Movement and interpretation of quantifiers in internally-headed relative clauses

Rebecca Jarvis, UC Berkeley (rjarvis@berkeley.edu)

SALT 33, May 2023

Introduction

- Today: semantic and syntactic diversity of internally-headed relative clauses (IHRCs)
- In IHRC typologies, there is often an assumed link between IHRC syntax and semantics: specifically, covert movement of the head.
  - Grosu (2012): (covert) movement of the head has semantic effects, with quantifiers being interpreted high even when pronounced low.
- Connecting this literature to additional, largely syntactic work questioning what constitutes an IHRC.
  - Hiraiwa (2005) et seq.: some languages exhibit "left-headed IHRCs," IHRCs in which the head moves within the relative clause CP but does not vacate the CP.
- Left-headed IHRCs involve *overt* movement of the head, making a clear prediction based on Grosu's typology: all quantifiers should be interpreted high.
- Using a case study of two West African (Niger-Congo) languages, we'll see that this is sometimes but not always the case. These findings motivate a greater decoupling of RC head movement and semantic interpretation.
  - I argue that syntactic movement enables but does not force high quantifier interpretation.

Outline

1. Grosu's IHRC typology, movement, and interpretation
2. Left-headed IHRC structure in Bùlì and Atchan
3. IHRCs and quantifiers in Atchan: The interpretive possibilities of movement
4. IHRCs and quantifiers in Bùlì: Non-semantically-motivated head movement
5. Implications and conclusion

1 Grosu (2012) and the semantics of IHRC head movement

1.1 IHRC varieties and island sensitivity

- A lot of interest in the literature on the typology of internally-headed relative clauses, with both syntactic typologies (Watanabe 2004; Hiraiwa 2005, a.o.) and semantic typologies (Grosu 2002, 2012) developed.

- Starting point: semantic typology of Grosu (2012).
- Following Grosu (2002), it is common to distinguish between two major types of IHRCs, **restrictive** IHRCs (exemplified by Lakhota) and **maximalizing** IHRCs (exemplified by Japanese).
    - Restrictive IHRCs: can have indefinite interpretations, can stack (with restrictive import)
    - Maximalizing IHRCs: cannot have indefinite interpretations, cannot stack
    - Stacking: $[_{\text{IHRC}} \ldots [_{\text{IHRC}} \ldots \text{head} \ldots] \ldots]$ (with the same head in both IHRCs)
- One major split between the two kinds of IHRC is assumed to lie in island-sensitivity: while restrictive IRHCs are island-insensitive (like Lakhota in (1a), maximalizing IHRCs are island-sensitive (like Japanese in (1b)).[1]
    - Conventional diagnostic: relative-in-relative configuration

(1) a. [[Wichota wowapi wą ∅-yawa pi cha] ob wo?ųglaka
many.people paper a read PL IND with we.speak
pi ki] he L.A. Times ∅-e
PL the that L.A. Times be
'The paper such that we talked to many people who read it is the L.A. Times.'
(Grosu 2012(14), citing Williamson 1987:(15b))

b. * Mary-ga [John-ga [atarashii kasetu-o teianshita
Mary-NOM John-NOM new hypothesis-ACC proposed
gakusei-o] hidoku homete-ita-no]-no akirakana
student-ACC extravagantly praise-had-NO-GEN obvious
kekkan-o suguni shitekishita.
defect-ACC promptly pointed.out
Intended: 'John extravagantly praised the student who had proposed a new hypothesis$_i$, and Mary promptly pointed out an obvious defect in it$_i$.' (Grosu 2012:(33))

[1] See Watanabe (2004) for another fundamentally syntactic typology on which island-sensitivity plays a crucial role.

