

Relative clauses without relative pronouns*

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Definiteness across domains – Wuppertal meeting

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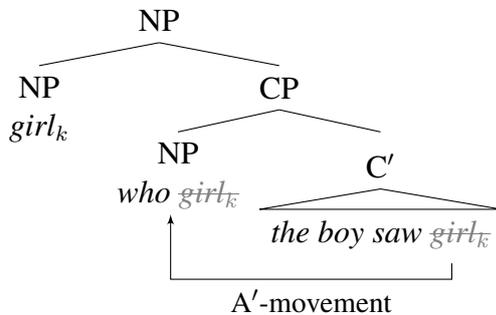
1. Introduction

Standard analysis of relative pronouns

Syntax: undergo A'-movement **Semantics:** none, but trigger λ -abstraction

This is what makes relative clauses nominal modifiers.

- (1) the girl_k [who the boy saw ____k]



- (2) a. $[[girl]]: \lambda x_e[x \text{ is a girl}]$
 b. $[[that \text{ the boy saw}]]: \lambda x_e[\text{the boy saw } x]$ λ-abstraction
 c. $[[girl \text{ that the boy saw}]]: \lambda x_e[x \text{ is a girl and the boy saw } x]$ Predicate Modification

Observation

Not all relative clause constructions use (true) relative pronouns

In this case, a definiteness marker can facilitate relative clause formation instead.

Internally headed relatives in Wá·šiw (Washo, Washoe; isolate, USA):¹

- (3) $[[\text{mé:hu}_i \text{ šáwlamhu}_k \text{ ʔí:gi-yi-š}] \text{-gi}]_k \text{ wáʔ ʔéʔ-i}$
 $[[\text{boy} \text{ girl}_k \text{ 3.see-IND-DS}] \text{-3.PRO}]_k \text{ here 3.be-IND}$
 ‘The **girl**_k [that the boy_i saw ____k] is here.’

*I thank first and foremost the late Adele James and Ramona Dick for their work with me over the years on the Wá·šiw language, as well as the wider Wá·šiw community for making this work possible. This work has been supported by The Jacobs Research Funds, The Phillips Fund for Native American Research, and by European Research Council Consolidator Grant ERC-2017-COG 769192 (PI: Andrew Koontz-Garboden).

¹Wá·šiw glosses: ADD: additive; DEP: dependent mood; DIST: distal; DS: different subject; IND: independent mood; INT.PAST: intermediate past; NMLZ: nominalizer; NC: negative concord; NEG: negation; PROX: proximal. I use the standardized orthography for Washo from Jacobsen 1964, which follows the IPA with the following exceptions: M [m̥], š [ʃ], and y [j]; stress is indicated with an acute accent. Uncited data come from my fieldwork in CA/NV from 2015-2020.

Today

How to form a relative clause without a relative pronoun

- In lieu of true relative pronouns, relative clauses can be formed with definite markers.
- The existing determiner system in a language plays a crucial role.
- We find cases of this in both internally and externally headed relatives.

Outline:

§2: Overview: Internally headed relatives

§3: Internally headed relatives in Wá·šiw

§4: Externally headed relatives in German

§5: Conclusion and outlook

2. Background on Washo



- Highly endangered language spoken around Lake Tahoe
- Isolate; sometimes classified as Hokan (Campbell 1997, Mithun 1999)
- SOV; pro-drop; agglutinative verb morphology
- Uncited data in this talk: fieldwork in CA and NV between 2015-2020
- I thank Adele James[†] and Ramona Dick[†].

3. Internally headed relatives

Overview

Internally vs. externally headed relatives

Externally headed relatives: Semantic head appears outside the relative clause.

- (4) *Relativized subject*
The **person**_i [who _i brought the coffee] also brought cake.
- (5) *Relativized object*
I saw the **horse**_j [that Mary likes _j].

- Relative pronouns *who/which/that, etc.*
- Relative clause has a gap

Internally headed relatives: Semantic head appears inside the relative clause.

(6) *Relativized subject*

[[**daʔmóʔmoʔ**_i gó:beʔ ʔímeʔ-i-∅]-**gi**]_i la-sú:dim-i
[[**woman**_i coffee 3.drink-IND-SS]-**3.PRO**]_i 3/1-look.at-IND

‘The woman_i [who _i is drinking coffee] is looking at me.’

