Rethinking Swahili clause structure: the view from relatives

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1 Introduction

- Swahili (Bantu, Niger-Congo) verbs consist of a root and a combination of prefixes and suffixes.
 - Simplified schema: SM-INFL-OM- $\sqrt{-FV^1}$
- The INFL slot can be filled with prefixes, such as those in (1), associated with various interpretations.
- (1) a. $Tom \ a$ -li/na/ta-nunu- $a \ ndizi$ Tom 3SG-PST/PRS/FUT-buy-FV 9banana

Tense Markers

'Tom bought/buys/will buy the banana.'

b. Tom a-**ki**-nunu-a ndizi Tom 3SG-SBS-buy-FV 9banana Situative Marker

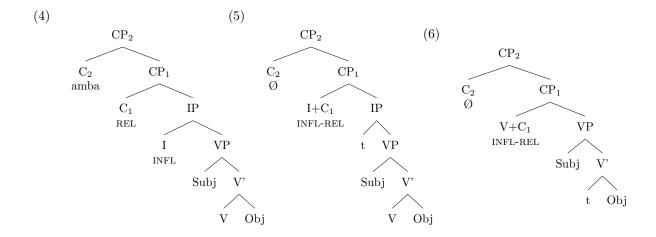
'If/when Tom buys the banana ...'

c. Tom a-**ka**-nunu-a ndizi Tom 3SG-SBS-buy-FV 9banana Subsecutive Marker

- '... then Tom bought the banana'
- How many projections should our clause structure contain to analyse clauses like those in (1)?
 - Could we get away with a single head? If not, how many do we need? What do each they do?
 - Debate over IP richness: Rizzi and Cinque (2016) vs. Ramchand & Svenonius (2014)
 - Difference between main and embedded clauses, e.g. Haegeman (2012).
- We can make some headway on this question if we carefully examine the structure of relative clauses.
- Three kinds of kinds of relative clauses can be distinguished by the placement of a 'relative marker' REL and the presence/absence of a complementiser *amba* (Ngonyani, 2001).
 - amba RCs: REL appears directly after amba (2a).
 - Rel-internal RCs: Rel appears directly after INFL (2a).
 - Rel-final RCs: Rel appears directly after FV (2a).

^{1.} SM: subject marking; INFL: inflectional prefix; OM: object marking and FV: the final vowel. More on various bits of this later.

- (2) a. ni-li-nunua kisu amba-cho Jini a-li-ki-vunja 3SG-PST-buy 7knife COMP-7REL Jini 3SG-PST-7-break
 - 'I bought the knife that Jini broke.'
 - b. Ni-li-nunua kisu a-li-cho-ki-vunja Jini 1SG-PST-buy 7knife 3SG-PST-7REL-7-break Jini
 - 'I bought the knife that Jini broke.'
 - c. Ni-li-nunua kisu a-ki-vunja-cho Jini 1SG-PST-buy 7knife 3SG-7-break-7REL Jini
 - 'I bought the knife that Jini breaks.'
 - The presence of amba and position of REL correlate with changes in INFL and subject position:
- (3) a. amba RCs: preverbal subject, basically full selection of INFL prefixes.
 - b. REL-medial RCs: preferred postverbal subject, just tense markers and negation available.
 - c. Rel-final RCs: preferred postverbal subject, no INFL prefixes possible.
 - Swahili relatives thus present us with an interconnected set of puzzles:
 - Puzzle 1 What is REL and why can it appear in three positions?
 - Puzzle 2 Why does the position of REL affect INFL prefixes and subject position?
 - Puzzle 3 Why can only tense markers and not other INFL prefixes feature in Medial-REL RCs?
 - One kind of approach to these puzzles is represented below, abstracting away from many details.
 - Amba and REL are complementisers in a bi-partite CP.
 - The three kinds of relative correspond to two sizes of clause below CP.
 - Some part of the verbal extended projection moves to REL, if amba is absent.
 - Depending on other assumptions, the movement to C derives the post-verbal subject.



• This kind of analysis has been widely employed, varying in what kind of movement is assumed and exact clause structure required (e.g. Demuth and Harford (1999), Buell (2002), Ngonyani (2006)). We can raise a number of issues with it.