1.2 Quantifier interpretation in IHRCs

- Grosu (2012) further adds to the typology by proposing that **quantifier scope** also plays a role in determining whether a given restrictive IHRC is island-sensitive or not.
- What do quantifiers on the head of an IHRC mean?
    - Consider: '[$_{\text{IHRC}}$Julianne sold every chicken] is white.'
    - One possibility: as in English, the quantifier relates two sets, a set of individuals that comes from the relative clause and another set of individuals that comes from the matrix clause.
        - English "translation": 'Every [chicken that Julianne sold] [is white].'
        - Then this sentence will be true as long as the set of chickens sold by Julianne is a subset of the set of white chickens (RC set $\subseteq$ MC set).
        - I'll call this the **high-scope** construal, since the quantifier is taking more as its restriction that it seemingly can based on its surface position.
    - Another possibility: Quantifier manipulates the relative clause set, not the matrix set.
        - English "translation" (in the style of Shimoyama (1999)): 'Julianne sold [every chicken]$_i$ and they$_i$ were white.'
        - Here, the quantifier is **low** and requires that Julianne have sold all relevant chickens, with no unsold chickens permitted.
        - $\rightarrow$ on the low quantifier reading, the RC predicate must hold of every individual in the denotation of the head.

- Grosu (2012) connects quantifier scope and island-sensitivity: on his view, maximalizing IHRCs *must* be island-sensitive, but restrictive IHRCs also *can* be island-sensitive if the head undergoes (covert) movement for the purposes of allowing quantifiers on the head to scope over the whole relative clause.
- Grosu's example: Navajo
  - Navajo IHRCs are restrictive, per Grosu, because they can be indefinite and they can stack.
  - However, they *are* island sensitive (*relative-in-relative):

(2) * [[hastiin łééchąą'í bishxash-ǫ́ǫ] be'eldooh néidiitá-(n)ǫ́ǫ]
man dog bit-REL gun pick.up-REL
nahał'in.
bark
Intended: The dog such that the man that it bit picked up the gun barked. (Grosu 2012:(49b), citing Platero 1974:(82))

  - Grosu links the island-sensitivity of Navajo IHRCs to the fact that the quantifier 'all' in (3) scopes high.

(3) [John Bill chidí t'áá ałtso yaa nayiisnii' ǫ́ǫ] t'éiyá
John Bill car 3 all from 3.3.buy P.REL only
nizhónígo nidaajeeh
well da.3.run.1
'All the cars that John bought from Bill – and only those – run well.'
(Grosu 2012:(48), citing Faltz 1995:(107))

  - This is the high-scope reading: the quantifier apparently is taking the whole RC (i.e., the set of cars that John bought from Bill) at its restriction.[2]
  - Grosu sketches the idea that the head+quantifier raises in (3), permitting the quantifier to take the entire relative clause as its restriction.
    - "In Navajo, [island-sensitivity] is traceable to whatever factors require matrix scope for IHs." (Grosu 2012:25)
- From this, we reach a cross-linguistic prediction:

IHRC quantifier scope generalization: Across languages, restrictive IHRCs are island-sensitive iff quantifiers on the head take the entire RC as their restriction.

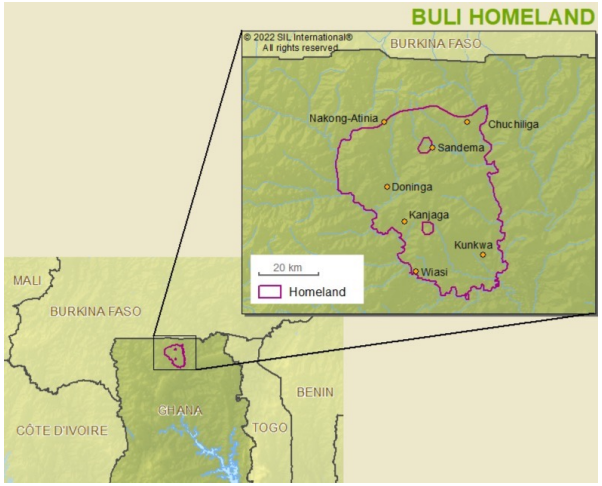
	Restrictive	Maximalizing
Island-sensitive	if Q scopes high	always
Island-insensitive	if Q scopes low	—

- Looking ahead:
  - We'll see two examples of IHRCs that are (at least by some diagnostics) restrictive, and are island-sensitive (with overt movement of the head).
  - Atchan: looks like the overt-movement counterpart to Navajo (consistent with Grosu's generalization)
    - Proposal: quantifier takes high scope via NP reconstruction and Trace Conversion
  - Bùlì: quantifiers do **not** take high scope
    - Requires a revision to Grosu's typology
    - Proposal: quantifier takes low scope via DP reconstruction and IHRC semantics

[2] Note that Bogal-Allbritten and Moulton (2017) show that Navajo 'ałníí'dóó 'half' does not exhibit this same pattern and show that the empirical picture with táá ałtso 'all' is more complex than (3) suggests.