(7) *Relativized object*

[[t'é:liwhu **šáwlamhu** ʔló:t ʔí:gi-yi-š]-**gi**]_j wáʔ ʔéʔ-i
[[man_i **girl**_j yesterday 3.see-IND-DS]-**3.PRO**]_j here 3.be-IND

‘The girl_j [that the man_i saw _j yesterday] is here.’

- No relative pronoun in the embedded clause
- No gapped argument or special word order (in many cases)
- (Wá-šiw is SOV).

Cross-linguistic generalization

Internally headed relatives often appear with nominalizing morphology at the periphery
(Comrie 1981, Keenan 1985)

The nominalizer in many cases is some kind of definite element.

e.g., a pronoun, determiner, demonstrative

(8) *Mojave (Yuman, SW USA)*

a. [[masahay ʔahat ʔ-u:ay]-**n^y**]-č ʔahot-k
[[girl horse 1-give]-**DEM**]-SUBJ good-TNS

‘The horse that I gave to the girl is nice.’

Munro 1976: 198

b. [kamota]-**n^y** n^y-m-ay-m
[spoon]-**DEM** 1=OBJ-2=SUBJ-give-TNS

‘You gave me the spoon.’

Munro 1973: 33

⇒ *n^y* is a 3rd person demonstrative that can stand alone or be used adnominally to express definite or specific reference (Munro 1973).

(9) *Italian Sign Language*

a. [[**PIERO CONTRACT**_i **SIGN DONE**] **PE**_i] GIANNI FORGET
[[Piero contract sign ASP] **PE**] Gianni forget

‘Gianni forgot the contract that Piero signed.’

Cecchetto & Donati 2015: 81

b. [**FIRST**] **PE**
[first] **PE**

‘the small one’

Branchini et al. 2007: 3

⇒ PE is a determiner that also has a demonstrative and nominalizing function.

4.1. Structure

Internally headed relatives contain full CPs.

Table 1: Verbal template in Wá:šiw (simplified)

V	v	Asp	Neg	T	Mood	C
---	---	-----	-----	---	------	---

- (16) [DP[CP *pro*_i géwe_k m-í:gi **-a?y** **-i** **-š**]-ge]_k lé:-sa? l-í:gi-yi
 [DP[CP *pro*_i coyote_k 2-see **-INT.PST** **-IND** **-DS**]-3.PRO]_k 1.PRO-ADD 1-see-IND
 ‘I_i saw the coyote_k [that you_i saw ___k, too].’

Show **tense** and **mood** marking.

Switch reference suffix **-š** (Jacobsen 1967) in C (Finer 1984, Arregi & Hanink 2022)

- Indicates that subjects across clausal boundaries are not coreferential
- DS: different subject

Internally headed relatives are nominal.

Subjects:

- (17) [[da?mó?mo? gó:be? ?íme?-i-∅] -gi] la-sú:dim-i
 [[woman coffee 3.drink-IND-SS] -3.PRO] 3/1-look.at-IND
 ‘The woman who is drinking coffee is looking at me.’

Objects:

- (18) [[k’ák’a? dá: gé:gel-i-š] -ge] yá:m-a?
 [[heron there 3.sit-IND-DS] -3.PRO] 3.speak.to-DEP
 ‘She spoke to the heron who was sitting there.’

Bear and Deer Story, as told by Bertha Holbrook

Complements of postpositions:

- (19) [[Má?šam-i-š] -ge] ?íwi? dípi? máŋa?-i
 [[3.lie.down-IND-DS] -3.PRO] **over** blanket 3.throw-IND
 ‘He threw a blanket **over** the one who was lying down.’

The nominalizer is a third person pronoun.

Nominative:

- (20) **gí:** pélew ?í?w-i
3.NOM jackrabbit 3.eat-IND
 ‘He’s eating the jackrabbit.’ Jacobsen 1979
- (21) [[t’é:liwhu šáwlamhu_i ?ló:t ?í:gi-yi-š] -**gi**]_i wá? ?é?-i
 [[man girl_i yesterday 3.see-IND-DS] -**3.NOM**]_i here 3.be-IND
 ‘The girl_i [that the man saw ___i yesterday] is here.’