- The motivation for REL as a complementiser is mostly being clause peripheral.
 - Henderson (2006) points out they bear a striking resemblance to reduced pronouns.
- The subject ordering facts do not provide as strong support for movement to C as they seem.
 - Why would I-to-C movement (in Medial REL RCs) affect subjects?
- The analysis also fails to address the INFL restrictions in Medial REL RCs:
 - Like tense markers, Subsecutive ka- occurs in amba RCs but cannot occur in Final REL RCs.²
 - Unlike tense markers, it cannot however occur in Medial REL RCs (7).
 - We cannot appeal to semantic incompatibility in RCs, because of cases like (7).
- (7) a. *ni-li-nunua ngoma amba-yo na i-ka-vunjika* 1SG-PST-buy 9drum COMP-9REL NA 9-SBS-break
 - 'I bought the drum that later happen to break.'
 - b. *ni-li-nunua kisu amba-cho na Jini a-ka-vunja* 1SG-PST-buy 7knife COMP-7REL NA Jini 3SG-SBS-break
 - 'I bought the knife that Jini later broke.'
- (8) a. Ni-li-nunua kisu a-li-cho-ki-vunja Jini 1SG-PST-buy 7knife 3SG-PST-7REL-7OM-break Jini
 - 'I bought the knife that Jini broke.'
 - b. **Ni-li-nunua kisu a-ka-cho-ki-vunja Jini* 1SG-PST-buy 7knife 3SG-SBS-7REL-7OM-break Jini
 - 'I bought the knife that Jini then broke.'
 - Today's aim: to sketch out an alternative analysis of Swahili relatives and tease out the consequences for clause structure, such as the status of Subsective ka-.
 - The rest of the talk is structured as follows:
 - Section 2: fleshing out the connection between REL and resumption
 - Section 3: providing an inventory of relative clause sizes to derive the types of relatives
 - Section 4: conclusions and further issues
 - Section 5: bonus section on relativisation and Subsecutive ka-

2 Rethinking relatives markers

- All Swahili relatives contain a 'relative marker' that co-varies in form the relative head.
 - For example, a Class 1 noun like mtu 'person', REL takes the form -ye (9a).
 - By contrast, a Class 7 noun like kisu 'knife', REL takes the form -cho (9b).

^{2.} There are a number of caveats to this, concern that element na, which we will see in Section 4.

(9) a. mtoto amba-ye ni-na-m-pend-a ni hu-yu
1child COMP-1REL 3SG-PRS-1-like-FV COP PROX.DEM-1

'The child that I like is this one.'

b. kitabu amba-cho ni-na-ki-som-a ni hi-ki
7book COMP-7REL 3SG-PRS-1-read-FV COP PROX.DEM-7

'The book that I'm reading is this one.'

Mpiranya (2014, pp.71)

• To explore an alternative to REL as a C⁰, I discuss some recent research on resumption in Swahili and how it might be extended.

2.1 Movement-driven resumption in relatives

- Scott (2020) considers how relativising the complement of na cannot leave a gap.
- When a pronoun is relativised from na, two possibilities to fill the gap:
 - A reduced personal pronoun with person distinctions: -mi, -we, ...
 - A form ye/o depending on whether the pronoun is sg/plu.
 - We find these reduced forms outside of movement contexts.
- (10) a. Mimi ndi-ye amba-ye Bahati a-li-pika na-ye/mi 1SG COP-1 amba-1REL Bahati 3SG-PST-cook with-1/1.SG

'It's me that Bahati cooked with'

b. Wewe ndi-ye amba-ye Bahati a-li-pika na-ye/we 2SG COP-1 amba-1REL Bahati 3SG-PST-cook with-1/2.SG

'It's you that Bahati cooked with'

Scott (2020; 24, 25)

- When an animate noun (class 1/2) are relativised, the gap can only be filled by ye/o. Nouns of other classes show a different forms.
- (11) Ni-li-mw-ona mwanafunzi amba-ye u-li-on-ana na-*(ye) 1SG-PRS-1-know 1-person amba-1REL 1SG-PST-see-RECP with-*(1)

'I saw the student who you met with'