2 Left-headed IHRC syntax in Bùlì and Atchan

- Hiraiwa (2005) first proposes the left-headed IHRC structure for relative clauses in Bùlì (ISO: bwu; Gur, Ghana).[3]



- All Bùlì data cited here comes from Hiraiwa's work.
- Bùlì has both in-situ IHRCs (4a) and relative clauses in which the head surfaces at the left edge of the clause (4b):

(4) a. Àmɔ̀ak ɲà [$_{CP}$ Àtìm àlī sʷà **nāː-būy** lá]
Àmɔ̀ak saw Àtìm COMP own cow-REL DEM
'Àmɔ̀ak saw the cow which Àtìm owns.'

b. Àmɔ̀ak ɲà [$_{CP}$ **nāː-būy** àtì Àtìm sʷà lá]
Àmɔ̀ak saw cow-REL COMP Àtìm own DEM
'Àmɔ̀ak saw the cow which Àtìm owns.'
(Hiraiwa 2005:218 (70))

- Hiraiwa (2005) argues that relative clauses like (4b) are left-headed IHRCs, on the basis of evidence including postposition pied-piping (5a) and ability to position relative-clause adverbs before the head (5b (among other diagnostics):

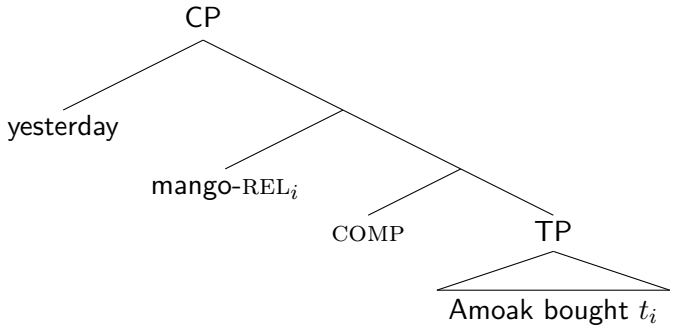
(5) a. [$_{CP}$ gbòŋ-kūːy **zúk** àtì ǹ gwà lǎ] zyùàɣì
roof-REL on comp ~~1~~sg slept DEM be.big
'The roof that I slept on is big.'
(Hiraiwa 2005:222 (79c))

b. Àtìm dɛ̃ [$_{CP}$(dīem) mángò-tīː àtì Àmɔ̀ak dà lá]
Àtìm ate yesterday mango-REL COMP Àmɔ̀ak bought DEM
'Àtìm ate [the mango that Àmɔ̀ak bought yesterday].'
(Hiraiwa 2005:219 (73b))

- Left-headed IHRC structure: when the head moves, it moves to the specifier of CP but not beyond.
  - Blurs the line between raising relatives (in the style of Kayne 1994) and IHRCs.

(6) [$_{DP}$ [$_{CP}$ (yest.) [mango-REL]$_k$ COMP A. bought [~~mango-rel~~]$_k$] DEM]

(7)



  - *All* non-in-situ relative clauses in Bùlì are argued to be left-headed IHRCs (regardless of, e.g., overt presence of an adverb). Later examples will not have high adverbs.

[3] Map from https://www.webonary.org/buli/language/map/.

