

Proleptic Objects are Identificational Subjects

John Gluckman
University of Kansas

January 4th, 2024
Linguistic Society of America

Proleptic constructions, (1), involve a **proleptic object** and an embedded clause, typically resulting in a bound pronoun in the embedded clause.

(1) Majaliwa remembers about **Samson** that he's sick.

Prolepsis is thus an issue of a cross-clausal A-dependency (Lohninger et al., 2022). The standard solution is that this is a form of **predication**: the embedded clause is a **derived predicate**, predicated of the proleptic object.

(2) Majaliwa remembers about Samson₁ [Op₁ that he₁'s sick]

I'm going to argue today for a different approach.

Main claims

- There is no operator in the embedded clause.
- Proleptic objects are complex-NPs
≈ “the thing about Samson”
- The embedded clause identifies the content of this NP
≈ “the thing about Samson is that he’s sick”

The analysis below will attempt to pull together some of the recent innovations in the syntax and semantics of embedded clauses.

- 1 Introduction
- 2 Brief data overview
- 3 Operator analyses and their issues
- 4 Proposal
- 5 Topichood
- 6 Conclusion

Proleptic constructions have a consistent signature (with some slight variation across languages). First, the embedded clause is intuitively “about” the proleptic object. This typically manifests in there being a correlate—often a pronoun, though epithets are also possible—in the embedded clause.

(3) * John said of **Bill** that Mary is intelligent

(Lappin, 1984: 250)

This is typically understood as a requirement: if there is no correlate in the embedded clause, prolepsis is impossible (Salzmann, 2017: 277).

Most analyses are therefore concerned with the relationship between the correlate and the proleptic object (Davies, 2005; Salzmann, 2017; Deal, 2018). It cannot be one of movement: proleptic constructions are insensitive to islands:

- (4) a. I believe about **Richard** that [_{Island} he and Linda] are in trouble.
- b. I believe about **Atin** that the story [_{Island} that she captured the thief] is untrue.

(Davies, 2005: 659)

Furthermore proleptic objects shows limited reconstruction effects.

(5) Scope

Jennifer knows about **three books** that no one read them.

*no > three

(6) Binding

*I learned about **her₁ project** that no student₁ completed it.

(7) (Certain) idioms

??Samson heard about **the bucket** that Steph kicked it.

(I note that there are certain “selective” reconstruction effects reported in Salzman 2017)

Additionally, there are known restrictions on proleptic objects themselves. Proleptic objects must be “referential, specific, or generic” (Lohninger et al., 2022: 4).

- (8) a. I know of **firemen** that they are available. (only generic)
- b. Nova said of **a secretary** that someone is looking for him. (only specific)
- (Lohninger et al., 2022: 4)

Because of this, proleptic objects are often understood as being **topics** (Reinhart, 1981), since they share similar restrictions.

All current approaches to prolepsis require turning the CP into a predicate through merge of an (obligatorily null) operator, which in turn binds the correlate in the embedded clause (Salzmann, 2017; Lohninger et al., 2022: 5). This **derived predicate** is predicated of the proleptic object.

(9) a. ... [PP about Samson] remember [CP Op₁ [he₁ is sick]]

 Predication

b. ... [PP ... [DP]] V [CP Op₁ [... pro₁ ...]]

(Salzmann, 2017: 294)

This approach neatly captures the presence of a correlate in the embedded clause. But it requires additional assumptions to derive the lack of connectivity and the topichood properties.

There are two issues with this approach—both well-known. First, there is a clear prediction: if CPs can be derived predicates, they should act like predicates elsewhere. But Landau (2011) points out that (gapless) CPs in general cannot be predicated of a subject.

- (10) a. *Samson₁ is [_{CP} Op₁ that he₁ is sick]
b. *This painting₁ is [_{CP} Op₁ that it₁ is a masterpiece]
(Landau, 2011: 796)

Landau suggests that these kinds of predicate-clauses must always be selected.