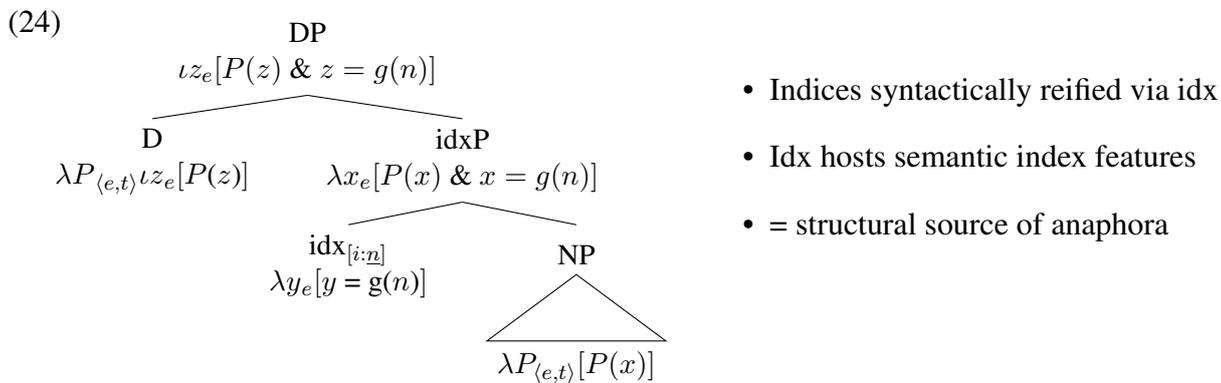
Accusative:

(22) ʔlót gé:-ŋa ʔí:gi-yé:s-ayt'íʔ-i
 yesterday 3.ACC-NC 3.see-NEG-PLUPF-IND
 'She hadn't seen it yesterday.'

(23) [[*pro* géwe_i m-í:gi-aʔy-i-š]-ge]_i lé:-saʔ l-í:gi-yi
 [[*pro* coyote_i 2-see-INT.PST-IND-DS]-3.ACC]_i 1.PRO-ADD 1-see-IND
 'I also saw the coyote_i [that you saw _i].'

4.2. Analysis**Pronouns as definite descriptions in disguise.**

Structure of anaphoric definites after Schwarz 2009 (s.a. Simonenko 2014, Hanink 2018, 2021a,b):

**Claim (Hanink 2021a)**

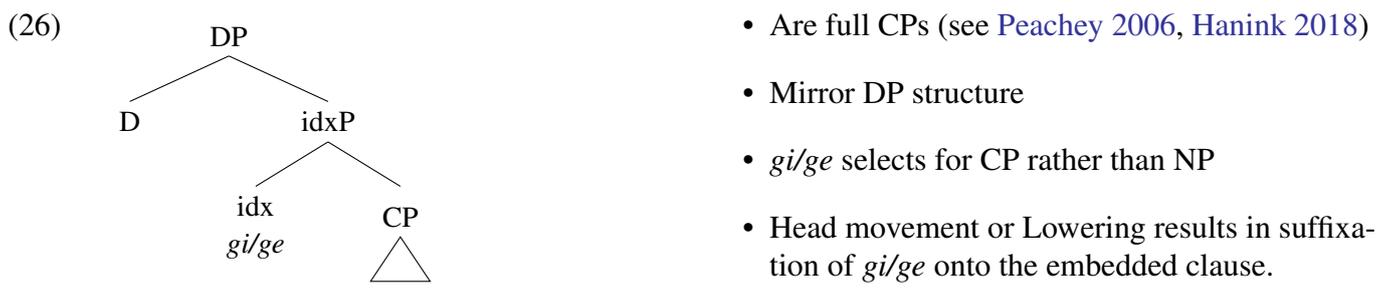
-gi/ge in Wá·šiw is a realization of idx within this DP structure.

- It is not a D head (cf. Peachey 2006)
- For evidence that Wá·šiw is a DP language, see Hanink 2021a.

Alongside pronouns, corroborating evidence comes from the decomposition of demonstratives:

(25) a. hádi-**gi** pélew DIST-3.NOM rabbit 'that rabbit'

b. wídi-**gi** pélew PROX-3.NOM rabbit 'this rabbit'

Structure of Wá·šiw IHRCs.