- This type of structure, with intermediate movement of the head, has been argued to exist in other Gur languages (Hiraiwa 2005; Bodomo and Hiraiwa 2010; Hiraiwa et al. 2017), in Koryak (ISO: kpy; Chukotko-Kamchatkan, Russia; Abramowitz 2021)and in Nuntajiɨiyi (ISO: poi; Mixe-Zoque > Zoque, Mexico; López Márquez 2022, 2023).
- Second focus for today: I argue in Jarvis (2023a) that this structure also occurs in Atchan (ISO: ebr; Kwa > Potou-Tano > Potou, Côte d'Ivoire).[4]

- Atchan data in this presentation comes from elicitation conducted in-person and on Zoom with five consultants in the villages of Anono and Blockhauss in 2021-2022.
- Some Atchan relative clauses involve dislocation of the subject to before the head:

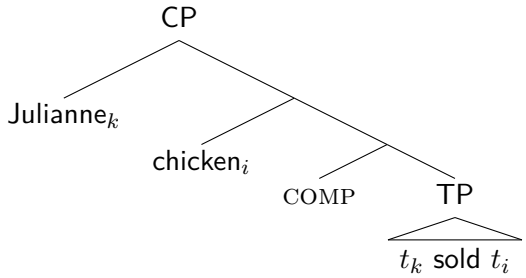
(8) [CP ʒulian kɔsɔ k^{h}ɛ́ a p^{h}ɛdi] tɛ́ p^{h}op^{h}o
J. chicken COMP 3.PFV sell COP white
'A/the chicken that Julianne sold is white.'

- In Jarvis (2023a,b), I argue that in relative clauses like (8), both the dislocated subject and head undergo movement to but not beyond the CP periphery.

[4]Map from https://www.bbc.com/news/world-africa-13287216.

(9) [CP Julianne$_i$ chicken$_k$ k^{h}ɛ́ ~~Julianne$_i$~~ sold ~~chicken$_k$~~]

(10)



- Unlike in Bùlì, there *is* another, non-left-headed-IHRC relative clause structure available in Atchan RCs with no dislocated subject.[5]
- Dislocated subject will ensure the left-headed IHRC parse.

3 IHRCs and quantifiers in Atchan: The interpretive possibilities of movement

- **In this section:** quantifiers on the head in Atchan left-headed IHRCs scope over the relative clause. In this way, Atchan behaves like an "overt-movement" counterpart to Navajo.

[5]For instance, the following data show that VP idiom interpretations involving the MC verb and RC head are available in the absence of a dislocated subject (here, the idiom is ɟã núŋkrã 'take (lit. cut) a picture'):

(1) a. mɛ̃ nɟã [núŋkrã k^{h}ɛ́ gba t^{h}a]
1.SG cut picture COMP dog eat
'I took (lit. cut) the picture that the dog ate.'

b. # mɛ̃ nɟã [gba núŋkrã k^{h}ɛ́ a t^{h}a]
1.SG cut dog picture COMP 3.PFV eat
Intended: 'I took the picture that the dog ate.'

Following Bhatt (2002), this suggests that the head can be base-generated as a constiuent with the MC verb (i.e., have a non-raising derivation) in the absence of a dislocated subject.

3.1 Data

- Atchan has a fairly small inventory of quantifiers, including kʰúúmbrɛ̃ 'all,' bɛ̃ INDF, and numerals.
  - No negative universal, no (to my knowledge) proportional quantifiers like 'most' or 'half'.
- Crucially, when quantifiers occur on the head in left-headed IHRCs, only individuals meeting the relative-clause description are relevant for determining the sentence's truth value.
  - Unsold chickens can exist, and they can be of any color: (11), Scenarios C-D
  - With existential quantifier, there can be extra sold chickens of other colors: (12), Scenario G

(11) [CP ʒulian [kɔsɔ **kʰúúmbrɛ̃**] kʰɛ́ a pʰɛdi] tɛ́ pʰopʰo
J. chicken all COMP 3.PFV sell COP white
'All chickens that Julianne sold are white.'
✓ Scenario A: J. had 3 white chickens and sold all of them.
✗ Scenario B: J. had 1 white and 1 black chicken and sold both of them.
✓ Scenario C: J. had 3 white chickens and sold 2 of them.
✓ Scenario D: J. had 2 white and 1 black chicken, and she sold the 2 white chickens.

