

Taking Time in Logooli

John Gluckman, University of California, Los Angeles
ACAL 47, Berkeley, CA

March 25, 2016

1 Introduction¹

- Logooli (Luyia, Bantu) has a Take-TIME Construction (TTC), shown in (1).²
- (1) *e-a-vogor-a muhega mu-lala kweega oLogooli*
9-T/A-take-FV 3year 3-one INF.learn 11Logooli
'It took a year to learn Logooli'
- The TTC is interesting from a number of different perspectives. In this talk, I'm focusing on the fact that it permits an object gap in the infinitival clause that corresponds to the subject of the main verb.³
- (2) *oLogooli lu-vogor-a muhega mu-lala kweega —*
11Logooli 11-take-FV 3year 3-one INF.learn
'Logooli took a year to learn.'
- This talk will be concerned with how we derive these antecedent-gap constructions in the syntax.

¹Thanks to Mwabeni Indire, for generously sharing his time and his language with me. Thanks also to Tim Stowell, Dominique Sportiche, Peter Jenks, and Claire Halpert for comments, and also members of the UCLA's American Indian Seminar. All errors are my own.

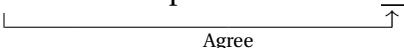
²Logooli (or Luragooli, Maragoli, Lulogooli, among others) is a Bantu language in the Luyia subgroup. It's spoken mostly in Western Kenya (around Lake Victoria) and in Tanzania by around 600,000 people (Lewis, et al. 2016). It exhibits a range of "typical" Bantu phenomena, including two tones, and a complex tense/aspect system, all of which is ignored in this handout.

³If you attended Margit Bowler's and my talk in the previous session, you might wonder why there's an expletive *e-* here, and whether *ga-* can appear here as well; it cannot. However, *-e* is permitted because the TTC is an intensional construction – or more specifically, *temporal phrases* are intensional, involving quantification over alternative worlds.

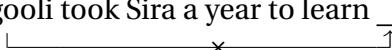
- One goal will be to show that this alternation exhibits the hallmarks of a more well-studied phenomenon: *Tough-Movement* (Lasnik and Fiengo, 1974; Chomsky, 1977; Browning, 1987).⁴

- (3) a. It was important to read this book.
 b. This book was important to read ____.

- Logooli presents an excellent case-study of TTC qua *Tough-Movement* because, a) it marks argument structure more explicitly, e.g., with applicative, passive, etc morphology, and b) it permits a wider range of alternations/interpretations not found in English (or other Western languages).
- Theoretically, I'll show that the TTC presents an argument against an **Agree-based analysis** of *Tough-Movement* in general, which derives antecedent-gap relationships via a formal link – Agree – in the syntax.

- (4) This book was important to read


- The argument against the Agree-analysis rests on the observation that an intervening noun is perfectly grammatical between the subject and gap, a configuration that should give rise to **(defective) intervention**, because the formal link is “blocked” by the intervening element.

- (5) oLogooli lu-vogor-εl-a  muhega mu-lala kweega ____
 11Logooli 11-take-APPL-FV  3year 3-one INF.learn
 ‘Logooli took Sira a year to learn ____’


Goals for today:

- Examine the various properties associated with the TTC in Logooli, showing that it passes the diagnostics expected of *Tough-Movement* in general.
- Show how the TTC in Logooli provides evidence against the Agree-based analysis of *Tough-Movement*. In particular, motivate the fact that *Sira* in (5) syntactically intervenes between the subject and the gap.
- Complicate the picture by showing how Logooli permits readings of the TTC that are not present in English, which have further consequences for *all* analyses of *Tough-Movement*.

⁴Logooli also has “true” *Tough-Movement*, although it’s restricted simply because there aren’t that many “true” adjectives.

Roadmap

\$1 Intro	\$4 Low Middle Subjects
\$2 The function of the TTC	\$5 High Middle Subjects
\$3 A/ \bar{A} properties of the TTC	\$6 Wrap up

2 The function of the TTC

- The TTC has two functions in Logooli.
 1. It picks out **telic events**. Like in English, the TTC in Logooli is only compatible with events that culminate (e.g., Achievements and Accomplishments) but not other event types (States and Activities).⁵
 2. Contradictorily, (a version of) the TTC in Logooli can signify **atelicity**. Specifically, Logooli lacks *for*-temporal phrases, like, *Sira walked for an hour*. Expressing time spans in which the event does not culminate is done with the TTC.