4.3. The semantic role of *gi/ge*

A puzzle at the syntax-semantics interface

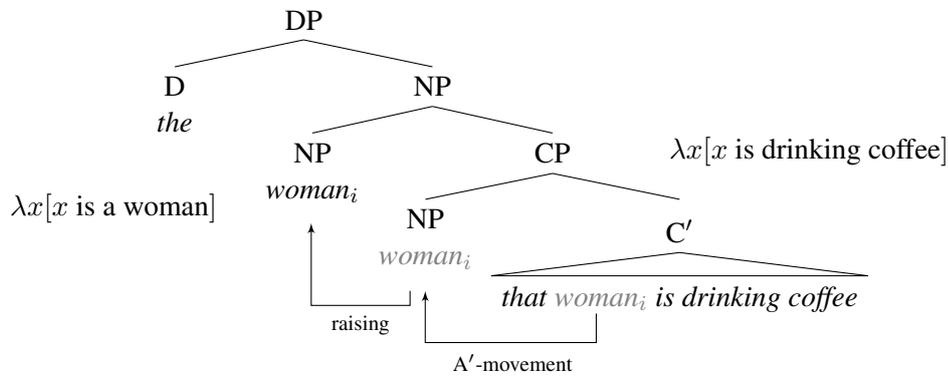
IHRCs look propositional but characterize entities

(27) daʔmóʔmoʔ gó:beʔ ʔímeʔ-i
 woman coffee 3.drink-IND
 ‘The woman is drinking coffee.’

(28) [DP[CP daʔmóʔmoʔ gó:beʔ ʔímeʔ-i-∅] -gi] la-sú:dim-i
 [DP[CP woman coffee 3.drink-IND-SS] -3.NOM] 3/1-look.at-IND
 ‘The woman who is drinking coffee is looking at me.’

Externally headed relatives wind up characterizing individuals due to λ -abstraction:

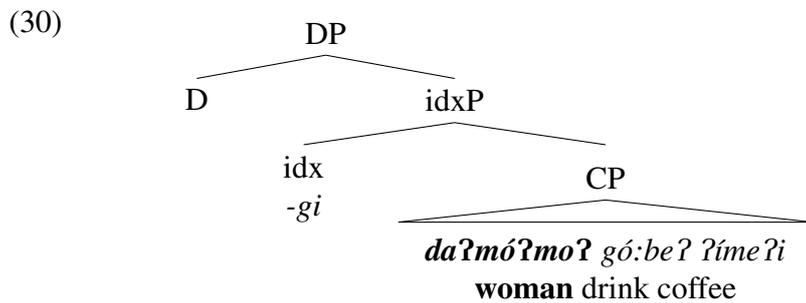
(29) the woman_i [who _i is drinking coffee]



$\Rightarrow \lambda x[x \text{ is a woman} \ \& \ x \text{ is drinking coffee}]$

In **internally headed relatives**, there is no surface evidence for movement.

Nevertheless, the resulting meaning characterizes an individual, not a proposition:



$\Rightarrow \lambda x[x \text{ is a woman} \ \& \ x \text{ is drinking coffee}]$

How do we get there?

We can rule out a covert movement analysis for Wá-šiw.

One major piece of evidence for this type of analysis is island sensitivity.

- (31) $\left[\begin{array}{l} \text{RC} \left[\text{RC } \mathbf{t'ánu} \text{ démlu sú:bi?} \text{-i-š-ge} \right] \text{ di-sú:dim-i-š-gi} \\ \text{RC} \left[\text{RC } \mathbf{person} \text{ food } 3.\text{bring-IND-DS-3.ACC} \right] \text{ 1-look.at-IND-DS-3.NOM} \end{array} \right]$
 wayú?uš-áɲaw-i
 3.smell-be.good-IND

‘The [$food_i$ I’m looking at the [\mathbf{person} who brought $__i$]] smells good.’

- $\mathbf{t'ánu}$ ‘person’: semantic head of lower embedded clause
- $démlu$ ‘food’: semantic head of higher embedded clause

Movement of $\mathbf{t'ánu}$ would block further movement of $démlu$.

- (32) $\left[\text{RC} \left[\text{RC } \mathbf{person} \text{ food brought } \mathbf{person} \right] \text{ I look at } \mathbf{food} \right] \text{ smells good}$
-

A binding analysis

The semantic head does not move, but is bound by something at the clausal periphery
 (Jelinek 1987, Bonneau 1992, Basilico 1996, Watanabe 2004)

- Internally headed relatives begin life as open sentences (they contain an unbound variable).
- The open variable is interpreted as a Heimian indefinite
- This indefinite is bound by some peripheral binder, returning a property of individuals

Wá·šiw

The binder is idx at the clausal periphery
 (Hanink 2018, 2021a)

- Indices can act as binders (Heim 1998, Heim & Kratzer 1998).
- The nominalizer gi/ge is a realization of this binder

Example.