(12) [CP ʒulian [kɔsɔ **bɛ̃**] kʰɛ́ a pʰɛdi] tɛ́ pʰopʰo
J. chicken INDF COMP 3.PFV sell COP white
'A chicken that Julianne sold is white.'
✓ Scenario E: J. had 2 white chickens and sold 1 of them.
✓ Scenario F: J. had 1 white chickens and 1 black chicken, and she sold the white chicken.
✓ Scenario G: J. had 2 white chickens and 1 black chicken, and she sold 1 white and 1 black chicken.

- This is the high-scope quantifier reading. This data parallels the Navajo data that Grosu provides.

3.2 Analysis: NP reconstruction

- Compositional semantics of an Atchan relative is slightly more complicated than in English: determiner in English RC is standardly assumed to be base-generated outside the RC (Bhatt 2002, a.o.).
  - → quantifier automatically is predicted to take the entire relative clause as its restriction
- For Atchan left-headed IHRCs, I adopt the pair of assumptions that (a) the quantifier and head form a DP constituent and (b) that DP undergoes movement (i.e., raises) from an in-situ position to Spec,CP.
- Expanding on Grosu's suggestion for Navajo, I propose that the interpretation of quantified heads relies on familiar machinery from the interpretation of raising relatives (Bhatt 2002), but with only the head NP reconstructing.
  - NP-only reconstruction familiar from, e.g., English *wh*-questions.
  - Interpretation proceeds via Trace Conversion of the noun (Fox 2002).
  - (For simplicity, I assume that the dislocated subject also reconstructs.)

(13) $[\![\text{J}_i\ [\text{chicken all}]_k\ \text{COMP}\ \text{J}_i\ \text{sell}\ [\text{chicken all}]_k]\!]$
all copies in (12) shown
$= [\![\text{~~J}_i\text{~~}\ [\text{~~chicken~~ all}]_k\ \text{COMP}\ \text{J}_i\ \text{sell}\ [\text{the ident chicken ~~all~~}]_k]\!]$
reconstruction
$= [\![\text{all}]\!](\lambda x.\text{sell}(\iota y[\text{chicken}(y) \wedge y = x])(j))$

  - → the first argument of ⟦all⟧ is the set of chickens Julianne sold, so we have captured the high quantifier scope.

- **Takeaway:** by opening up the possibility of selective reconstruction, movement creates new interpretive possibilities in IHRCs.
    - This analysis predicts that high-interpreted quantifiers in IHRCs will occur in island-sensitive IHRCs, with again is consistent with the Navajo data.

4 IHRCs and quantifiers in Bùlì: Non-semantically-motivated head movement

- **In this section:** Bùlì left-headed IHRCs behave differently.

4.1 Data

- Hiraiwa (2005): one reason to think that Bùlì relatives are left-headed IHRCs is how quantified heads are interpreted.

(14) Àtim dɛ̀ [$_{DP}$ [$_{CP}$ mángò-tī: mé:ná àtì Àmɔ̀ak dà] lá]
Atim ate mango-REL.PL all COMP Àmɔ̀ak bought DEM
H.'s translation: 'Àmɔ̀ak bought all (of the) mangos and Àtìm ate them.' (Hiraiwa 2005:221)

≠ 'Àtìm ate all (of the) mangos that Àmɔ̀ak bought.'

- Japanese-reminiscent translation
- Hiraiwa: the quantifier "indicate[s] the amount of mangos that Àmɔ̀ak bought but never indicate[s] the amount that Àtìm ate" (p.220)
- Working from the translation and comment, → no un-bought mangos allowed (though un-eaten mangoes are evidently compatible with the truth of this sentence)
- Empirically most similar to Yǔn Shan (Moroney 2020) and Washo (Hanink 2020)

- Following Hiraiwa, I assume that Bùlì left-headed IHRCs *are* restrictive, given that they can stack:[6]

(15) [[mángò-kū:y àtì Àm^{w}ɔk dà dīem lá] àtì Átìm dɛ̀ lă] māsā
mango-REL COMP A. bought yesterday DEM COMP A. ate DEM good
'The mango [that Àmɔ̀ak bought yesterday] [that Àtìm ate] was good.' (Hiraiwa 2005:295 (7.8))

- → challenge for the typology of Grosu (2012), since quantifiers do not behave as in Navajo/Atchan.