(6) a. *Sira e-a-vogor-a esa in-lala kugena*
 1Sira 1-T/A-take-FV 9hour 9-one INF.walk
 ‘Sira walked for an hour’
 Lit: ‘Sira took an hour to walk/for walking’

b. *rinyonyi ri-vogor-i esa in-lala kwemba*
 5-bird 5-sing-FV 9hour 9-one INF.sing
 ‘The bird sang for an hour’
 Lit: ‘The bird took an hour to sing/for singing.’
- I'll solely be concerned with the telic version today. I've (hopefully) controlled for this ambiguity in the examples below.

3 Infinitival gaps

- In these next sections, I'll show some of the properties of the antecedent-gap relationship in the TTC, namely, that it displays evidence of \bar{A} -movement, linked to an argument sitting in a A-position.

⁵It's also not compatible with Semelfactives, presumably because it has an additional requirement that the event be non-punctual.

3.1 \bar{A} -properties

3.1.1 Morphology

- Only \bar{A} -movement permits promotion of an object without passive morphology on the verb.

– Note that the passivized version isn't ungrammatical, but it's a control structure and it means something very different.⁶

- (7) a. *kitabu ki-vogor-i ridiku ri-lala [kusooma ____]*
 7book 7-take-FV 5day 5-one INF.read
 ‘The book took a day to read.’
- b. *kitabu ki-vogor-i ridiku ri-lala [PRO kusoom-w-a ____]*
 7book 7-take-FV 5day 5-one INF.read-PASS-FV
 ‘The book took a day to be read.’

- While Logooli permits object drop, only indefinite (non-specific) objects can be omitted.

3.1.2 Partially clause-unbounded

- The gap can span multiple infinitival clauses, otherwise impossible under A-movement.

- (8) a. *e-vogor-i esa in-lala [kuloota kusooma kitabu]*
 9-take-FV 9hour 9-one INF.manage INF.read 7book
 ‘It took an hour to manage to read the book.’
- b. *kitabu ki-vogor-i esa in-lala [kuloota kusooma ____]*
 7book 7-take-FV 9hour 9-one INF.manage INF.read
 ‘The book took an hour to manage to read.’

- This movement is fairly limited. It cannot cross all infinitival clauses, nor can it cross any finite clause boundaries.

⁶I suggest in the Appendix that (7b) as an instance of raising.

3.1.3 Island effects

- \bar{A} -extraction out of the lower clause becomes impossible when there's an object gap.

- (9) a. *(ne) kindeke ki-a e-a-vogor-a risiza ri-lala [kuvok-εl-a inyumba t_{wh}]*
 COP 7what 7-COMP 9-TNS-take-FV 5week 5-one [INF.paint-APPL-FV
 inyumba t_{wh}]
 9house
 ‘What did it take a week to paint the house with?’
- b. * *(ne) kindeke ki-a inyumba e-a-vogor-a risiza rlara [kuvok-εl-a _____ t_{wh}]*
 COP 7what 7-COMP 9house 9-TNS-take-FV 5week 5-one
 kuvok-εl-a _____ t_{wh}]
 INF.paint-APPL-FV

- This can be explained if the object movement is an \bar{A} -movement, which creates an island for further \bar{A} -extraction.

3.2 A-properties of the subject

3.2.1 Triggers agreement

- The subject (obligatorily) triggers agreement on the main verb. In Logooli, this is only possible for arguments sitting in spec-TP.

- (10) a. *zinyumba zi-a-vogor-a risiza ri-lala [kuvoka _____]*
 10house 10-TNS-take-FV 5week 5-one INF.paint
 ‘The houses took a week to paint.’
- b. *likeli li-vogor-e zidakika ricomi [kunyora _____]*
 5frog 5-take-FV 10minute ten INF.find
 ‘The frog took 10 minutes to find.’

3.2.2 Can further A-raise

- The subject can further hyper/copy-raise, which is only possible if the subject of *kuvogora*, ‘to take’, is in an A-position.