Second, there is an issue with vacuous binding. This problem is often cited in connection with other constructions which are also analyzed using the same kind of predicativization device, like Copy-Raising. (See also Major/Broad Subjects in Heycock and Doron 2003, among others.)

- (11) a. **Chris** seemed like he enjoyed the Marathon
(Asudeh and Toivonen, 2012: 1)
- b. **The soup** tastes like Maude has been at the
cooking-sherry. (Landau, 2011: 785)

While (11a) is typically analyzed with the same predicativization analysis, (11b) cannot be, as it would involve vacuous binding.

As far as I know, this same kind of correlate-less clause hasn't been noted for prolepsis (though see Salzmann 2017: 270 and Lohninger et al. 2022: 3) but there are grammatical examples.

- (12) a. Mason discovered about his **new car** that the radio doesn't work.
- b. Aisha remembered about **the wedding** that it rained the entire time.
- c. The docent explained about **the mural** that the artist was inspired by their trip to Portugal.
- d. I heard about **your apartment** that there's a wonderful view (adapted from Heycock 1991)

There is gradient acceptability among speakers—but that matches what has also been found for Copy-Raising (and Major/Broad Subjects).

Summarizing, the derived predicate analysis does well to explain the relationship between the embedded clause and the proleptic object, but there are serious issues;

- no empirical evidence for a predicate analysis of CPs
- the availability of correlate-less embedded clauses

The alternative I'll suggest draws on some recent advances in our understanding of the syntax and semantics of embedded clauses. I will dispense with the operator predication analysis, and derive the relationship between the proleptic object and the clause via independently motivated proposals.

The core idea is that instead of turning the embedded clause into a derived predicate via operator merge, the embedded clause is an inherent predicate: a predicate of **contentful nouns**, i.e., nouns with propositional content. The proleptic object **restricts** the propositional content of one such noun.

- (13) a. Majaliwa remembers about Samson that he's sick.
b. \approx Majaliwa remembers the thing about Samson is that he's sick.

This analysis builds on three independent lines of research.

First is the idea that (finite) clauses are properties of **contentful individuals** (Kratzer, 2006; Moulton, 2015).

$$(14) \llbracket \text{that Samson is sick} \rrbracket = \lambda x. \text{CONTENT}(x) = \{w \mid \text{Samson is sick in } w\}$$

Here, CPs are properties of individuals, but they are not *derived* predicates. They are inherently properties of special kinds of individuals, those which have propositional content, like *rumor*, *belief*, *idea*,

$$(15) \llbracket \text{the rumor is that Samson is sick} \rrbracket = 1 \text{ if } \text{CONTENT}(\iota x \text{rumor}(x)) = \{w \mid \text{Samson is sick in } w\}$$

Second, Rawlins (2013) proposes an analysis of *about*-PPs dealing with their post-verbal use (without a following clause):

(16) John {asked / wondered / knows / dreamed / ... } about Mary
(Rawlins, 2013: 336)

Rawlins' idea is that, in this use, *about*-PPs restrict the propositional content that such verbs invoke.

- If *John knows about Mary*, then John knows some fact which concerns Mary.
- If *John asked about Mary*, then John asked some question which concerned Mary.

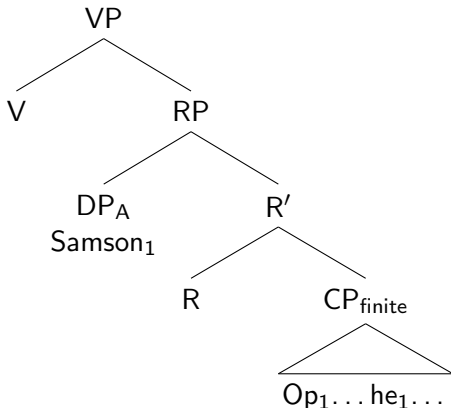
Here is a (much) simplified version of Rawlins' idea.

- (17) $\llbracket \text{PP about Samson} \rrbracket = \lambda x. \text{Samson is the Topic in CONTENT}(x).$
defined iff x has propositional content.

Functionally, *about*-PPs affect the propositional content of x by making the content “about” the proleptic object. (I'll return to this in a moment.)