4.2 Analysis: DP reconstruction

- Whatever the analysis of Bùlì left-headed IHRCs, it seems that we need to rely on IHRC machinery to get the low quantifier interpretation (within the RC).
    - Multiple approaches seem fairly consistent with the available data (see, e.g., Moroney's (2020) Shimoyama-style analysis of Yǔn Shan IHRCs).

- The easiest way to accomplish this, I believe, is to make use of **full-DP** reconstruction of the head+quantifier into the RC:

(16) ⟦[[mango all]$_k$ COMP Àmɔ̀ak bought [mango all]$_k$] DEM⟧
all copies shown

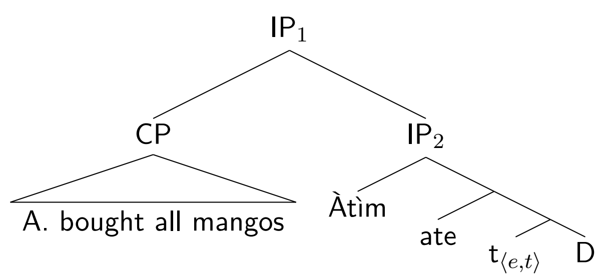
[6] Oddly, Bùlì relatives of all stripes evidently resist indefinite interpretations. This is surprising, especially given the non-maximal flavor of (14). More empirical work on Bùlì is certainly needed to help clarify this point. See the Appendix for more discussion of restrictiveness and diagnostics for it.

$= [\![[$~~[mango all]$_k$~~ COMP Àmɔ̀ak bought [mango all]$_k$] DEM$]\!]$
reconstruct DP

- Dovetails nicely with the fact that Bùlì has in-situ IHRCs → after full-DP reconstruction, can have a fully unified semantic analysis of in-situ and left-headed IHRCs in Bùlì

- From here, adopt your favorite account of IHRC semantics. For concreteness, sketching an account using machinery from Shimoyama (1999) and Moroney (2020).[7]
  - Basic idea: whole RC CP moves to adjoin to matrix-clause TP, leaving behind a trace that will anapyorically pick up a salient $\langle e, t\rangle$ property from the relative clause.
  - In the trace site, need some determiner (perhaps either DEM or a null D).

(17)



  - In IP_2, the trace picks up the property λx.mango$(x) \wedge$ bought(x)(amoak)
    - The quantifier has to drop off here. I leave it to future work whether this can be derived non-stipulatively (and see Hanink (2020) for a different account).
  - For now, assume (as in Shimoyama) that D is a definite.

[7] Hanink (2020) develops an account designed to capture similar data in a language with restrictive IHRCs that should derive similar interpretations, though more work is needed to flesh out how quantifiers on the head are interpreted. See the Appendix for more discussion of diagnostics for restrictiveness.

(18) $[\![\text{IP}_2]\!]$ = ate(max$x$[mango$(x) \wedge$ bought(x)(amoak)])(atim)

  - IP_2 and CP are conjoined.

(19) $[\![\text{IP}_1]\!]$ = $\forall x$[mango$(x) \rightarrow$ bought(x)(amoak)] $\wedge$
ate(max$x$[mango$(x) \wedge$ bought(x)(amoak)])(atim)

  - D cannot always be a definite; we want to be able to capture the fact that Àtìm could have eaten only a subset of the bought-by-Àmɔ̀ak mangos. See Moroney (2020) for one approach to a similar set of empirical data (which relies on base noun semantics).

- **Takeaway:** movement of the head in Bùlì left-headed IHRCs is not done for the purpose of facilitating high quantifier interpretations. We need to expand the typology of quantifier interpretation in IHRCs beyond that of Grosu (2012).

- Why does the head move at all in Bùlì IHRCs?
  - Movement isn't semantically motivated: (obligatorily) completely reconstructs for interpretation.
  - Seems to be "purely" syntactic. Perhaps movement of the head makes the head easier to identify for processing purposes.

