2021)

	eventive 'say'	stative 'say'	demonstrative
Aspect	Yes	No	No
Tense	Yes	No	No
Subject-oriented agreement	Yes	Yes	Yes
Negation	Yes	No	No
Manner modification[10]	Yes	No	No
Goal argument	Yes	No	No
Passive	Yes	No	No
Nominal content objects	Yes	No	No
Embeds speech	Yes	Yes	Yes
Embeds gesture	No	**No**	**Yes**
Homophony with manner demonstrative	No	**No**	**Yes**
Homophony with say verb	Yes	Yes	No

Table 2: Predicted properties of different kinds of *say*-verbs, compared with demonstratives

cho is a stative verb (in its complementizer/quotative use) means that it is a version of an eventive verb that doesn't exist. Assuming that it's a similarity demonstrative (in its complementizer/quotative use) means that it is a version of something that *does* exist.

5 Similarity semantics

Summarizing what we've seen above, *-chi/-cho* are multifunctional in Nyala East, used to convey similarity of individuals and manners, introduced propositional anaphora, quotatives, and embedded clauses. Importantly, this multifunctionality is well-attested crosslinguistically. Many unrelated languages show a similar overlap, Table 3.

(ii) *Masika ka-eng-iye mu-nju *(n-)a-tim-a*
1NC.Masika 1SM-enter-PFV 18NC.house CRD-1SM-run-FV
'Masika entered the house running.' Nyala East

	SD	Prop. anaph.	Quot.	Compl.	Source
Polish (Slavic)	*taki/tak*	*tak*	*tak*	*tak*	(Citko, 2000)
Shona (Bantu)	*-ti*	*-ti*	*-ti*	*-ti*	(Güldemann, 2002)
Finnish (Fino-Ugric)	*-in*	*-in*	*-in*	*-inku*	(Kehayov, 2016)
Wolof (Niger-Congo)	*ni*	*ni*	*ne*	*ne*	(Baglini, 2016)
Pesh (Chibchan)	*=kán*	*-kán*	??	*=kán*	(Chamoreau, 2017)
Kambaata (Cushitic)	*-g*	*-g*	*-g*	*-g*	(Treis, 2008)

Table 3: Crosslinguistic multifunctionality of similarity demonstratives. The column SD covers manner/degree/quality, though not all sources report all three sub-functions.

In this section, we will spell out the shared meaning that unites these uses, adopting directly from Baglini (2016) and Bryant & Bhadra (2020) who draw on work on the semantics of *similarity*. In developing a theory of similarity demonstratives, there are two things to keep track of.

1. What is the demonstrative deictically referring to? That is, what is similar to what?

2. How do we formally define when something is (or isn't) similar to something else? What counts as "similar"?

Answering the first question, we will assume following Umbach & Gust (2014) that similarity demonstratives can point to individuals and events (which we take to cover events and states).[12] Thus, we can point to a car and claim similarity to some property of that car. And we can point to an event and claim similarity with some property of that event. Note that we are assuming "pointing" is not technically necessary, and indeed, in some cases is not warranted, particularly in the cases of endophoric uses when the ob-

[12]We may need to make reference to a distinct ontological type for manners (Piñón, 2007; Schäfer, 2008), but we'll put this issue aside here. Additionally, we are not engaging with the question of whether degrees are included in Nyala East's type-ontology.

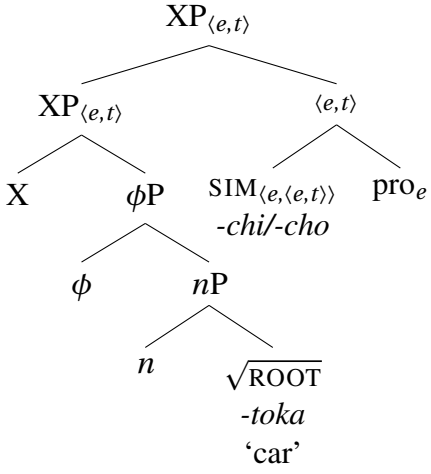
ject being "pointed" to by the demonstrative it merely discourse salient, but not spatially locatable. Again, we will not deal with the deictic meaning here.

Answering the second question, we adopt a context-sensitive method for identifying similarity between individuals and events as in e.g., Umbach & Gust (2014); Baglini (2016); Bowler (2021); König & Umbach (2018) (and see also Landman & Morzycki 2003; Anderson & Morzycki 2015; Mendia 2020). We assume a type-flexible relation SIM from Umbach & Gust (2014) which asserts that two entities are similar relative to some salient "classification" feature F. *-Chi/-cho* are realizations of SIM, differing in deixis.

(42) $\text{SIM}(a, a_{\text{target}}, F)$
'a and a_{target} are similar relative to a salient feature F'
where a, $a_{\text{target}} \in D_e$ or a, $a_{\text{target}} \in D_v$
   a. $[\![\text{-}chi]\!]^g = \lambda a_{\text{target}} \lambda a.\text{SIM}(a, a_{\text{target}}, F)$
   defined iff a_{target} is proximal to the speaker
   b. $[\![\text{-}cho]\!]^g = \lambda a_{\text{target}} \lambda a.\text{SIM}(a, a_{\text{target}}, F)$
   where defined iff a_{target} is distal from the speaker

The similarity demonstrative's first argument is a pro-form, the target of the deixis. The pro-form refers to either a contextually salient individual or event. SIM *pro* intersects with the noun via predicate modification (Heim & Kratzer, 1998). (Recall from above that the position of *-chi/-cho* in the nominal is somewhere between ϕP and D, i.e., before the individual argument has been saturated. We assume that everything above nP is a property of individuals, $\langle e, t \rangle$.)