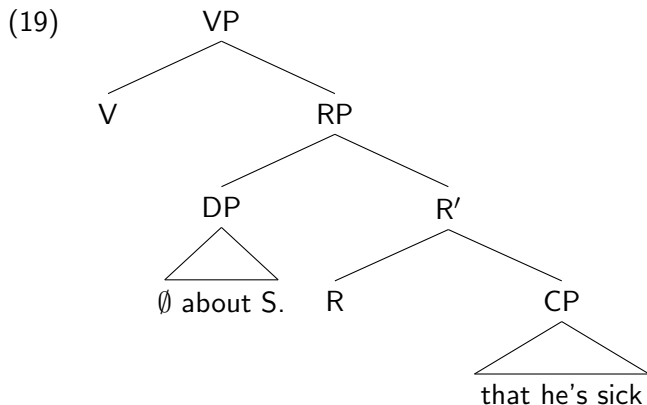
- (18) $\llbracket \text{the rumor about Samson} \rrbracket = \iota x \text{rumor}(x) \wedge \text{Samson is the Topic in CONTENT}(x).$
defined iff x has propositional content.

Finally, I adopt the idea from Lohninger et al. (2022) that cross-clausal A-dependencies (Long Distance Case/Agreement, Object/Subject Hyperraising, Prolepsis) involve a **relational phrase** RP connecting the finite clause with the A-element. (See also den Dikken 2017).



The point here is that R instantiates the predicational relationship between the proleptic object and the clause.

The structure below puts these three ideas together:



In the specifier of RP is a complex-NP. This is what is in a predicational relationship with the embedded clause.

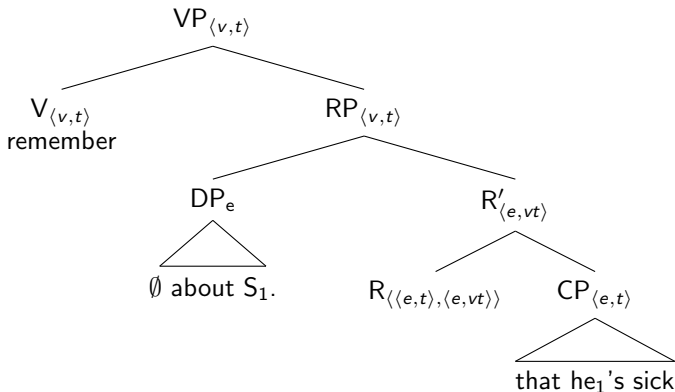
I propose that the complex-NP is headed by a phonologically null element, interpreted as a generic contentful noun, which I'll call THING.

- (20) $\llbracket \llbracket_{\text{DP}} \emptyset \text{ about Samson} \rrbracket \rrbracket = \iota x \text{THING}(x) \wedge \text{Samson is the Topic in CONTENT}(x)$.
defined iff x has propositional content.

The head R itself I take to be a run-of-the mill relational head (e.g., Pred), which takes a predicate, an individual, and an eventuality, and asserts that the predicate holds of the individual in the eventuality.

- (21) $\llbracket \text{R} \rrbracket = \lambda P_{et} \lambda x \lambda e. P(x) \text{ in } e$ (cf, Partee 1987; Elbourne 2013)

(22)



- (23) a. $\llbracket \text{RP} \rrbracket^g = \lambda e. \iota x \text{CONTENT}(\text{THING}(x)) = \{w \mid g(1) \text{ is sick in } w\} \text{ in } e \wedge \text{Samson is the Topic in } \text{CONTENT}(x)$
- b. $\llbracket \text{remember} \rrbracket = \lambda e. \text{remember}(e)$ (Parsons, 1990; Elliott, 2017)
- c. $\llbracket (22) \rrbracket^g = \lambda e. \text{remember}(e) \wedge \iota x \text{CONTENT}(\text{THING}(x)) = \{w \mid g(1) \text{ is sick in } w\} \text{ in } e \wedge \text{Samson is the Topic in } \text{CONTENT}(x)$ (via PM)

In this analysis, the lack of connectivity and topichood properties come for free:

- there is no syntactic relationship between the proleptic object and its correlate;
- the proleptic object is explicitly encoded as a Topic.