- (11) *zinyumba zi-ror-ek-a ndee zi-a-vogor-a risiza ri-lala [kuvoka _____]*
 10house 10-look-AC-FV that 10-TNS-take-FV 5week 5-one INF.paint
 ‘The houses seemed to take a week to paint’
 Lit: ‘The houses seems that took a week to paint’

3.3 Summary

- This configuration of properties – a partially-bounded \bar{A} -step linked to something sitting in an A-position – uniquely picks out the *Tough-Movement* configuration.
 - The general consensus for *Tough-Movement* is that there's an somewhat “weak” \bar{A} -step around the infinitival clause, which is linked (either by movement or predication) to the subject sitting in an A-position in the matrix clause (Lasnik and Fiengo, 1974; Chomsky, 1977; Browning, 1987; Hartman, 2011) among other.
 - One influential theory for deriving these constructions involves forming a dependency in the syntax, modeled as **Agree**, which links the subject and gap (via an intermediate step of movement to spec-CP of the lower clause). (Chomsky, 2000; Řezáč, 2006; Hicks, 2009; Hartman, 2011, 2012; Longenbaugh, 2015).⁷

- Crucially, the Agree analysis makes predictions about when we should see **intervention effects**. Specifically, we should expect to be able to disrupt the Agree relationship by placing an argument between the subject and its target for agreement, the argument sitting in spec-CP.
 - Thus, examples like (13) are typically taken as evidence in favor of the Agree analysis, because *John* intervenes between the subject and the gap, and so prevents the subject from forming a relation with the argument in spec-CP.⁸

⁷Note that whether there's actually “movement” is independent of whether Agree is utilized. Řezáč (2006) proposes an Agree approach that predicates the subject of the infinitival clause, but the predication relation is Agree-based.

⁸*John* is a “defective” intervener because *John* cannot fully satisfy the probe’s needs by moving, but still interact with the probe and block it from further agreeing.

- Therefore, if we find instances of syntactically intervening arguments which fail to lead to ungrammaticality, we can take this as an argument against the Agree-analysis for the derivation of such gaps.

4 (Non)-Interveners in the TTC

4.1 Low Middle Subjects

- Like in English, the TTC in Logooli permits an argument to come between the main verb and the temporal phrase + infinitive. I call such arguments **Middle Subjects**. This is purely a descriptive term, based on the fact that they're in the middle of the sentence.

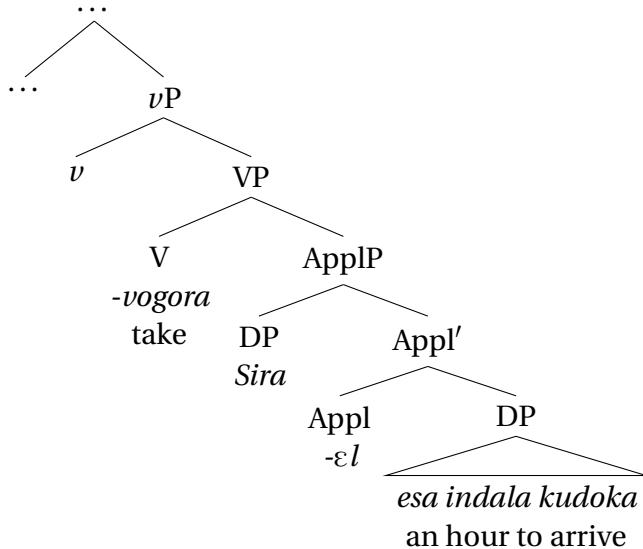
(14)	<i>e-a-vogor-εl-a</i>	<i>Imali</i>	<i>muhega mu-lala [kweega oLogooli]</i>
	9-T/A-take-APPL-FV	1 <i>Imali</i>	3year 3-one INF.learn 11Logooli
'It took Imali a year to learn Logooli'			

- Middle Subjects are applied objects on the main verb *kuvogora*, ‘to take’, obligatorily occurring with the applicative marker *-εl*.⁹
- I treat these as Low Applicatives, mapping the Middle Subject to the temporal phrase (which includes the infinitival CP) (Pylkkänen, 2000).
 - I call them “**Low**” **Middle Subjects** to distinguish them from “High” Middle Subjects discussed shortly.¹⁰

⁹It's worth noting that the root final /r/ and the applicative marker coalesce, so that the sole difference between the two forms is that the “bare” form is pronounced with an /r/ [evogore], while the applicative form is pronounced with an /l/ [evogole]. In rapid speech, both surface as a flap [evogore].