- Resumption is not possible with multisyllabic prepositions like katika 'in/on'
- (12) Kazi amba-yo a-li-weka pingamizi (*katika/*katika-yo) i-na-endelea 9work amba-9REL 3SG-PST-put conditions on/on-9 9SG-PRS-continue

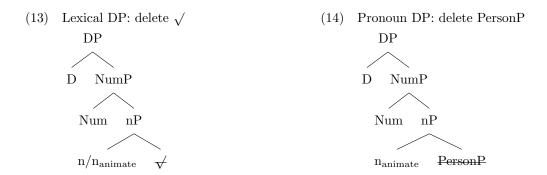
'The work he put conditions on continues'

Scott (2020; 19a, ex 22)

• Scott's analysis: partial copy deletion occurs to comply with PF requirements.³

^{3.} The options in 10 arise because Swahili also has resumptive pronouns not derived by copy deletion. She shows that these ones are insensitive to islands, unlike deletion derived ones.

- Swahili relatives involve head raising Ngonyani (2001), Gould and Scott (2019).
- Independently motivated bisyllabic/bi-moraic Minimality requirement (Park, 1995).
- Partial copy deletion permitted to satisfy PF recoverability (Landau, 2006).
- na in isolation violates the Minimality requirement. Partial copy deletion apply as a repair.
- Undeleted material, now structurally identical to pronouns, is spelled out as such (van Urk, 2018).
- The remaining structure lacks Person, but Number/Gender remain (Fuchs & van der Wal, 2018).



2.2 Relative markers as resumptives?

- Scott (2020) treats REL as a head agreeing with the moved DP rather than a partially deleted copy.
- Problem: REL has exactly same forms as the resumptives Scott discusses.
 - Swahili has a set of agreement markers. REL is not identical to them.

NClass	Class Prefix	REL	SM/OM
1	m-	ye	a/yu
2	wa-	О	wa
3	m-	О	u
4	mi-	yo	i
5	ji-/Ø	lo	li
6	ma-	yo	ya
7	ki	cho	ki
8	vi-	vyo	vi
9	n-/Ø	yo	i
10	n-/Ø	ZO	zi
11	u	О	u
15	ku-	ko	ku
16		po	pa
17		ko	ku
18		mo	m

Table 1: REL and Swahili noun classes

- Just like the resumptives, REL is insensitive to person. We can see this from Scott's examples.
 - We could say that the agreeing head isn't probing for person, but we'd be missing a generalisation...

(15) a. **Mimi** ndi-ye amba-**ye** Bahati a-li-pika na-**ye**/mi 1SG COP-1 amba-1REL Bahati 3SG-PST-cook with-1/1.SG

'It's me that Bahati cooked with'

b. Wewe ndi-ye amba-ye Bahati a-li-pika na-ye/we 2SG COP-1 amba-1REL Bahati 3SG-PST-cook with-1/2.SG

'It's you that Bahati cooked with'

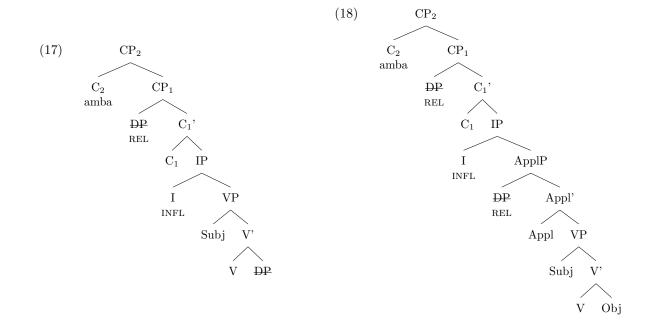
Scott (2020; 24, 25)

- The complementiser status of REL is also hard to square with what I call 'REL doubling'.
 - In order to relativise certain applied arguments and locations two RELs are required.
 - If medial REL is produced by I-to-C movement in the absence of amba, what's going on here?
- (16) a. Henry a-li-safisha meza amba-po Tom a-li-po-weka masahani ya vyakula Henry 3SG-PST-clean table COMP-Loc.REL Tom SM-PST-Loc.REL-place plate.PL PREP food.PL 'Henry cleaned the table where Tom put the plates of food.'
 - b. Ni-li-mw-ona mtu amba-ye tu-li-ye-mw-ongelea

1SG-PST-1-see person COMP-I.REL 1PL-PST-1.REL-1-talk.APPL

'I saw the person who we chatted about.'