Additionally, we have an explanation for why proleptic objects in English are always introduced in a prepositional phrase: they're part of a complex-NP.

Importantly, there is nothing hardwired into the syntax or semantics that requires a pronominal correlate in the embedded clause. The reference of the pronoun in the embedded clause is determined relative to the variable assignment function g .

- This permits correlate-less clauses in prolepsis—which is what we want.

Instead, the account encodes that the proleptic object is a Topic in the embedded clause, which will often—though not always—translate into there being a pronominal correlate.

The particular “kind” of topic that is relevant appears to be a **Discourse Topic**. These are thought to act as anchors for the discourse: the discourse topic is what the utterances in the discourse are about, and it is not linked to any one syntactic position (in English) (Irmer, 2011).

The connection becomes clear when considering cases of correlate-less embedded clauses, which always either (i) involve a Part-Whole relationship, or (ii) are Situation-related.

- (24) a. Mason discovered about **his new car** that the radio doesn't work.
- b. Aisha remembered about **the wedding** that it rained the entire time.

Both of these are invoked in Bridging Anaphora (Hawkins, 1978; Irmer, 2011): some element in the first sentence acts as a Topic and anchors the second sentence.

- (25) a. Mason hates **his new car**. The radio doesn't work.
- b. Did you hear about **the wedding**? It rained the entire time.

Ultimately, the analysis suggests that the correlate pronouns in prolepsis, as in (26), are closer to **discourse anaphora** than bound pronouns.

(26) Majaliwa remembered about **Samson** that he's sick.

This of course introduces a new complication: How do we translate a theory of discourse anaphora (and bridging) to embedded clauses?

Concluding, I've offered here an alternative to the predication analysis of prolepsis which builds on three existing proposals concerning the meaning of the embedded clauses, *about*-PPs, and cross-clausal dependencies.

- There is no operator in the embedded clause.
- Proleptic objects are complex-NPs with *about*-PP semantics.
- Clauses are properties of contentful individuals.

The approach solves the issues with predicate-CPs and correlate-less clauses by appealing to a more refined semantics for embedded clauses and *about*-PPs.

This work was supported by NSF BCS-2140837.

Thanks!

- Asudeh, A. and Toivonen, I. (2012). Copy raising and perception. Natural Language & Linguistic Theory, 30:321–380.
- Davies, W. D. (2005). Madurese Prolepsis and its Implications for a Typology of Raising. Language, 81:645–665.
- Deal, A. R. (2018). Compositional paths to *de re*. In Proceedings of SALT 28, pages 622–648.
- den Dikken, M. (2017). Predication in the syntax of hyperraising and copy-raising. Acta Linguistica Academica, 64(1):3–43.
- Elbourne, P. (2013). Definite Descriptions. Oxford University Press, Oxford.
- Elliott, P. (2017). Elements of Clausal Embedding. PhD thesis, University College London.
- Finholt, A. and Gluckman, J. (2023). A corpus analysis of Swahili's dual-complementizer system. Journal of African Languages and Linguistics, 44(1):25–48.
- Hawkins, J. A. (1978). Definiteness and Indefiniteness: a study in reference and grammaticality prediction. Croom Helm Ltd.
- Heycock, C. (1991). Layers of predication: The non-lexical status of clauses. PhD thesis, University of Pennsylvania.