(43) a.



b. $[\![\textit{omutoka guchi pro}_1]\!]^g = \lambda x.\ \textsc{car}(x) \wedge \textsc{sim}(x, g(1), F)$

The classification feature F is anything for which there is, or we can create *ad hoc*, some kind of comparison class. It is not necessarily scalar, though it can apply to scalar concepts.

(44) a. SPEED = {slow, quick, fast}
b. HEIGHT = {short, medium, tall}
c. TYPES-OF-DANCES = {waltz, jazz, flamenco, ballet, . . . }
d. NATIONALITIES = {Rwandan, Congolese, Ugandan, Kenyan, . . . }
e. . . .

The classification feature is contextually determined. For instance, the same phrase *omutoka guchi* 'a car like this' is dependent on the context for establishing the comparison class.

(45) a. *Pointing at the Honda in front of me*
n-li *na* *omutoka gu-chi*
1SG.SM-COP with 3NC.car 3AGR-SD
'I have a car like this.'
b. $[\![(45a)]\!]^g$= 1 iff $\exists x |$ I-HAVE$(x) \wedge$ CAR$(x) \wedge$ SIM$(x, g(1),$ TYPES-OF-CAR$)$

c. *Pointing at the red car right here*
n-li *na* *omutoka gu-chi*
1SG.SM-COP with 3NC.car 3AGR-SD
'I have a car like this.'

d. $[\![(45c)]\!]^g = 1$ iff $\exists x|\text{I-HAVE}(x) \wedge \text{CAR}(x) \wedge \text{SIM}(x, g(1), \text{COLORS})$

Formally what SIM does is that it uses the contextual feature F to create an *equivalence class* for the relevant objects. An equivalence class is a collection of objects organized, or "partitioned', according to what properties they share.[13] For instance, in (45a), we partition the set of cars with respect to their types, SIM then asserts that the two relevant individuals belong to same subset of cars, i.e., they're both Hondas. Similarly, (45c) looks at the totality of cars but divides them up according to color. If both cars belong to the same subset of cars vis-à-vis color, then the statement is evaluated as true. (Note that Umbach & Gust 2014 invoke a special kind of measure function to deal with the fact that not all properties are ontologically the same.)

As Umbach & Gust (2014) explain (and see also Mendia 2020), this essentially invokes an *ad hoc* kind. After all, a kind (on one popular understanding) is simply a collection of elements that shares canonical properties. The kind DOG is a plurality of individuals that share dog properties: four legs, hair, a tail, barks, etc. The kind MUG is a plurality of individuals that have mug properties: handle, holds hot liquid, ceramic, etc. What SIM

[13]The partitioning is accomplished via an equivalence relation. For completeness, these are the formal definitions of equivalence relation, equivalence class, and partition that we are assuming.

(i) *Equivalence Relation.* Let R be an equivalence relation. Then:
$a \simeq_R b$ iff $\forall x[(R(a,x) \leftrightarrow R(b,x)) \wedge (R(x,a) \leftrightarrow R(x,b)]$

(ii) *Equivalence Class.* Let $[]_R$ be a function from D to $POW(D)$ such that:
$\forall x \in D[[x]_R = \{y : y \in D \wedge x \simeq_R y\}]$

(iii) *Partition.* Let A be a non-empty set. A partition is a collection of subsets of A iff (i) for any two subsets X and Y, $X \cap Y = \emptyset$ and (ii) the union of all subsets of A equals A. (Mendia, 2020, 597)

does is that it uses the feature F to create something that is functionally equivalent to a kind, and then asserts that two entities belong to the same subkind. There is in fact a long-standing connection to kinds in analyses of similarity demonstratives. Carlson (1977); Landman & Morzycki (2003); Anderson & Morzycki (2015) all propose that similarity demonstratives involve reference to a kind term.[14] However, as Umbach & Gust (2014) point out, this has two unwanted consequences. First, it requires us to be able to *point* to a kind individual or event. But since kinds are abstract concepts, they are not something that we can physically point to. Second, kinds are fairly restricted objects. Though it is possible to create *ad hoc* kinds (again, see Mendia 2020), we can only do so under specific syntax conditions. But similarity demonstratives do not meet those conditions; we can point to anything and use a similarity demonstrative, not just things which are canonical kinds.

The similarity demonstrative works the same way in its adverbial form, but now the pro-form is referring to a salient event, rather than an individual. *-Chi/-cho* compares the similarity of the main clause predicate and the indicated event relative to a given feature. We'll adopt from Rudin (2024) the idea that there is a special kind of pro-form which refers to salient "performances" (equivalent to Davidson's 2016 "demonstrations"). It is an event pro-form, and it refers to a contextually salient event of a performance. A performance is

[14]Concretely, Landman & Morzycki (2003) propose to analyze various forms of similarity demonstratives as in (i), which we've adapted to apply to *-chi/-cho*, where the demonstrative makes reference to a kind k that matches the relevant context. Anderson & Morzycki (2015) adopt this basic approach, but add the kind as a variable in the semantic representation, (ii).

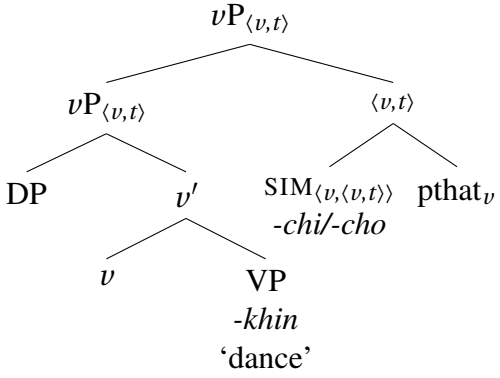
(i) $[\![\text{-chi}_1/\text{-cho}_1]\!]^g = \lambda a.a$ realizes k_1
where $a \in D_e$ or $a \in D_v$ and $k \in D_k$

(ii) $[\![\text{-chi/-cho}]\!] = \lambda k \lambda o.^{\cup} k(o)$ (Anderson & Morzycki, 2015, 808)
where $k \in D_k$, $o \in D_e$ or $o \in D_v$ and $^{\cup}$ "predicativizes" kinds

just that—it is some act which may be physical (a gesture), a sound, or a speech-act.