- The similarity between REL and resumptives follows if REL is also a resumptive.
 - Presumably this copy would be at SpecCP.
 - REL doubling is where the base copy also undergo partial deletion.
 - The base copy undergoes partial deletion if it is an applied argument or where that locative sits.
- Some very schematic structures are displayed below:



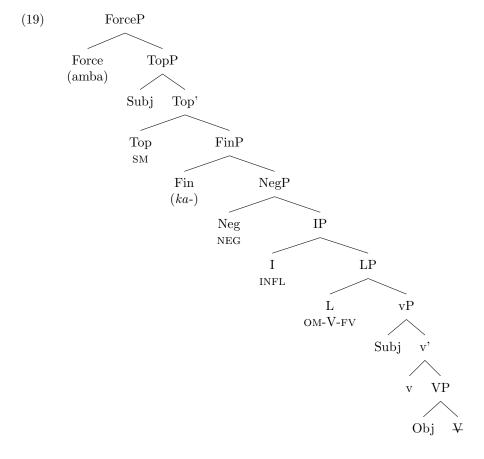
- What is motivation for these cases of partial deletion?
 - Scott's Minimality requirement doesn't seem to be relevant here.
 - Could it be some kind of affix support or contiguity effect (Richards, 2016)?
 - Why would base copies of applied arguments/location be subject to partial deletion?

3 Clause truncation and its consequences

- Suppose that REL is a partially deleted copy and not a complementiser.
 - The motivation for V-to-C movement (in addition) is much weaker.
- But, we still need to derive the conspiracy between:
 - the position of REL
 - the availability of INFL prefixes and negation
 - the position of the subject
- The 'standard' account uses clausal truncation to derive some of these facts.
- Why not try to derive all of these facts with just truncation?
- To do that, I need to set up some particular assumptions about clause structure first.

3.1 Some assumptions about clause structures

- A schematic structure is presented in (19). The key features at a glance:
 - Arguments introduced low down: objects at VP, subjects at vP.
 - Swahili clauses have a IP maximally consisting of two projections: IP and LP.
 - V moves through the argument/event structure layer to L.
 - The left periphery consists of [ForceP [TopP [FinP]]] (Rizzi, 1997)
 - Fin hosts Subsecutive ka-, ForceP hosts the complementisers like amba.
 - The preverbal subject position is SpecTopP.



- LP introduces a situation's spatio-temporal location, which is manipulated by functors of IP.
 - Two syntactic kinds of L, distinguished by FV: +temporal (-a), -temporal (-e).
 - Tense/aspect (21bc) prefixes can only co-occur with +temporal -a.
 - Functors without temporal commitments, e.g. modal, locational, may occur with -temporal -e.
- A well-formed clause minimally consists of [CP [LP [vP]]], lacking any INFL prefixes.
 - The differences boil to whether a +temporal or -temporal LP is selected.
 - This choice may have knock on effects for which CP functors can merge with LP.
- (20) a. *nunu-a!* buy-FV

'Buy (it)!'

b. u-si-nunu-e! 1SG-NEG-buy-FV

'Don't buy (it)!'

c. *Liz a-end-e sokoni leo* Liz 3SG-buy-FV market-LOC today

'Liz should go to the market today'

Mpiranya (2014, pp.86)

- It is IP, merged above LP, that adds tense/modality/aspect heads, realised as INFL prefixes (21).
- (21) a. Mod: Irrealis nge-, Counterfactual ngali
 - b. T: Past li-, Present na-, Future ta-
 - c. Asp: Progressive na-, Perfective/Stative me- ...
 - A negation projection is sandwiched between CP and the IP.
 - Negation generally surfaces as ha- or si-.
 - Negation interacts with tense prefixes and sm.
 - Negation is impossible with Subsecutive ka-
- (22) a. ni-ta-som-a / tu-ta-som-a1SG-FUT-read-FV 1PL-FUT-read-FV

'I will read / we will read'

b. si-ta-som-a / ha-tu-ta-som-a NEG.1SG-FUT-read-FV NEG-1PL-FUT-read-FV

'I will not read / we will not read'