- Heycock, C. and Doron, E. (2003). Categorical subjects. Gengo Kenkyu, 123:95–135.
- Irmer, M. (2011). Bridging Inferences: Constraining and resolving underspecification in discourse interpretation. Walter de Gruyter.
- Kratzer, A. (2006). Decomposing attitude verbs. accessed online at <http://semanticsarchive.net/Archive/DcwY2JkM/attitude-verbs2006.pdf>.
- Landau, I. (2011). Predication vs. aboutness in copy raising. Natural Language & Linguistics Theory, 29(3):779–813.
- Lappin, S. (1984). Predication and raising. In Jones, C. and Sells, P., editors, Proceedings of NELS 14, pages 236–252, Amherst, MA. GLSA.
- Lohninger, M., Kovač, I., and Wurmbrand, S. (2022). From prolepsis to hyperraising. Philosophies, 7(32).
- Moulton, K. (2015). CPs: Copies and Compositionality. Linguistic Inquiry, 46(2):305–342.
- Parsons, T. (1990). Events in the Semantics of English: A study in Subatomic Semantics. MIT Press.

- Partee, B. (1987). Noun phrase interpretation and type-shifting principles. In Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers (GRASS 8), pages 115–143. Foris, Dordrecht.
- Rawlins, K. (2013). About *about*. In Proceedings of SALT 23, pages 336–357.
- Reinhart, T. (1981). Pragmatics and Linguistics: An analysis of sentence topics. Philosophica, 1:53–94.
- Salzmann, M. (2017). Reconstruction and Resumption in Indirect A'-dependencies. On the Syntax of Prolepsis and Relativization in (Swiss) German and beyond. De Gruyter, Berlin.

Evidence for R: We find evidence for a relational phrase in languages with **copular complementizers**. Swahili has two complementizers.

- *kwamba* is a *say*-complementizer (diachronically) related to the proto-Bantu word **gamb* ‘say’
- *Kuwa* is a *be*-complementizers (synchronically) identical to the copular infinitive.

Kwamba and *kuwa* are largely in free variation, influenced by pragmatic factors (Finholt and Gluckman, 2023).

- (27) Majaliwa anafikiri kwamba / kuwa Samson ni mgonjwa
Majaliwa thinks COMP COMP Samson is sick
‘Majaliwa thinks that Samson is sick.’

However, in the presence of a proleptic object, only *kuwa* is possible.

- (28) Majaliwa anafikiri kuhusu Samson *kwamba / kuwa ni
Majaliwa thinks about Samson COMP COMP is
mgonjwa
sick
'Majaliwa thinks that Samson is sick.'

Evidence for contentful noun: In another Bantu languages, Tshiluba, proleptic objects are obligatorily fronted (as they are in much of German).

- (29) (bwalu) bwa Mujinga, Kalombo muvuluke ne
14thing 14.LNK Mujinga Kalombo remembered COMP
udi usama
is sick
‘Kalombo remembered about Mujinga that she’s sick.’

All proleptic constructions may optionally be preceded by *bwalu* translated as ‘thing, matter, situation’. The presence of the linker *bwa* tells use that *bwalu bwa Mujinga* is a complex DP.

More on null-operator CPs

Landau (2011) claims that null operator CPs are restricted by the following constraints. Constraint 2 can “over-rule” constraint 1.

- 1 Null operators cannot be merged with a finite clause.
- 2 Null operator CPs are selected.

Note that is at odds with Landau’s later claim that hanging topic left-dislocation involves the same predication analysis as prolepsis: *John, something terrible happened *(to him)* (Landau, 2011: 809).

A more pressing problem is that we have cases which appear to overtly involve derived predicate CPs, but these CPs cannot appear in proleptic constructions.

- (30) a. Samson is who is sick.
b. *Majaliwa remembers about Samson_i [who_i is sick]
c. (cf, Majaliwa remembers [who is sick])

It's not clear what rules out such sentences: they are predicates; why can't they serve as embedded clauses in prolepsis?

Note that positing binding of an implicit pronoun (as suggested in e.g., Landau 2011) runs into over-generation trouble with examples in cases where an implicit pronoun is very likely, like passives.

- (31) a. Pat realized about the burglar that the painting was stolen by him.
b. ?? Pat realized about the burglar that the painting was stolen.

Landau also suggests that implicit arguments of relational and deverbal nouns can be bound. This overgenerates with relational nouns like *sister* or *age*

- (32) a. Megan believes about her mother-in-law that the sister *(of that evil woman) is sick.
b. */?? Dru knows about Erica that someone lied about the age.