(46) a. $[\![\text{pthat}]\!]^c = p(c)$ type: v
Where $p(c)$ is that performance in c that is paratactically associated with *pthat* via cotemporaneity (Rudin, 2024)

b. $[\![\text{SIM pthat}]\!]^c = \lambda e.\ \text{SIM}(e, p(c), \text{F})$

c. 

(47) a. *Pointing at Wekesa dancing,*
Masika ka-khin-ire a-cho
Masika 1SM-dance-PFV 1AGR-SD
'Masika danced like that.'

b. $[\![(47a)]\!]^c = 1$ iff $\exists e[\text{dance}(e) \wedge \text{AGENT}(e)=\text{Masika} \wedge \text{SIM}(e, p(c), \text{TYPES-OF-DANCES})]$

In prose, this says: "Masika danced and his dancing was similar to Wekesa's dancing over there in terms of types of dancing." Again, the set of events is partitioned according to dance-type, and SIM asserts that Masika's dancing and Wekesa's dancing belong to the same subset. There's nothing new here, but it is worth taking a moment to consider some deeper issues that go beyond what is proposed here. First, how "different" can similarity be? That is, what is the threshold for two individuals/events being similar? The answer is that it depends on the context. For instance, in a context in which Masika, Wekesa, and Nekesa are all dancing a waltz, but Masika and Wekesa are each adding a little hop into

theirs, we can say that Masika is dancing like Wekesa, and not like Nekesa. Here, even though all three are dancing similarly with respect to waltzing, Masika and Wekesa are dancing similarly *in a different way* from Nekesa. Ultimately, this is achieved by how we partition the set of objects under F.

Finally, we want to point out a "mismatch" between the syntax and the semantics. In the adnominal use, the agreement on *-chi/-cho* reflects what is in the similarity relationship. In (45a), Class 3 agreement on *-chi* tracks the noun *omutoka* 'car', and we are comparing cars in the similarity relationship. But in the adverbial cases, the agreement does not have this function. What is similar in these cases are events, but the agreement tracks the subject. We take this mismatch to be a result of the autonomy of syntax. The agreement mechanism is blind: *-chi/-cho* comes with unvalued ϕ-features and blindly looks for an appropriate target for agreement. It happens to be that in the adnominal cases, the target matches the semantic comparison. But in the adverbial cases, it doesn't. Clearly in the expansion from adnominal to adverbial function (the standard trajectory; Güldemann 2008), the semantic meaning and the syntactic function diverged.

5.1 Quotative similarity

This same approach extends to the quotative and complementizer versions of *-chi* as well (cf, Baglini 2016; Bryant & Bhadra 2020). The intuition (originally voiced in Lord 1993, chapter 7) we will pursue is that the similarity demonstrative conveys something like "Masika spoke/thought like this: …". What is being "pointed" to in these cases is either a speech performance (for quotation) or the content of the thought (for complementation).

The precedent for our approach is recent work on *say*-complementizers in Grimshaw

(2015); Kratzer (2016); Major (2021); Rudin (2024). They start from the observation that manner of speech verbs can optionally appear with a quote or a subordinate clause.

(48) a. Masika {whispered, sighed, chortled, grunted, . . . } "it's raining."

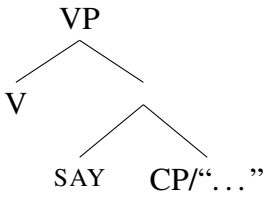
b. Masika {whispered, sighed, chortled, grunted, . . . } that it's raining.

Kratzer's (2016) suggestion is that there is a silent speech verb, SAY, that is responsible for introducing this subordinate constituent, noting that languages in fact have grammaticalized complementizers from the word 'say'.

(49) a. Masika {whispered, . . . } SAY "it's raining."

b. Masika {whispered, . . . } SAY that it's raining

(50)

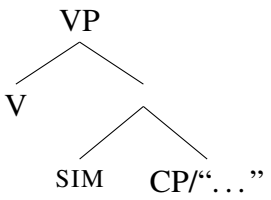


Recall from earlier that SAY is restricted to linguistic material, so *??Masika whispered* SAY [gesture]" is odd because gestures do not count as linguistic material. This doesn't hold for Nyala East, because, as we showed above, gestures are perfectly acceptable after *-chi*. Instead, Nyala East must make use of SIM as its quotative/complementizer.

(51) a. Masika whispered SIM "it's raining."

b. Masika whispered SIM that it's raining

(52)



For quotation, things work exactly like we've explained above. In this case, *pthat* is used to refer to the speech part of a performance and equivalence class is based on speech. (This is essentially the approach taken in Baglini 2016 looking at Wolof.)

(53) *Masika ka-vol-ire a-chi "enywe!"*
Masika 1SM-say-PERF 1AGR-SD 2pl.PRO
'Masika said "you guys!"

a. *Masika [ka-vol-ire [a-chi pthat]]*
Masika 1SM-say-PERF 1AGR-SD
b. $[\![\text{pthat}]\!]^c$ = the performance of *enywe*

c. $[\![53a]\!]^c = 1$ iff $\exists e|\text{say}(e) \wedge \text{Agent}(e) = \text{Masika} \wedge \text{SIM}(e, p(c), \text{SPEECH})$

In prose this says that Masika spoke, and his speech was similar to the performance of saying *enywe* in terms of the sounds that were produced. For Rudin, the quotation is not actually part of the syntactic representation, but instead it is associated with *pthat* via "cotemporaneity". It is the performance associated with the referenced event. Importantly, unlike with SAY, SIM can be used to refer to a gesture not just a quotation, so (54a) is perfectly acceptable.