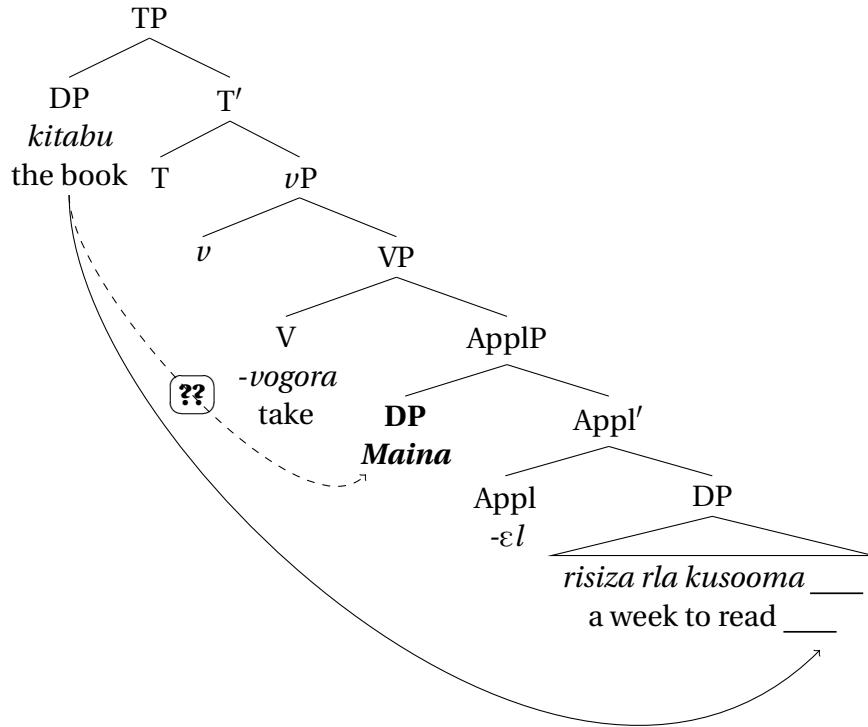
¹⁰I'm being purposefully agnostic about the structure of the DP+CP.

(15) Structure of the Low Middle Subject



- In this structure, a Low Middle Subject will **structurally intervene** between something in spec-TP and the infinitival clause.
 - An Agree-analysis now predicts that linking the subject to a gap in the infinitival phrase should be ungrammatical, since it involves forming a dependency across the applied argument. This prediction is not borne out.

- (16) *kitabu ki-a-vogor-a Maina risiza ri-lala [kusooma]*
 7book 7-TNS-take-FV 1Maina 5week 5-one INF.read
 'The book took Maina a week to read'



- Importantly, Low Middle Subjects do act as interveners in other regards. For instance they can give rise to Superiority effects.

- (17) a. Wh-in situ
e-vogor-εl-e vwaha zideka ricomi [kunyora vwaha] ?
 9-take-APPL-FV 15who 10minute ten INF.find 15who
 'It took who 10 minutes to find who?'

b. Wh-movement over non-wh Low Middle Subject

vwaha w-a e-vogor-εl-e Sira zideka ricomi [kunyora t_{wh}] 15who 1-COMP 9-take-APPL-FV Sira 10minute ten INF.find

‘Who did it take Sira 10 minutes to find?’

c. Wh-movement over wh-Low Middle Subject

**vwaha w-a e-vogor-εl-e vwaha zideka ricomi [kunyora t_{wh}] 15who 1-COMP 9-take-APPL-FV 15who 10minute ten INF.find*

Intended: ‘*Who did it take who 10 minutes to find?’

- The ungrammaticality of (17c) is the result of classic Superiority: A wh-element cannot cross another c-commanding wh-element.
- Moreover, Low Middle Subjects are capable of binding a variable in the infinitival clause even in the gapped version.

- (18) *kitabu ki-vogor-εl-e vuri mwigizi esa in-lala [kusoom-εl-a 7book 7-read-APPL-FV every 3teacher 9hour 9-one INF.read-APPL-FV vasomi veeve ___] 4student 4.POSS*

‘The book took every teacher_i an hour to read to his_i students.’

- Finally, Low Middle Subjects obligatorily (exhaustively) control the PRO subject of the infinitival clause.