5 Implications and conclusion

5.1 Recap

- Today: similar left-headed IHRC syntactic structure in two different languages' relative clauses that gives rise to a quite different semantics.
  - Atchan: NP reconstruction and attendant raising-relative semantics
  - Bùlì: DP reconstruction and "truly" internally-headed semantics

- Need to expand the typology of Grosu (2012), since movement of the head in restrictive relative clauses does not have a unified semantic effect.

5.2 Implications

- Cross-linguistic explorations of IHRC meaning and structure can help us identify what kinds of tools are needed in the semantic analysis of IHRCs.
    - Especially compelling when those tools are also independently needed elsewhere in the semantics.
    - This talk proposes minimal new machinery; rather, mostly repurposing and exploiting other tools (e.g., reconstruction) needed elsewhere (combined with permitting full DP reconstruction).

1. The semantic impact of movement
    - In this talk: a modular view in which syntactic movement happens, and then languages can use different strategies to interpret movement-involving structures.
    - Contrasts with Grosu, whose discussion of the Navajo data seems to suggest that head movement in Navajo IHRCs occurs because quantifiers in that language "need" to be interpreted high—i.e., movement of the head is forced by that requirement.
    - I argue that the view advanced here is more explanatory and meshes better with broader views of movement and its semantic consequences.
    - Better explains, e.g., the uniformity of island-sensitivity across *all* Navajo IHRCs, not just those with a quantifier on the head.
    - Leverages independently-motivated machinery for reconstruction.
2. Towards a broader typology of IHRCs
    - Much recent empirical investigation into the semantics of IHRCs (Bogal-Allbritten and Moulton 2017; Hanink 2020; Moroney 2020; Hucklebridge 2023, a.o.). With more data, it would be very natural to find (many) examples that force us to expand our typology.
    - Inclined to agree with Grosu's general point, which is that a *semantic* typology of IHRCs is desirable.
    - Speculatively, wonder whether we could take inspiration from increasing cross-linguistic work on free relatives, which (like IHRCs) lack overt external material.
    - With a recent increase in cross-linguistic explorations of free relatives (Caponigro 2021, a.o.), possibility to see what (if any) interpretive mechanisms are shared between free and internally-headed relatives.
    - For IHRCs, seem to care about CP-internal computations (e.g., presence of an index, quantifier type [Hanink 2020]), CP-edge operations (e.g., maximalization [Grosu and Landman 1998]), and CP-external operations (e.g., existential closure, null D head, Heimian indefinite binding).
    - Still working from a very small sample of languages; exciting time for further empirical work.

References

Abramowitz, R. (2021). Deconstructing inverse case attraction. Available at https://ling.auf.net/lingbuzz/006146.

Bhatt, R. (2002). The raising analysis of relative clauses: evidence from adjectival modification. *Natural Language Semantics*, 10(1):43–90.

Bodomo, A. and Hiraiwa, K. (2010). Relativization in Dàgáárè and its typological implications: Left-headed but internally-headed. *Lingua*, 120:953–983.

Bogal-Allbritten, E. and Moulton, K. (2017). Navajo in the typology of internally-headed relatives. In Burgdorf, D., Collard, J., Maspong, S., and Stefánsdóttir, B., editors, *Proceedings of SALT 27*, pages 700–720. Linguistic Society of America.

Caponigro, I. (2021). Introducing headless relative clauses and the findings from Mesoamerican languages. In Caponigro, I., Torrence, H., and Zavala Maldonado, R., editors, *Headless Relative Clauses in Mesoamerican Languages*, pages 1–57. Oxford University Press.

Faltz, L. M. (1995). Towards a typology of natural logic. In Bach, E., Jelinek, E., Kratzer, A., and Partee, B. H., editors, *Quantification in Natural Languages*, pages 271–319. Dordrecht: Kluwer.