(54) a. *Describing the face that Masika made when he screamed,*

Masika ka-kukul-ye a-chi [opens mouth, scrunches eyes]
Masika 1SM-scream-PFV 1AGR-SD

'Masika screamed like [gesture].'

b. $[\![54a]\!]^c = 1$ iff $\exists e|\text{scream}(e) \wedge \text{Agent}(e) = \text{Masika} \wedge \text{SIM}(e, p(c), \text{GESTURE})$

5.2 Similarity in the complementizer

We now turn to the analysis of *-chi/-cho* in their propositional anaphora and complementizer function, which as we noted above, are two sides of the same coin. This section requires some additional assumptions about the semantics of clausal embedding, and so we will start with spelling these out. The traditional approach to attitudinal complementation involves modal quantification as part of the meaning of the embedding predicate, as in (55).

(55) $[\![\text{believe}]\!] = \lambda P \lambda w.\ \forall w' \in \text{DOX}_w, P(w') = 1$

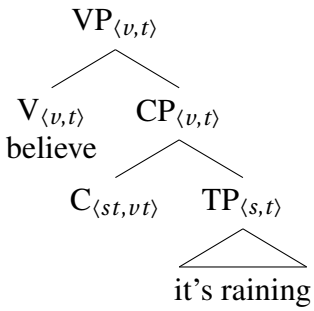
On this view, the complementizer doesn't contribute any meaning to complementation semantics; its purpose is syntactic. The complementizer is just a functional element which is needed to satisfy selectional requirements.

In the past two decades a growing body of work has argued for a different idea, where the embedded clause is responsible for the modal work (Kratzer, 2006; Moulton, 2009). There are a few different versions of this idea, but they all look roughly like (56).

(56) a. $[\![\text{believe}]\!] = \lambda e.\text{believe}(e)$
b. $[\![\text{C(omplementizer)}]\!] = \lambda P \lambda e.\text{CONTENT}(e) = \{w : P(w)\}$

A CONTENT function is way of locating the relevant doxastic/bouletic/etc alternatives in an event (Hacquard, 2010). On this view the embedding predicate only plays an indirect role in determining the modal base. The end result is roughly the same as the Hintikkan view, except that the clause is a modifier of the embedding predicate, combining via predicate modification.

(57) a.



b. $[\![\text{VP}]\!] = \lambda e.\text{believe}(e) \wedge \text{CONTENT}(e) = \{w : \text{raining}(w)\}$

One immediate result of this way of thinking about embedded clauses is that it directly explains why manner adverbs are used as propositional anaphors: embedded clauses are predicate modifiers and they describe a way of thinking, believing, knowing, etc. This is what the similarity demonstrative picks up on. That is, two eventualities can be similar *in their content*.

(58) a. *Wekesa a-par-a a-chi Nekesa a-lwal-a …*
Wekesa 1SM-think-FV 1AGR-SD Nekesa 1SM-be.sick-FV
'Wekesa thinks that Nekesa is sick …'

b. … *Masika yesi a-par-a a-cho*
Masika also 1SM-think-FV 1AGR-SD
'…Masika thinks so, too.'

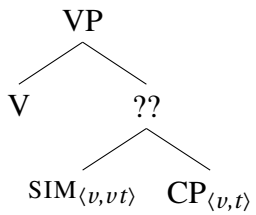
c. $[\![(58b)]\!]^c = 1$ iff $\exists e[\text{think}(e) \wedge \text{AGENT}(e) = \text{Masika} \wedge \text{SIM}(e, p(c), \text{CONTENT})]$

In prose, "Masika's thinking is similar to Wekesa's thinking with respect to whether Nekesa is sick." That is, the content of Masika's thought is similar to the content of Wekesa's thought. Slightly more formally, the equivalence class over events here is partitioned according beliefs. Masika and Wekesa's thinking events belong to the same subset of this partition, i.e., they have same belief that Nekesa is sick.

But what does it mean to be similar in content? Intuitively, Wekesa's and Masika's thoughts must be overlapping in some relevant respect. Remember that similarity is context dependent, so there is no one way for content to be similar. They don't have to think the exact same thing, but they have to "agree" on at least one thing. For instance, it would be felicitous to utter (58b) in a context in which Wekesa thinks that Nekesa has malaria while Masika thinks that Nekesa has a common cold. Both people think that Nekesa is sick, so they agree on that, but they each have their own way of thinking about the kind of sickness. This kind of "close enough" is what explains the sloppy pronoun readings discussed above in (17). Masika and Nekesa agree that *someone* is sick—but they're not in agreement on who.

The same idea can be ported over to when *-chi* embeds a clause, with one small caveat: an embedded clause cannot simply replace *pthat*. The issue is that there is a type-mismatch in (59). The CP is a property of events, but SIM is looking for just an event.

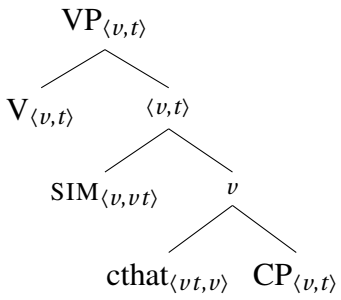
(59)



There are a couple of (reasonable) ways around this. In keeping with the idea that the complementizer use and propositional anaphor use differ only in deixis, we will assume that there is a event pro-form, which we'll call *cthat*, and the clause is appositively associated with this. (We believe that this is closest to Lord's 1993 original intuition about the function of similarity demonstrative complementizers.)[15]

[15] Alternatively, we might adopt a page from Anderson & Morzycki (2015) who follow Caponigro (2004) in using an existential type shift which converts a predicate into a generalized quantifier, which then under-

(60) a.



b. ⟦cthat⟧ = $\lambda P.\iota e[P(e)]$
defined iff e has propositional content.