- (19) *e-vogor-εl-i msaara_i esa in-lala [PRO_{i/*j} kugwa] 9-take-APPL-FV 3tree 9hour 9-one INF.fall*
- ‘It took the tree_i an hour PRO_{i/*j} to fall.’

- **Conclusion :** Low Middle Subjects syntactically intervene between the subject and the gap in the TTC. Agree-based analyses therefore incorrectly predict that Low Middle Subjects in the TTC act as an intervener.
- Since Agree-based intervention doesn’t work, it suggests that *Tough-Movement* is derived via a **predicational** approach, where an open variable in the infinitival clause is predicated of the subject generated in the matrix clause (Chomsky, 1977; Browning, 1987; Keine and Poole, 2015).¹¹

¹¹See also (Řezáč, 2006; Fleisher, 2014), minus the Agree-mechanism.

5 High Middle Subjects

- Logooli complicates this picture even more because it also permits a different kind of Middle Subject which is variously translated as “[Middle Subject] waited X amount of time for …”, or “X amount of time was taken from [Middle Subject]’s life for ….”

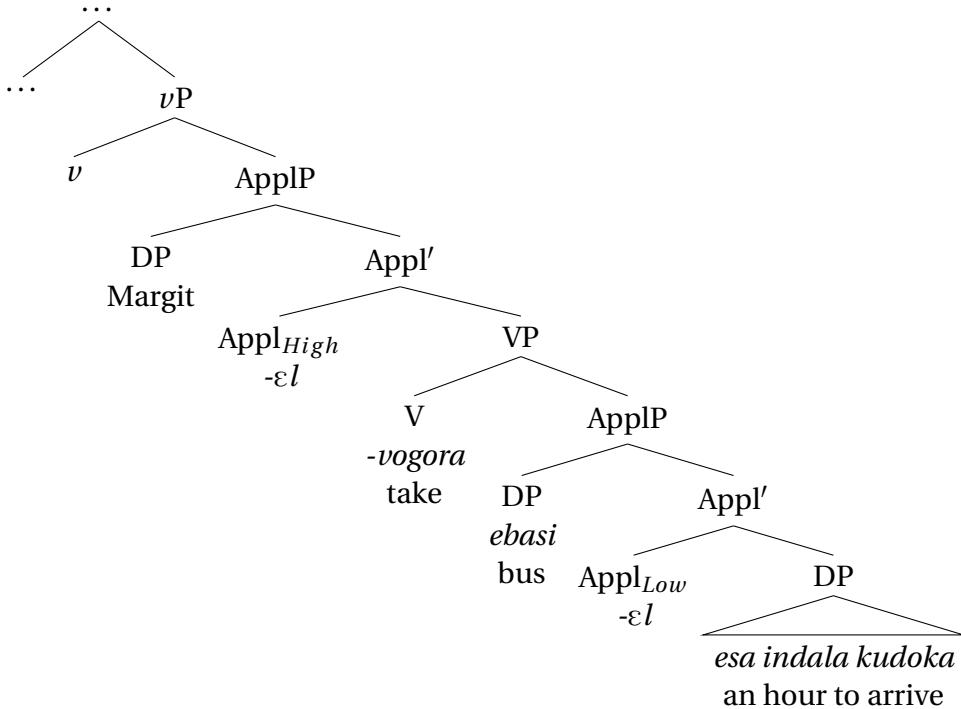
- (20) a. *e-vogor-εl-εl-i Sira msaara esa in-lala [kugwa]*
 9-take-APPL-APPL-FV 1Sira 3tree 9hour 9-one INF.fall
 ≈ ‘Sira waited an hour for the tree to fall. (And it did fall.)’
 or ‘An hour of Sira’s life was taken for the tree to fall.’
- b. *e-vogor-εl-εl-i Margit ebasi esa in-lala [kudoka]*
 9-take-APPL-APPL-FV 1Margit 9bus 9hour 9-one INF.arrive
 ≈ ‘An hour of Margit’s life was taken waiting for the bus to arrive.’
- c. *e-vogor-εl-εl-i vuri mwana ebasi yeeye esa in-lala [ku-mu-dok-εl-a]*
 9-take-APPL-APPL-FV every 3child 9bus 9.POSS 9hour 9-one
 INF-3Obj-arrive-APPL-FV
 ≈ ‘Every child waited an hour for his bus to arrive to him.’¹²

- Observe that the event is still interpreted as being telic.
- I treat these as High Applicatives, relating the applied argument to the VP, or the event of “taking” (Pylkkänen, 2000). I call them **High Middle Subjects**.¹³

¹²One difference between High and Low Middle Subjects is that the High Middle Subject often corresponds to an implicit applied argument of the infinitival clause, which can optionally be overtly expressed. Low Middle Subjects can never be doubled in the lower clause.