- (33) $\left[\left[\text{da?mó?mo?}_i \text{ gó:be? ?íme?-i-} \emptyset \right] \text{-gi} \right]_i \text{ la-sú:dim-i}$
 $\left[\left[\text{woman}_i \text{ coffee } 3.\text{drink-IND-SS} \right] \text{-3.NOM} \right]_i \text{ 3/1-look.at-IND}$
 ‘The woman $_i$ [who $__i$ is drinking coffee] is looking at me.’

1. IHRCs begin life as open propositions

The open variable is the semantic head of the relative clause, a Heimian indefinite.

- (34) $\llbracket x_{\text{woman}} \rrbracket^g = g(x)$ iff $g(x) \in \llbracket \text{woman} \rrbracket$; else undefined

The embedded clause on its own denotes an open proposition:

- (35) $\llbracket \text{da?mó?mo? gó:be? ?íme?i} \rrbracket^g: x_{\text{woman}} \ \& \ x \text{ is drinking coffee}$

2. Indices can act as binders

Kennedy (2004, 2014), building on Heim (1998) (also Higgenbotham 1983):

- *inner* indices correspond to variables, which may be bound
- *outer* indices indicate the ‘binding potential’ of a particular DP

Below, ‘he’ is bound by the universal quantifier, but is also a binder of the possessor ‘his’:

(36) Every boy λ_1 [t_1 said that he₁ λ_2 [t_2 called his₂ mother]]. Heim 1998: 229

The index feature hosted on a given index is complex, with two types of values:

(37)
$$\left[\text{INDEX} \left[\begin{array}{l} \text{BIND: } \underline{n} \\ \text{VAR: } \underline{n} \end{array} \right] \right]$$

3. The binder in IHRCs is introduced by idx within the larger DP

(38)

$$\begin{array}{c} \text{DP} \\ \swarrow \quad \searrow \\ \text{D} \quad \text{idxP} \\ \emptyset \quad \swarrow \quad \searrow \\ \text{idx}_{[n]} \quad \text{CP} \\ -gi \quad \swarrow \quad \searrow \\ \text{da?mó?mo?}_{[n]} \text{ gó:be? ?íme?i} \end{array}$$

Idx can contribute two different meanings.

(39) a. $[[\text{IDX}_{\text{VAR}:n}]]^g: g(n)$ (IDENT $\lambda x_e[x = g(n)]$)
 b. $[[\text{IDX}_{\text{BIND}:n}]]^g: \lambda \phi_t \lambda x_e[\phi^g[x/n]]$

The uniform morphology of *gi/ge* in pronouns and IHRCs reflects this flexibility.

Independent pronoun (*he/she/it*): $\text{IDX}_{\text{VAR}:n}$

Nominalizing suffix: $\text{IDX}_{\text{BIND}:n}$

(40) $[[gi]]^g: g(n)$

(41) $[[gi]]^g: \lambda \phi_t \lambda x_e[\phi^g[x/n]]$

Idx takes a proposition and binds the open semantic head within it:

(42) [[woman(x)_i drinking-coffee] -giⁱ] is looking at me

a. $[[\text{idxP}]]: \lambda x[x \text{ is a woman \& } x \text{ is drinking coffee}]$

b. $[[\text{DP}]]: \iota x[x \text{ is a woman \& } x \text{ is drinking coffee}]$

A note on variation

A correlation between IHRC morphology and island sensitivity
(Watanabe 2004, Hanink 2021a, see also Bošković 2008)

Languages that use \approx **determiners** to mark the IHRC are **island insensitive**:²

(43) *Mojave* (Yuman, SW USA; Munro 1976: 204)

[_{RC}[_{RC} **ahvay** *mariči:n^y* m-u:čo-n^y] ?-iyu:]-n^y-č ?ahot-k
dress *girl* 2-make-DEM] 1-see]-DEM-SUBJ good-TNS
 ‘The girl_i [who I saw the dress [that you made for ___i]] is pretty.’

(44) *Lakhota* (Sioux, Dakotas USA; Williamson 1987: 177)

[_{RC}[_{RC} **Wichota** *wowapi wa yawa pi cha*] ob wo?uqlaka pi] **ki** he L.A. Times e
many.people *paper* a read PL INDEF] with 1.PL-speak PL] **DEF** that L.A. Times be
 ‘**The newspaper**_k [that we talk to many people [who read ___k]] is the L.A. Times.’