Functionally, *cthat* lifts the associated clause to an atomic type v which combines directly with SIM. Just like in the case of propositional anaphora, the function of SIM is to use the equivalence class for the event based on CONTENT.

(61) *Masika a-par-a a-chi Wekesa a-lwal-a*
Masika 1SM-think-FV 1AGR-SD Wekesa 1SM-be.sick-FV
'Masika thinks that Wekesa is sick.'

a. *Masika a-par-a [a-chi [cthat [Wekesa a-lwal-a]]]*
Masika 1SM-think-FV 1AGR-SD Wekesa 1SM-be.sick-FV

b. ⟦(61)⟧ = 1 iff $\exists e|$ think$(e) \wedge$ Agent(e) = Masika $\wedge$ SIM$(e, \iota e($CONTENT(e) = $\{w'|$Masika-sick$(w')\}$, CONTENT$)$

In prose this is roughly, "the event of Masika's thinking is similar in content to the event whose content is that Wekesa is sick." This is the "proximal" counterpart to the propositional anaphoric use that *-cho* has, but instead of locating a proposition in the discourse, the proposition is introduced cataphorically by *-chi*.

goes quantifier-raising, leaving behind a single type that combines directly the predicate. This is a possibility but it clearly further complicates the picture in ways that are unappealing. For instance, if clauses undergo quantifier raising, they should be islands for extraction, contrary to fact. An alternative is to use an iota-shift operator—and that's functionally what we've proposed above. Note that Anderson & Morzycki (2015) reject the iota shift for their cases precisely because it would clash with the kind-object, but this is not a problem on our approach, since kinds are not invoked.

As a last point of comparison, this approach is similar to that of Bryant & Bhadra (2020), who analyze complement clauses in Oromo headed by a *akka* 'as'. Though there are a few empirical differences between Oromo complements clauses and Nyala East, the crucial difference is that *akka* is not, on its own, a *demonstrative* form. It corresponds closer to English *as*, or *like* without *that*. Thus, Bryant & Bhadra (2020) rely on a slightly difference mode of composition. But the core is the same: similarity is invoked in the semantics of embedding in Oromo.

The broader takeaway is that the manner deictic *-chi* is viable as a complementizer because it can target (i) events and (ii) relate events in terms of similarity of content.

6 Comparing SIM and SAY as complementizers

We have laid out above how similarity semantics (and its associated syntax) can correctly explain the multifunctionality of similarity demonstratives, arguing that the source of this multifunctionality is an abstract SIM relation. In building this argumentation, we invoked the proposal that some languages make use of an abstract SAY relation in introducing an embedded clause or quotation. In fact, the meaning we have assigned to SIM above predicts that it should overlap with SAY significantly, a point of potential confusion in diagnosing complementizer semantics. We want to address now the differences between these elements, focusing on the meaning distinctions.

We will start with an intuitive hypothesis about the core meaning differences between SAY and SIM.

(62) a. SAY is fundamentally "transitive": Minimally, a saying event entails that

something is produced, and it entails that someone or something be a source of the production.

b. SIM is fundamentally "relational": Minimally, similarity entails the existence of two entities and some feature used to compare them.

The first part of (62a) simply hypothesizes that all saying events produce *something*—it is an extension of the meaning postulate for SAY from Grimshaw (2015). The second part of SAY adopts from Major (2021) the fact that there is always a *source* for what is produced, i.e., some entity that is responsible in some way for saying event. SIM, on the other hand, is hypothesized not to require a source or production, but it does require some contextual feature that we can use to compare entities.

We've already covered one difference above: SIM does not require linguistic material (i.e., speech/sign) in its quotative use. Thus *Masika was like [*gesture*]* is grammatical. This difference also predicts that SIM should be possible not only with manner of speech verbs (cf, Kratzer 2016), but also manner of *motion* verbs, i.e., verbs which do not entail any linguistic material. That is, SAY should only be available for (63a), but SIM is available for both (63a) and (63b).

(63) a. *Nekesa ka-mony-a a-chi Masika ka-chi-e Nairobi*
Nekesa 1SM-whisper-FV 1AGR-SD Masika 1SM-go-FV Nairobi
'Nekesa whispered that Masika went to Nairobi.'

b. *Masika ka-khin-ire a-chi ka-vich-a lotto*
Masika 1SM-dance-PFV 1AGR-SD 1SM-win-FV lottery
'Masika danced like he won the lottery.'

Another prediction differentiating between SAY and SIM is that SIM, but not SAY should be possible when there is no source for the production of material. Thus, we should

expect that impersonal predicates like those in (64) should be compatible with SIM but not SAY. What distinguishes this class is that they are not, in principle, tied to an individual source.