¹³Logooli is documented as having both High and Low Applicatives (Angelopoulos, 2015). Since English lacks High Applicatives, this correctly predicts that English should lack this type of Middle Subject.

(21) Structure of the High Middle Subject



- High Middle Subjects are distinguished from Low Middle Subjects by a number of factors.
 - must be animate
 - often correspond to an (explicit) applied argument of the infinitive
 - cannot control PRO
 - can be passivized
 - are attitudinal
- Importantly, High Middle Subjects differ from Low Middle Subjects in that High Middle Subjects cannot cooccur with an object gap in the infinitival clause, i.e., no *Tough-Movement*.

- (22) a. *e-a-vogor-εl-εl-a Sira Imali muhiga mu-lala [kwombaka
9-TNS-take-APPL-APPL-FV 1Sira 1Imali 3year 3-one INF.build
inyumba]
9house*
- ‘A year of Sira’s life was taken for Imali to (finish) build(ing) (him) a house.’

- b. * *inyumba e-a-vogor-εl-εl-a Sira Imali muhiga mu-lala [*
 9house 9-TNS-take-APPL-APPL-FV 1Sira 1Imali 3year 3-one
kwombaka ____]
 INF.build
 Intended: ‘A year of Sira’s life was taken for Imali to (finish) build(ing)
 (him) a house.’

- Thus, unlike Low Middle Subjects, **High Middle Subjects are “successful” interveners.**
- This creates a problem for *any* theory of *Tough*-Movement: What differentiates the two types of Middle Subjects such that only High Middle Subjects block *Tough*-Movement?
 - For Agree, the problem is formulating (without pure stipulation) that High Middle Subjects are true defective interveners, while Low Middle Subjects are not.

$$(23) \quad \begin{array}{c} \checkmark [\text{Subject} \dots [\dots \dots \dots \text{Low Middle Subject} \dots [\underset{\uparrow}{\text{CP}} \dots \text{gap}]]] \\ * [\text{Subject} \dots [\dots \text{High Middle Subject} \dots \dots \dots [\underset{\uparrow}{\text{CP}} \dots \text{gap}]]] \end{array}$$

x

- The problem isn’t solved with the predication approach.
 - If we adopt Keine and Poole (2015)’s analysis of *Tough*-Movement, where intervention is a result of a type-mismatch between the infinitival CP and what it composes with, we have to explain, again, why Low Middle Subjects do not create the mismatch, while High Middle Subjects do.
- Presumably one of the factors listed above differentiating High and Low Middle Subjects is responsible for this dichotomy.
 - I’ve suggested elsewhere that intervention effects are sensitive to the semantic type of the intervener: ***Tough*-Movement cannot cross an attitude holder** (Gluckman, 2016).
 - High Middle Subjects are attitudinal, in that we can attribute to them a belief about the infinitival clause. Consider (24), where the High Middle Subject has a false *de re* belief about who was interviewed.

- (24) Context: Imali was supposed to interview someone today, either an actress or a politician. Maina mistakenly thinks that Imali interviewed the actress, when she actually interviewed the politician. If Maina thinks it took a long time, we can report,

e-a-vogor-εl-εl-a Maina Imali iŋeŋa in-dambe kwidula mkini
 9-TNS-take-APPL-FV 1Maina 1Imali 9time 9-long INF.interview 3actress

'Maina waited a long time for Imali to interview the actress.'

- Thus the difference in availability in *Tough-Movement* falls under the generalization that only attitude holders can be defective interveners.
 - If such a generalization holds, it suggests that intervention effects shouldn't be given a purely syntactic treatment, but may in fact be the result of more general constraint on interpretation (Gluckman, to appear).