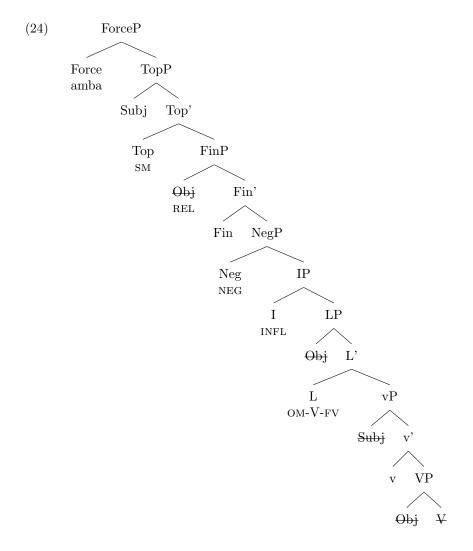
- 'FinP' in Swahili is involved in temporally anchoring the situation (Ramchand & Svenonius, 2014)
 - Subsecutive ka- realises a kind of Fin, that triggers dependent anchoring.
 - Interpretation is complicated: part of may involve temporal subsequence (23).
- (23) Order of events in (a.): buy knife then knife break/ knife break then knife bought. Order of events in (b.): buy knife then knife break.
 - a. *Ni-li-nunua kisu amba-cho Lizzie a-li-sema kwamba Jini a-li-ki-vunja* 1SG-PST-buy knife COMP-7REL Lizzie 3SG-PST-say COMP Jini 3SG-PST-7-break
 - 'I bought the knife that Lizzie that Jini had broken.'
 - b. Ni-li-nunua kisu amba-cho Lizzie a-li-sema kwamba na Jini a-ka-ki-vunja 1SG-PST-buy knife COMP-7REL Lizzie 3SG-PST-say COMP NA Jini 3SG-PST-7-break
 - 'I bought the knife that Lizzie said that Jini then broke.'
 - I assume overt subjects *can* move to TopP.
 - Movement to TopP: pre-verbal subject (topical IS, possibly)
 - Stay In-situ: post-verbal subject (focus IS, possibly)
 - In situ subjects are possible in main clauses without anything filling 'subject position'
 - I assume the SM phi-probe features in the highest head is in a given clausal extended projection.
 - See Pietraszko (2017) for similar assumptions about Ndebele subject marking.

3.2 Three sizes of relative clause

- Some additional assumptions:
 - LP and FinP are phase heads: their specifiers are escape hatches.
 - Head raising must pass through the lower and higher phase edges.

3.2.1 amba RCs (biggest)

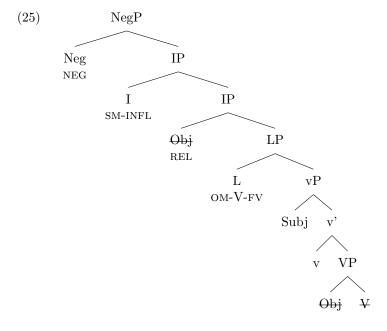
- Recapping the properties of amba RCs
 - amba rel order
 - Preverbal subject preferred (out of context)
 - Full INFL prefixes: subject marking, negation, TMA and Subsecutive ka-
- A structure for an amba object RC is displayed below.
 - The object DP moves from object position (VP): copy fully deleted.
 - The object DP moves through the first phase edge (specLP): copy fully deleted.
 - The object DP then moves through the second phase edge (specFinP): copy partially deleted.
 - REL surfaces at specFinP and cliticises to amba.
 - The subject can move to specTopP



- There is no truncation here. We therefore expect:
 - The subject to occur preverbally
 - NEG and tense marking
 - Subsecutive ka- (though in complementary distrubution with neg/tense)

3.2.2 Medial REL RCs (smaller)

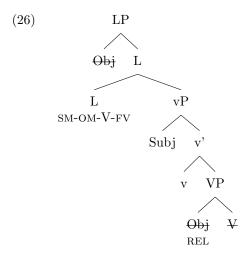
- Recapping the properties of Medial REL RCs
 - No amba present. INFL REL order
 - Postverbal subject preferred
 - Limited INFL prefixes: subject marking, negation, tense
 - No Subsecutive ka- possible
- A structure for a object medial REL RC is displayed below.
 - The object DP moves from object position (VP): copy fully deleted.
 - The object DP moves through the first phase edge (specLP): copy fully deleted.
 - There is no higher phase edge: the object moves move into the higher clause.
 - REL surfaces at specLP and cliticises to infl
 - There is no TopP for the subject to move to.