(64) Predicates that are expected to be compatible with SIM but not with SAY

a. *happen, occur*

b. *be possible, be necessary*

c. *be true, be false*

Note however that the requirement for there to be a source for SAY is not necessarily syntactic: if a source is pragmatically or contextually identifiable, then SAY may be licensed. That is, it may be that under the right pragmatic conditions *It was true for Masika that Wekesa was sick* is felicitous, and this would provide a source for the content *Wekesa is sick*.[16]

The third differentiating factor concerns when SIM is available. The constraining factor for SIM is that there must be some feature for comparison. In Nyala East, CONTENT is sufficient, but we can imagine a language in which it is not sufficient. In fact, this is not a hypothetical language. English has a SIM complementizer that cannot use CONTENT: *like*. We cannot say **believe/think/say like*. The only places that *like* works in English as a complementizer is with perceptive predicates like *seem, feel, appear, sound*. By

[16] Another potential implication concerns the cooccurrence of *say*-complementizers and *logophors*, though this depends on the correct analysis of logophoricity. Briefly, if logophors are syntactically anchored to a "perspective", we might expect them to correlate with *say*-complementizers rather than similarity complementizers, because the source for SAY can be thought of as the anchor for the perspective. Anecdotal evidence from Akan suggests that this is correct (thanks to Esther Acheampong for discussion) , though a more thorough investigation of a language with logophors and both *say*- and similarity complementizers would be needed to confirm this relationship.

hypothesis, adopting Davidson's (2016) analysis,[17] this is because the similarity feature for *like* can at most compare events partitioned according to gestures or acts, i.e., things we can sense. In other words, we expect to find SIM to be restricted to kinds of partitioning in a way that SAY is not.

And finally, there is simply lexical overlap. Elements realizing SIM as a complementizer are expected to show up in other contexts where similarity is invoked, for instance, as manner adverbials. This is what we see in Nyala East. In contrast, elements realizing SAY are expected to show up as speech-verbs. This is indeed attested in numerous languages.

We put these five factors forward as potentially distinguishing factors between SAY and SIM, Table 4.

	SAY	SIM
Requires linguistic material	Yes	No
Compatible with manner of motion	No	Yes
Requires source	Yes	No
Featurally restricted	No	Yes
Overlaps with…	'say'	similarity

Table 4: Factors distinguishing SAY and SIM in their complementizer functions.

We have focused entirely on meaning differences, and stayed away from postulating a *syntactic* distinction between SAY and SIM. The fundamental reasoning is that the abstract

[17] Concretely, Davidson (2016) proposes that *like* doesn't come with similarity semantics; it is postulated to map events to their demonstration. Notably, the semantics assigned to *like* is a subset of the semantics she assigns to *say*.

(i) $[\![\text{like}]\!] = \lambda d \lambda e.\text{demonstration}(d, e)$

(ii) $[\![\text{say}]\!] = \lambda d \lambda x \lambda e.\text{AGENT}(e, x) \wedge \text{demonstration}(d, e) \wedge \text{saying}(e)$

This is largely consistent with what we are saying in the text above: SAY is in some ways a more restricted complementizer choice, while SIM broader.

morphemes SAY and SIM are acategorical, and therefore subject to language internal differences about lexicalization. We have argued above that *-chi/-cho* are not verbal in any of their uses, but we can imagine a language in which SIM is lexicalized as (part of) a verb and that is what is used as a complementizer. Again, such a language is not hypothetical, and is discussed extensively in Lord (1993) for (various dialects of) Akan. (Recall from the introduction that Akan also has a *say*-complementizer, *se*, and the relationship between *se* and *sɛ* is debated in Lord 1993.)

(65) a. *Kofi sɛ Amma*
Kofi be-like Amma
'Kofi resembles Amma.'

b. *na Ama nim sɛ Kofi yɛɛ adwuma no*
PAST Ama know COMP Kofi did work the
'Ama knows that Kofi had done the work.'

(Lord, 1993, 160)

Semantically, we expect *sɛ* to act just like *-chi* (as a complementizer). But syntactically, *sɛ* is clearly related to the verb meaning 'resemble, be like'. Thus, the associated syntax will be distinct from *-chi/-cho*. Indeed, given the range of places that similarity shows up, we would expect to find similarity-based complementizers stemming from various parts of speech, including demonstratives (as in Nyala East), verbs (as in Akan), and prepositions, as in English. This is indeed the state-of-affairs, as reported in Güldemann (2008).

With SAY, it seems likely that most *say*-complementizers will derive from verbs, but there is nothing that forces a complementizer with the abstract meaning of SAY (as given in (62a)) to be a verb. It is possible that there are nouns meaning 'speech' that function as

complementizers. Indeed, this is attested in Dolakha Newar, which, as reported in Genetti (2006) uses the complementizer *khā* which is derived from the *noun* 'talk, matter, news.'

The broader takeaway is that the features distinguishing different kinds of complementizers should not, *a priori*, be framed in terms of syntax. Rather, the core primitive semantics must be the deciding factor.

7 Conclusion: How many complementizers are there?

One of the broader outcomes of our study is a reinforcement of a well-accepted fact: complementizers have meaning. They are not just syntactic elements, but they come with their own semantics that contributes to composition of the sentence. More importantly however, we are reinforcing another point: the lexical source of the complementizer matters. Whether diachronic or synchronic, the shared meaning between the complementizer and its lexical kin plays a role. This is why the typological studies in, e.g., Kuteva et al. (2019) are so important: they reveal to us the range of sources for complementizers across the world's languages. While the focus in recent years has been on complementizers related to 'say' (Lord, 1993) *et seq*, there are also studies of complementizers related to demonstratives (Staps & Rooryck, 2023; Bondarenko, 2024); complementizers related to clausal-nominalization (Özyıldız, 2017; Bochnak & Hanink, 2022); and complementizers related to copulas (Gluckman, 2026). Each complementizer is proposed to make a distinct contribution shared with their lexical counterparts.

The goal, we believe, is to find the core meaning that these complementizers make—that is, the core meaning that is shared with their lexical counterpart. We proposed above

that SIM is that core meaning for similarity-based complementizers, differentiating it from SAY. The typological richness of complementizers suggests that there are other primitives that serve this function.