6 Conclusion

- The Take-TIME Construction in Logooli can be classified as another example of *Tough-Movement*, and it provides an argument against an Agree-based analysis for deriving the antecedent-gap relationship.
- The failure of an Agree-analysis would suggest that a predicational approach is more appropriate. But that, too, wouldn't account for the difference between High and Low Middle Subjects.
- This suggests to me that the more general question of the semantic compositionality of the TTC (and *Tough-Constructions* generally) must be addressed before we can begin to understand variants of the structure, i.e., *Tough-Movement*.

Thanks!

References

- Angelopoulos, N. (2015). Reconsidering object asymmetries: Evidence from maragoli. handout from ACAL 46.
- Browning, M. (1987). *Null Operator Constructions*. PhD thesis, Massachusetts Institute of Technology.
- Chomsky, N. (1977). On *wh*-Movement. In Culicover, P., Wasow, T., and Akmajian, A., editors, *Formal Syntax*. Academic Press.
- Chomsky, N. (2000). Minimalist Inquiries: The Framework. In Martin, R., Michaels, D., and Uriagereka, J., editors, *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, pages 89–155. MIT Press, Cambridge.
- Fleisher, N. (2014). Rare-class adjectives in the *tough*-construction. *Language*, 91:73–108.
- Gluckman, J. (2016). Taking time with *tough*-movement. handout from LSA 2016, Washington D.C.
- Gluckman, J. (to appear). Intervention in *tough*-Movement: A semantic analysis. GLOW 39, Workshop on Perspectivization.
- Hartman, J. (2011). (Non-)Intervention in A-movement. *Linguistic Variation*, 11(2):121–138.
- Hartman, J. (2012). *Varieties of Clausal Complementation*. PhD thesis, MIT.
- Hicks, G. (2009). *Tough* Constructions and their Derivations. *Linguistic Inquiry*, 40(4):535–566.
- Keine, S. and Poole, E. (2015). Intervention in *tough*-constructions. handout from GLOW 38.
- Lasnik, H. and Fiengo, R. (1974). Complement object deletion. *Linguistic Inquiry*, 5(4):535–571.
- Longenbaugh, N. (2015). Difficult Movement. handout from NELS 46.
- Pylkkänen, L. (2000). What applicative heads apply to. In *Proceedings of the 24th Annual Penn Linguistics Colloquium*, volume 6.4 of *UPenn Working Papers in Linguistics*.
- Řezáč, M. (2006). On Tough Movement. In Boeckx, C., editor, *Minimalist Essays*, volume 91. John Benjamins.

Appendix: A-raising of the (Low) Middle Subject

- I've omitted discussion of a variant of the TTC: The subject of the infinitive can be expressed as the subject of the main verb.
 - Note that these can sometimes be compatible with the *atelic* version of the TTC, expressing *for*-temporal spans.

(25)	a.	<i>ebasi; e-a-vogor(*-εl)-a</i>	<i>esa</i>	<i>in-lala PRO_i kudoka</i>	
		9bus	9-TNS-take(-APPL)-FV	9hour 9-one	INF.arrive
'The bus took an hour to arrive.'					
	b.	<i>ebasi; e-a-vogor-εl-εl-a</i>	<i>Margit esa</i>	<i>in-lala PRO_i kudoka</i>	
		9bus	9-TNS-take-APPL-APPL-FV	1Margit 9hour 9-one	INF.arrive
'Margit waited an hour for the bus to arrive'					
Lit: 'The bus took Margit an hour to arrive.'					
(Margit cannot be the one arriving.)					

- It's tempting to treat (25a) as an instance of raising of the Low Middle Subject.
 - There's independent evidence for this from English (Gluckman, 2016).
- This would straightforwardly account for the obligatory Subject Control exhibited in (25b), where *Margit*, a High Middle Subject, cannot be construed as the subject of the infinitival clause; it must be the bus that is arriving.
 - This follows if *ebasi* starts below the High Middle Subject and then raises around it to spec-TP.
- I see two issues with the raising analysis.
 1. The applicative morphology cannot appear on the verb. Under the raising analysis, *ebasi* has started as Low Middle Subject in spec-AppP, but this morphology must be deleted at some point.
 2. It's strange that the dependency of the subject and PRO in (25b) can successfully cross a High Middle Subject. As we saw above, High Middle Subjects are interveners, and so might be expected to disrupt such dependencies – or generally the raising of the Low Middle Subject entirely.