Languages that use **something else** are **island sensitive**:

(45) *Navajo* (Athabaskan, SW USA; Platero 1974: 220)

*[_{RC}[_{RC} **Hastiin** *tééchaq’i* bishxash-éé] be’eldooḥ néidiitá-(n)éé] nahał’in
man *dog* 3.PFV.bite-REL] gun 3.PFV.pick.up-REL] IMP.3.bark

Intended: ‘The dog_j [that the man [who was bitten by ___j] picked up the gun] is barking.’

- The relativizing suffix $-(n)é$ is not a pronoun or any other determiner-like element
- It simply marks the subordinate clause (Bogal-Allbritten & Moulton 2017).

Upshot

The inventory of definite markers in a language plays a role in relative clause formation.

5. Externally headed relatives: German

A related case

Externally headed *d*-relatives in German (varieties)
(Simonenko 2014, 2015, Hanink & Grove 2017)

Schwarz 2009: Two forms of the definite article in Standard German: uniqueness vs. anaphora.

Contracted form – uniqueness only

(46) Der Empfang wurde **vom/#von dem** Bürgermeister eröffnet.
 the reception was by.the/by the mayor opened

‘The reception was opened by the mayor.’

Schwarz 2009: 40

²Williamson (1987) argues for a movement analysis of Lakhota despite the absence of island effects, based largely on the behavior of NPIs. Her data has since been disputed, see Grosu 2012.

Non-contracted form – anaphora

- (47) Hans hat einen Schriftsteller_i und einen Politiker_j interviewt.
Hans has a writer and a politician interviewed.

Er hat #vom/von dem Politiker_j keine interessanten Antworten bekommen
He has from.the/from the politician no interesting answers gotten

‘Hans interviewed a writer_i and a politician_j. He didn’t get any interesting answers **from the politician_j**.’
Schwarz 2009: 30

Schwarz (2009) points out that externally headed **d-relatives** are somewhat mysterious in requiring the **anaphoric form** of the definite article in two ways.

- 1 the “relative” pronoun cannot contract
- 2 the external definite article cannot contract

- (48) Fritz wohnt jetzt **in dem/#im** Haus, **von dem/*vom** er schon seit Jahren schwärmt.
Fritz lives now in the/in+the house from REL/from+REL he already since years raves
‘Fritz now lives in the house that he’s been raving about for years.’

modified from Schwarz 2009: 22

Hanink & Grove 2017

Both the relative pronoun and external determiner involve DPs containing idx

The relative pronoun

- True relative pronouns (e.g., *which*) are treated **syncategorematically**.
- They lack a semantic value, but their presence nonetheless has a semantic effect (λ -abstraction).

- (49)
- CP

$\lambda x_e[P(x) \ \& \ \text{head}(x)]$ Predicate modification

DP

$\lambda x_e[\text{head}(x)]$

|

wh_{rel} head

C'

$\lambda x_e[P(x)]$ λ -abstraction

^

... head ...

d-pronouns

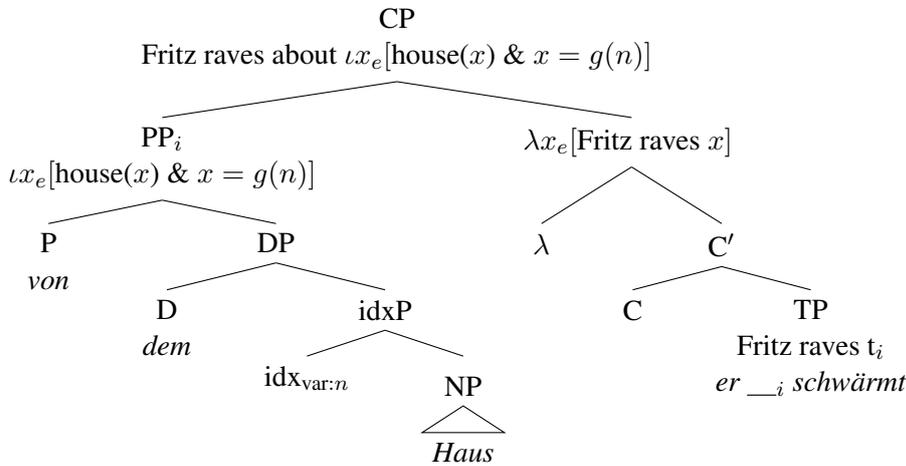
Wiltschko (1998): Relative *d*-pronouns in German are just definite articles.