Data collection

Unless otherwise cited, all data were collected through targeted elicitation using native speakers of Nyala East with English and Swahili as meta-languages. In total, 6 speakers were consulted. Speakers ranged in age from early twenties to late forties; four were female and two were male. (There is no known dialectal variation in Nyala East—though clearly there are differences in speech, as discussed in the paper.) The majority of the elicitations took place in Nairobi, Kenya, where five of the speakers live. One speaker currently lives in the United States, and elicitations were conducted in-person and over face-time on WhatsApp. Additional questions were asked using WhatsApp text and face-time with the Nairobi speakers.

Glosses

- 1/2: 1st/2nd person
- 1/2/3/4/...: noun class
- AA: anti-agreement
- AGR: agreement
- COMP: complementizers
- COP: copular
- DEM: demonstrative
- FUT: future
- FV: final vowel
- FOC: focus marker
- LOC: locative
- ERG: ergative
- NEG: negation
- NC: noun class

- OM: object marker
- PERF: perfective
- PRO: pronoun
- SD: similarity demonstrative
- SG/PL: singular/plural
- SM: subject marker

References

Anderson, Curt & Marcin Morzycki (2015). Degrees as kinds. *Natural Language & Linguistic Theory* 33:3, 791–828.

Baglini, Rebekah (2016). The semantics of quotative ideophones. handout from SALT 26.

Bochnak, Ryan & Emily Hanink (2022). Clausal embedding in Washo: Complementation vs. modification. *Natural Language & Linguistic Theory* 40:4, 979–1022.

Bogal-Albritten, Elizabeth (2016). *Building Meaning in Navajo*. Ph.D. thesis, University of Massachussetts Amherst.

Bondarenko, Tatiana (2024). *Anatomy of an Attitude*. Ph.D. thesis, Massachusetts Institute of Technology.

Botne, Robert (2020). Evidentiality in African languages. Lee, Chungmin & Jinho Park (eds.), *Between Evidentials and Modals*, Brill, 460–501.

Bowler, Margit (2021). Warlpiri similatives. handout from TripleA 8 at the National University of Singapore.

Bryant, Shannon & Diti Bhadra (2020). Situation types in complementation: Oromo attitude predication. *Proceedings of SALT 30*, 83–104.

Caponigro, Ivano (2004). The semantic contribution of *wh*-words and type shifts: Evidence from free relatives crosslinguistically. Young, Robert B. (ed.), *Semantics and Linguistic Theory (SALT) 14*, CLC Publications, 48–55.

Carlson, Greg (1977). *Reference to Kinds*. Ph.D. thesis, University of Massachussetts Amherst.

Carstens, Vicki (2008). DP in Bantu and Romance. de Cat, Cécile & Katherine Demuth (eds.), *The Bantu-Romance Connection: A comparative study of verbal agreement, DPs, and information structure*, John Benjamins, Amsterdam/Philadelphia.

Carstens, Vicki & Michael Diercks (2013). Agreeing how? Implications for theories of agreement and locality. *Linguistic Inquiry* 44:2, 179–237.

Chamoreau, Claudine (2017). Multifunctionality and polysemy of the similative marker =*kán* in Pesh. Treis, Yvonne & Martine Vanhove (eds.), *Similative and Equative Constructions: A Cross-linguistic Perspective*, John Benjamins, 321–337.

Citko, Barbara (2000). On the syntax and semantics of Polish adjunct clauses. *Journal of Slavic Linguistics* 8:1/2, 5–27.

Cornish, Francis (1992). *So Be It*: The discourse-semantic roles of *So* and *It*. *Journal of Semantics* 9:16, 163–178.

Cushing, Steven (1972). The semantics of sentence pronominalization. *Foundations of Language* 9:2, 186–208.
Davidson, Kathryn (2016). Quotation, demonstration, and iconicity. *Linguistics and Philosophy* 38:6, 477–520.
Devos, Maud & Koen Bostoen (2012). Bantu do/say polysemy and origins of the quotative in Shangaci. *African Linguistica* 18, 97–132.
Diercks, Michael (2013). Indirect agree in Lubukusu complementizer agreement. *Natural Language & Linguistic Theory* 31:2, 357–407.
Diessel, Holger (1999). *Demonstratives: Form, function, and grammaticalization*. John Benjamins, Amsterdam/Philadelphia.
Diessel, Holger & Merlijn Breunesse (2020). A typology of demonstrative clause linkers. Næss, Åshild, Anna Margetts & Yvonne Treis (eds.), *Demonstratives in Discourse*, Language Science Press, Berlin, 305–341.
Elliott, Patrick (2017/2020). *Elements of Clausal Embedding*. Ph.D. thesis, University College London.
Genetti, Carol (2006). Complement clauses and complementation strategy in Dolakha Newar. Dixon, R. M.W̃. & Alexandra Y. Aikhenvald (eds.), *Complement clauses and complementation strategies in typological perspective*, Oxford, Oxford, 137–158.
Giusti, Giuliana (2008). Agreement and concord agreement and concord in nominal expressions. de Cat, Cécile & Katherine Demuth (eds.), *The Bantu-Romance Connection: A comparative study of verbal agreement, DPs, and information structure*, De Gruyter, 201–237.
Gluckman, John (2023). Perspectival domains in nouns and clauses. *Natural Language & Linguistic Theory* 41, 159–2023.
Gluckman, John (2026). (accepted) Copular Complementizers in Bantu. *Linguistic Variation* .
Grimshaw, Jane (2015). The light verbs say and SAY. Toivonen, Ida, Piroska Csúri & Emile Van Der Zee (eds.), *Structures in the mind: Essays on languages, music, and cognition in honor of Ray Jackendoff*, MIT Press.
Güldemann, Tom (2002). When 'say' is not *say*. Güldemann, Tom & Manfred von Roncador (eds.), *Reported Discourse: A meeting ground for different linguistic domains*, John Benjamins, Amsterdam/Philadelphia, 253–288.
Güldemann, Tom (2008). *Quotative Indexes in African Languages: A Synchronic and Diachronic Survey*, vol. 34 of *Empirical Approaches to Language Typology*. Mouton de Gruyter.
Guthrie, Malcolm (1970). *Comparative Bantu*, vol. 3. Gregg International Publishers, England.
Hacquard, Valentine (2010). On the event relativity of modal auxiliaries. *Natural Language Semantics* 18:1, 79–114.