- The whole left periphery has been truncated. We therefore expect:
 - No Subsecutive ka-
 - REL not to appear in the same position
 - No preverbal subject position

3.2.3 Final REL RCs (smallest)

- Recapping the properties of Final REL RCs
 - No amba, no infl present. V rel order
 - Postverbal subject preferred
 - No infl prefixes, no Negation: subject marking, object marking
 - No Subsecutive ka- possible
- A structure for a object final REL RC is displayed below.
 - The object DP moves from object position (VP): copy partially deleted.
 - The object DP moves through the first phase edge (specLP): copy fully deleted.
 - There is no higher phase edge: the object moves move into the higher clause.
 - REL surfaces at VP₁ and cliticises to L
 - There is no TopP for the subject to move to.



- The whole left periphery and part of the IP zone has been truncated. We therefore expect:
 - No Subsecutive ka-
 - REL not to appear in the same position
 - No preverbal subject position
 - No infl markers, no negation
- Here REL is partially deleted based position.
 - Slight problem: we seem expect the order: V Subj REL
 - Why do we get V REL Subj?
 - Some kind of cliticisation sensitive to category?

4 Conclusion and open issues

- It is possible to improve upon the standard analysis of Swahili relatives.
- If REL is a resumptive, we may be able to build an account primarily based on truncation.
- The truncation account suggests that Subsecutive ka- is part of the left periphery, not the IP proper.
 - This may fit with its interpretational behaviour.
- A number of theoretical assumptions have been made that need to fleshed out.
 - Why should a raising DP move through the first phase edge as well as the second?
 - What triggers the crucial partial deletion of the highest copy in the embedded clause?
 - What exactly is the clause truncation? A case of 'exfoliation', Pesetsky (2021)?
- I haven't touched on several empirical areas: e.g. the placement of REL in periphrastic constructions, the empirical evidence for medial REL lacking a left periphery, evidence for post-verbal subjects being in thematic positions...

5 Bonus: Extraction from subsecutive clauses

5.1 Relativisation and Linker na

- A morpheme na can appear after the complementisers amba and kwamba.
- (27) a. ni-li-nunua kisu amba-cho (na) Jini a-li-ki-vunja 1SG-PST-buy 7knife COMP-7REL NA Jini 3SG-PST-7-break
 - 'I bought the knife that Jini broke.'
 - b. *Lizzie a-li-sema kwamba (na) Jini a-li-vunja kisu* Lizzie 3SG-PST-say COMP NA Jini 3SG-PST-break 7knife
 - 'Lizzie said that Jini broke the knife.'
 - Both complementisers are optional. If they are not present, it is not possible to have Linker na.
- (28) a. ni-li-nunua kisu (*na) Jini a-li-cho-ki-vunja 1SG-PST-buy 7knife NA Jini 3SG-PST-7REL-7-break
 - 'I bought the knife that Jini broke.'
 - b. *Lizzie a-li-sema (*na) Jini a-li-vunja kisu* Lizzie 3SG-PST-say NA Jini 3SG-PST-break 7knife
 - 'Lizzie said that Jini broke the knife.'
 - I haven't seen discussion of this in literature. It might be a feature of my consultant's dialect.