Fox, D. (2002). Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry*, 33(1):63–96.
Grosu, A. (2002). Strange relatives at the interface of two millennia. *GLOT International*, 6:145–167.
Grosu, A. (2012). Towards a more articulated typology of internally headed relative constructions: The semantics connection. *Language and Linguistics Compass*, 6/7:447–476.
Grosu, A. and Landman, F. (1998). Strange relatives of the third kind. *Natural Language Semantics*, 6(2):125–170.
Hanink, E. A. (2020). DP structure and internally headed relatives in Washo. *Natural Language and Linguistic Theory*, pages 1–50.
Hiraiwa, K. (2005). *Dimensions of symmetry in syntax: agreement and clausal architecture*. PhD thesis, MIT.
Hiraiwa, K., Akanlig-Pare, G., Atintono, S., Bodomo, A., Essizewa, K., and Hudu, F. (2017). A comparative syntax of internally-headed relative clauses in Gur. *Glossa*, 2(1):27.1–30.
Hucklebridge, S. (2023). Implementing head-internal relativization in a bare noun language. Manuscript.
Jarvis, R. (2023a). Raising and head-external relatives in Atchan. Manuscript.
Jarvis, R. (2023b). Subject movement in Atchan relative clauses: A two-probe, mixed A/A'-account. Handout from WCCFL 41.
Kayne, R. S. (1994). *The Antisymmetry of Syntax*. MIT Press, Cambridge, Mass.
López Márquez, W. (2022). Internally headed relative clauses in Nuntajɨɨyi. Handout from WAIL 24.
López Márquez, W. (2023). Oraciones de relativo con núcleo interno en nuntajɨɨyi. Handout from COLOV IX.
Moroney, M. (2020). Interpreting quantification within internally headed relative clauses. In Cho, S.-Y., editor, *Universal Grammar and its cross-linguistic instantiations: Proceedings of the 12th Generative Linguistics in the Old World and the 21st Seoul International Conference on Generative Grammar*, pages 370–379. Korean Generative Grammar Circle.
Platero, P. (1974). The Navajo relative clause. *International Journal of American Linguistics*, 40(3):202–246.
Shimoyama, J. (1999). Internally headed relative clauses in Japanese and E-type anaphora. *Journal of East Asian Linguistics*, 8(2):147–182.
Watanabe, A. (2004). Parametrization of quantificational determiners and head-internal relatives. *Language and Linguistics*, 5(1):59–97.
Williamson, J. S. (1987). An indefiniteness restriction for relative clauses in Lakhota. In Reuland, E. J. and Meulen, A. G. B. t., editors, *The Representation of (In)definiteness(14)*, pages 168–190. MIT Press, Cambridge, Massachusetts.

Appendix

- This talk and the analyses sketched within raise questions about (1.) how to diagnose a maximalizing vs. restrictive IHRC and (2.) what exactly the corresponding semantic analyses are intended to capture.
    - Sketched a Shimoyama-style analysis, developed for the maximalizing-IHRC language Japanese, for the arguably restrictive-IHRC language Bùlì.

1. This seems to be an open question: much of the work of Hiraiwa et al. (2017) argues that relative clauses in various Gur languages, including Bùlì, do not pattern straightforwardly on traditional restrictive-vs.-maximalizing diagnostics.
2. Hiraiwa and colleagues show that Bùlì IHRCs differ from those of Japanese in that Japanese IHRCs cannot be negated or serve as answers to *wh*-questions, while Bùlì IHRCs can.

(20) Question: Which apple/mango did you eat?

a. # [Ringo-ga teeburu-no-ue-ni at-ta no]-o tabe-ta yo.
apple-NOM table-GEN-on-LOC be-PAST C-ACC eat-PAST PRT
'I ate the apple that was on the table.' Japanese

b. N de-ka [mango kuui ate Atim da la].
1SG eat-F mango REL COMP Atim buy D
'I ate the mango that Atim bought.' Bùlì

- Not clear whether these should be captured by analyses of Japanese IRHCs.
- If so, perhaps captured on Shimoyama's approach: *wh*-questions by question/answer parallelism (*What did Atim eat?* not parallel to *Amoak bought all the mangos and Atim ate them.*) and negation by constraints on anaphora (**Amoak didn't buy mangos$_i$ and Atim ate them$_i$*).
- In that case, then we should adopt a different semantic analysis of Bùlì IHRCs, perhaps more like that of Hanink (2020).
- If not, then we need some other account of these differences.