Hammarström, Harald (2019). An Inventory of Bantu Languages. de Velde, Mark Van, Koen Bostoen, Derek Nurse & Gérard Philippson (eds.), *The Bantu Languages, second edition*, Routledge, New York, 17–79.

Heim, Irene & Angelika Kratzer (1998). *Semantics in Generative Grammar*. Blackwell, Oxford.

Kehayov, Petar (2016). Complementation marker semantics in complementation marker semantics in Finnic (Estonian, Finnish, Karelian). Boye, Kaspar & Petar Kehayov (eds.), *Complementizer Semantics in European Languages*, De Gruyter/Moulton, 449–516.

Kiparsky, Paul & Carol Kiparsky (1971). Fact. Steinberg, Danny & Leon Jakobovits (eds.), *Semantics: an interdisciplinary reader in philosophy, linguistics, and psychology*, Cambridge.

König, Ekkehard (2015). Manner deixis as a source of grammatical markers in Indo-European languages. Viti, Carlotta (ed.), *Perspectives on historical syntax*, John Benjamins, Amsterdam, 33–60.

König, Ekkehard & Carla Umbach (2018). Demonstratives of manner, of quality and of degree. Coniglio, Marco, Andrew Murphy, Eva Schlachter & Tonjes Veenstra (eds.), *Atypical demonstratives*, De Gruyter, 285–328.

Kratzer, Angelika (2006). Decomposing attitude verbs. accessed online at http://semanticsarchive.net/Archive/DcwY2JkM/attitude-verbs2006.pdf.

Kratzer, Angelika (2013). Modality for the 21st century. *The Language-Cognition Interface: 19th International Congress of Linguists*.

Kratzer, Angelika (2016). Evidential moods in attitude & speech reports. slides from UConn Colloquium.

Kuteva, Tania, Bernd Heine, Bo Hong, Haiping Long, Heiko Narrog & Seongha Rhee (2019). *World lexicon of grammaticalization, Second edition*. Cambridge University Press, Cambridge.

Landman, Meredith & Marcin Morzycki (2003). Event-Kinds and the Representation of Manner. Antrim, Nancy Mae, Grant Goodall, Martha Schulte-Nafeh & Vida Samiian (eds.), *Proceedings of the Western Conference in Linguistics WECOL 2002*, vol. 11.

Letsholo, Rose (2004). Clausal and DP-internal agreement in Ikalanga. *Studies in African Linguistics* 33:1, 91–127.

Lord, Carol (1976). Evidence for syntactic reanalysis: From verb to complementizer in Kwa. Mufwene, Salikoko, Sanford Steever & Carol Walker (eds.), *Papers from the Parasession on Diachronic Syntax*, CLSI, Chicago, 179–191.

Lord, Carol (1993). *Historical Change in Serial Verb Constructions*. John Benjamins, Amsterdam/Philadelphia.

Lusekelo, Amani (2013). DP-internal and V-external agreement patterns in Bantu: Restatement of the facts on Eastern Bantu languages. *Journal of Linguistlcs and Language in Education* 7:1, 19–47.

Major, Travis (2021). *On the nature of "say" complementation*. Ph.D. thesis, University of California, Los Angeles.
Major, Travis, Justine Sikuku & Michael Diercks (2021). "say"-complementation: reanalyzing agreeing cmoplementizers as verbs. Manuscript.
Mendia, Jon Ander (2020). Reference to ad hoc kinds. *Linguistics and Philosophy* 43:6, 589–631.
Moulton, Keir (2009). *Natural Selection and the Syntax of Clausal Complementation*. Ph.D. thesis, University of Massachussetts Amherst, Amherst, MA.
Ndayiragije, Junvénal, Emmanual Nikiema & Parth Bhatt (2012). The augment in Kirundi: when syntax meets phonology. *Selected Proceedings of the 42nd Annual Conference on African Linguistics*, Cascadilla Proceedings Project, Somerville, MA, 112–121.
Özyıldız, Deniz (2017). Attitude reports with and without true belief. *Proceedings of SALT 27*, 397–417.
Piñón, Christopher (2007). Manner adverbs and manners. Handout from 7 Ereignissemantik-Konference.
Rizzi, Luigi & Guglielmo Cinque (2016). Functional categories and syntactic theory. *Annual Review of Linguistics* 2, 139–163.
Rudin, Deniz (2024). Deniz rudin. to appear in *Linguistic Inquiry*.
Schäfer, Martin (2008). Resolving scope in manner modification. Bonami, Olivier & Patricia Cabredo Hofherr (eds.), *Empirical Issues in Syntax and Semantics 7*, CNRS, 351–372.
Snider, Todd Nathaniel (2017). *Anaphoric Reference to Propositions*. Ph.D. thesis, Cornell University.
Staps, Camil & Johan Rooryck (2023). The interpretation of [+distal] in demonstratives and complementizers. *Linguistics* 61:5, 1–37.
Treis, Yvonne (2008). Relativization in Treis. Frajzyngier, Zygmunt & Erin Shay (eds.), *Interaction of morphology and syntax: Case studies in Afroasiatic*, John Benjamins, Amsterdam/Philadelphia, 106–206.
Umbach, Carla & Helmar Gust (2014). Similarity demonstratives. *Lingua* 129, 74–93.