5.2 Subsecutive ka- and Amba-RCs

- If a ka-clause contains the base position of the relative, na must co-occur with the most local COMP to the base position (29, 30).
- If the ka-clause isn't the base position, or its also subjunctive, possible to relativise without Linker na (31), (32).
- (29) Short argument relatives: subject (a, b.), object (c, d)
 - a. * ni-li-nunua ngoma amba-yo i-ka-vunjika 1SG-PST-buy 9drum COMP-9REL 9-LNK-break
 - Intended: 'I bought the drum that then broke.'
 - b. *ni-li-nunua ngoma amba-yo na i-ka-vunjika* 1SG-PST-buy 9drum COMP-9REL NA 9-LNK-break
 - 'I bought the drum that later happen to break.'
 - c. *ni-li-nunua kisu amba-cho Jini a-ka-vunja 1SG-PST-buy 7knife COMP-7REL Jini 3SG-LNK-break
 - Intended: 'I bought the knife that Jini later broke.'
 - d. *ni-li-nunua kisu amba-cho na Jini a-ka-vunja* 1SG-PST-buy 7knife COMP-7REL NA Jini 3SG-LNK-break
 - 'I bought the knife that Jini later broke.'
- (30) Long distance object relative: for Linking ka- to appear na must appear right adjacent to the lowest comp (kwamba). It is possible for an additional na to appear adjacent to the higher relative complementiser amba, but this isn't sufficient for grammaticality on its own.
 - a. *Ni-li-nunua kisu amba-cho Lizzie a-li-sema kwamba Jini a-li-ki-vunja* 1SG-PST-buy knife COMP-7REL Lizzie 3SG-PST-say COMP Jini 3SG-PST-7-break
 - 'I bought the knife that Lizzie said that Jini broke.'
 - b. **Ni-li-nunua kisu amba-cho Lizzie a-li-sema kwamba Jini a-ka-ki-vunja* 1sg-pst-buy knife COMP-7REL Lizzie 3sg-pst-say COMP Jini 3sg-sbs-7-break
 - 'I bought the knife that Lizzie said that Jini then broke.'
 - c. Ni-li-nunua kisu amba-cho Lizzie a-li-sema kwamba na Jini a-ka-ki-vunja 1SG-PST-buy knife COMP-7REL Lizzie 3SG-PST-say COMP NA Jini 3SG-SBS-7-break
 - 'I bought the knife that Lizzie said that Jini then broke.'
 - d. *Ni-li-nunua kisu amba-cho na Lizzie a-li-sema kwamba na Jini a-ka-ki-vunja* 1SG-PST-buy knife COMP-7REL NA Lizzie 3SG-PST-say COMP NA Jini 3SG-SBS-7-break
 - 'I bought the knife that Lizzie said that Jini then broke.'
 - e. **Ni-li-nunua kisu amba-cho na Lizzie a-li-sema kwamba Jini a-ka-ki-vunja* 1SG-PST-buy knife COMP-7REL NA Lizzie 3SG-PST-say COMP Jini 3SG-SBS-7-break
 - 'I bought the knife that Lizzie said that Jini then broke.'
- (31) Without Linker *na*, there is a specific interpretation to (a,): the speaker confirms that Lizzie said such and such. My consultant insisted that this involves pointing at Lizzie as you say this. You could also add *mwenyewe* 'herself'.

- a. Ni-li-nunua kisu amba-cho Lizzie (mwenyewe) a-ka-sema kwamba (na) Jini 1SG-PST-buy knife COMP-7REL Lizzie herself 3SG-SBS-say COMP NA Jini a-li-ki-vunja 3SG-PST-7-break
 - 'I bought the knife that Lizzie herself said that Jini then broke.'
- b. Ni-li-nunua kisu amba-cho na Lizzie a-ka-sema kwamba (na) Jini a-li-ki-vunja 1SG-PST-buy knife COMP-7REL NA Lizzie 3SG-SBS-say COMP NA Jini 3SG-PST-7-break 'I bought the knife that Lizzie said that Jini broke.'
- (32) If the base position is contained in a subjunctive clause, it is possible to relativise out of a ka-clause without Linker na or any unusual interpretative effect.
 - a. Ni-li-nunua kisu amba-cho (na) Lizzie a-li-taka Jini a-ki-vunje 1SG-PST-buy knife COMP-7REL NA Lizzie 3SG-PST-want Jini 3SG-7-break.SUBJ
 - 'I bought the knife that Lizzie wanted Jini to break.'
 - b. Ni-li-nunua kisu amba-cho (na) Lizzie a-li-taka Jini a-ka-ki-vunje 1SG-PST-buy knife COMP-7REL NA Lizzie 3SG-PST-want Jini 3SG-LNK-7-break.SUBJ
 - 'I bought the knife that Lizzie wanted Jini to go and break.'

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