- | | |
|---|---|
| <p>(50) a. der Mann
‘the man’</p> <p>b. der Mann [der angekommen ist]
the man [the arrived is]
‘the man who arrived’</p> | <p>(51) a. die Frau
‘the woman’</p> <p>b. die Frau [die ich gesehen habe]
the woman [the I seen have]
‘the woman that I saw’</p> |
|---|---|

Proposal.

- In *d*-relatives, the “relative pronoun” is interpreted at face value: as a definite article.
- It is housed within a larger strong DP containing idx_{var} .
- Being of type *e*, it saturates the embedded clause rather than modifying it.

(52)



(N.B. *P-D* contraction is blocked by Lowering of *D* to *idx* in Hanink 2018.)

Similarity to Wá·šiw

The embedded clause contains an unbound variable: it is an open proposition after *wh*-movement.

However, relative clauses do not involve *anaphora* (Hawkins 1978).

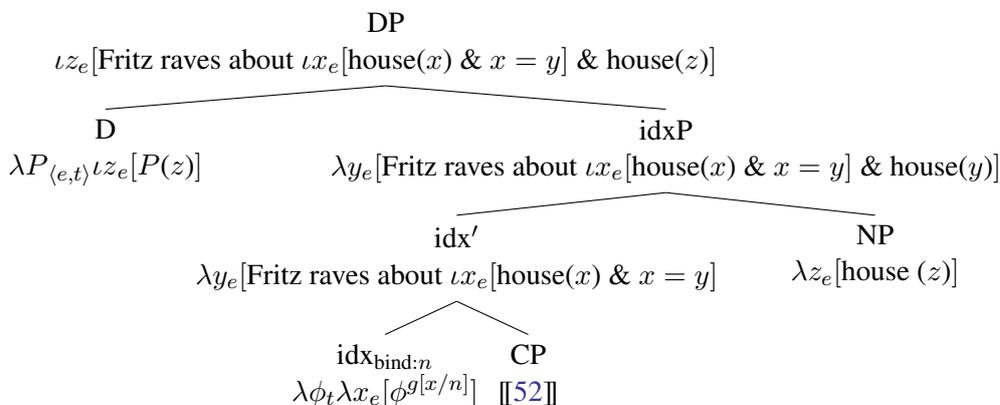
(53) Q: What's wrong with Maria?

- A: **The car** _[RC that she bought last month] already broke down.
- A': #**The car** already broke down.

Matrix Determiner:

The article in the matrix clause must be strong so that it can bind the index of the moved DP.

(54)



- The "strength" of the external determiner and the relative pronoun are related.
- Not ideal: compositionally, this analysis requires that the external head NP be a specifier of idx .

6. Conclusion and outlook

How to form a relative clause without a relative pronoun

- In lieu of true relative pronouns, relative clauses can be formed with definite markers.
- The existing determiner system in a language plays a crucial role.
- We find cases of this in both internally and externally headed relatives.

The flexibility of idx

- Idx can introduce an unbound variable or act as a binder.
- This flexibility plays a role in relative clause formation.
- Morphological evidence from Wá·šiw and German supports this idea.

Connection to other definite-marked clauses

Complements of presuppositional verbs (Bochnak & Hanink 2022)

- (55) [[háʔaš-ayʔ-i-š]-ge] di-hámup'ay-i
 [[3.rain-INT.PAST-IND-DS]-3.ACC] 1-forget-IND
 'I forgot that it rained.'
 $\Rightarrow \iota x_e.\text{CONT}_w(x) = \lambda w'_s[\text{it rained}_{w'}] \ \& \ x = g(n)$

Complements of perception verbs (Hanink 2016)

- (56) [[háʔaš-ayʔ-i-š]-ge] di-dámal-i
 3.rain-INT.PAST-IND-DS]-3.ACC] 1-hear-IND
 'I heard it raining.'
 $\Rightarrow \iota e_e[\text{rain}(e) \ \& \ e = g(n)]$

- *gi/ge* can be analyzed uniformly across relative clauses and other uses in Wá·šiw.
- Similar claims for Korean *kes* (i.a. Kim 2009)
- Cf. claims for Akan *nó* (i.a. Arkoh & Matthewson 2013, Bombi 2018, Bombi et al. 2019)

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