Relative pronoun pied-piping, the structure of which informs the analysis of relative clauses

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SuB 20

September 2015

Today

English allows the construction of relative clauses (RC) which use *wh*-words as relative pronouns, fronted to the edge of the RC.

(1) **English relative pronoun RC:**
[$_{DP}$ The person [$_{RC}$ *who* John asked _____ for help]] thinks John is an idiot. (McCawley, 1988, p. 417)

Today: We investigate the structure and interpretation of *relative pronoun pied-piping* (RPPP). (We do not discuss *that*/∅ RC.)

(2) **The relative pronoun can pied-pipe material with it:**
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Roadmap

§1 Background

§2 New evidence from intervention effects

§3 Proposal

§4 Conclusion

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§1 **Background**

- the interpretation of relative clauses
- the problem of pied-piping
- two syntactic approaches

§2 New evidence from intervention effects

§3 Proposal

§4 Conclusion

Interpreting restrictive RCs

English RCs come in **restrictive and non-restrictive** (appositive, supplemental) varieties.

Both can use relative pronouns with (some degree of) pied-piping.

Consider first a simple restrictive RC, as in (3).

(3) Every semanticist [$_{RC}$ who I met at SuB] gave a great presentation.

Following Quine (1960); Partee (1973), a.o., the restrictor of *every* is the set of individuals satisfying *semanticist* and "λx . I met x at SuB."

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Interpreting non-restrictive RCs

Non-restrictive RCs have a very different semantics, **traditionally compared to an independent (conjoined) clause**: (Quine, 1960; Taglicht, 1972; Thorne, 1972; Emonds, 1979; McCawley, 1981; de Vries, 2006)

(4) Mary, who I met at SuB, gave a great presentation.
≈ Mary gave a great presentation. *(And) I met Mary at SuB.*

(Following Potts (2005) and citations there, this meaning introduced by the non-restrictive RC is not part of the asserted content.)

☞ This meaning, "I met Mary at SuB," is derived by combining the referent described, *Mary*, with the predicate "λx . I met x at SuB."

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For both restrictive and non-restrictive RCs, then, we need the RC structure to yield the derived predicate "λx. I met x at SuB."

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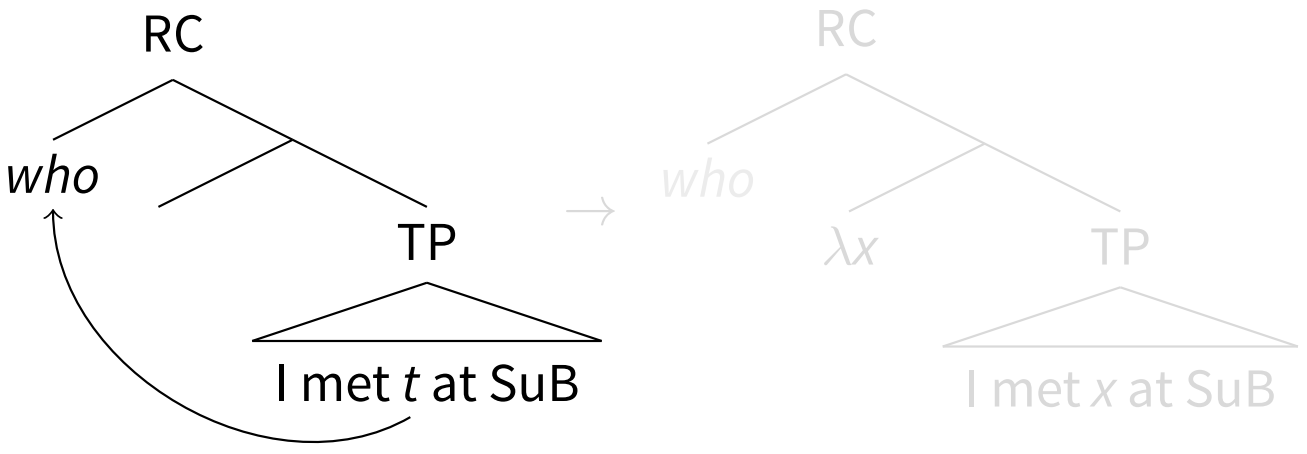

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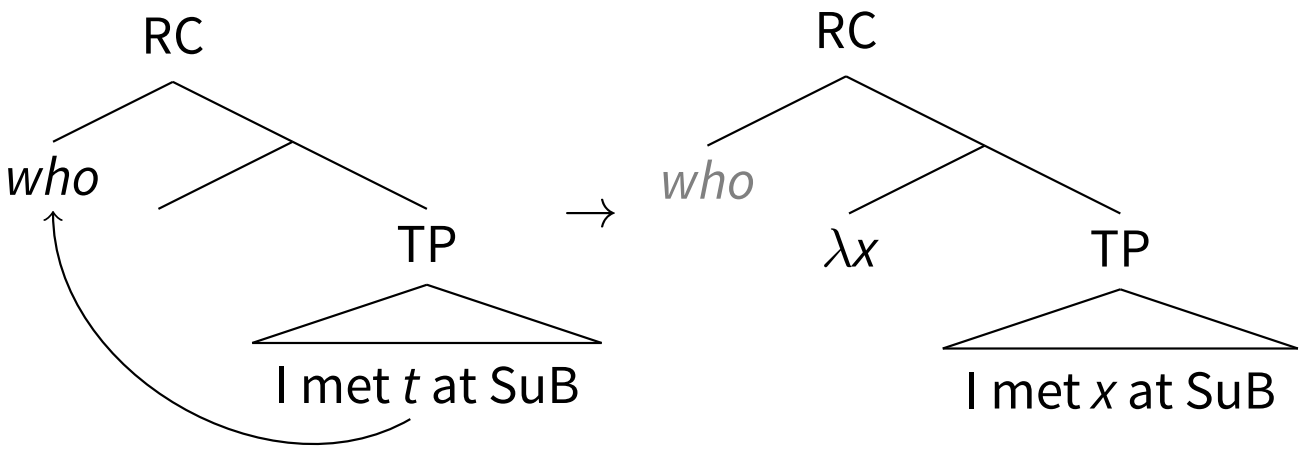

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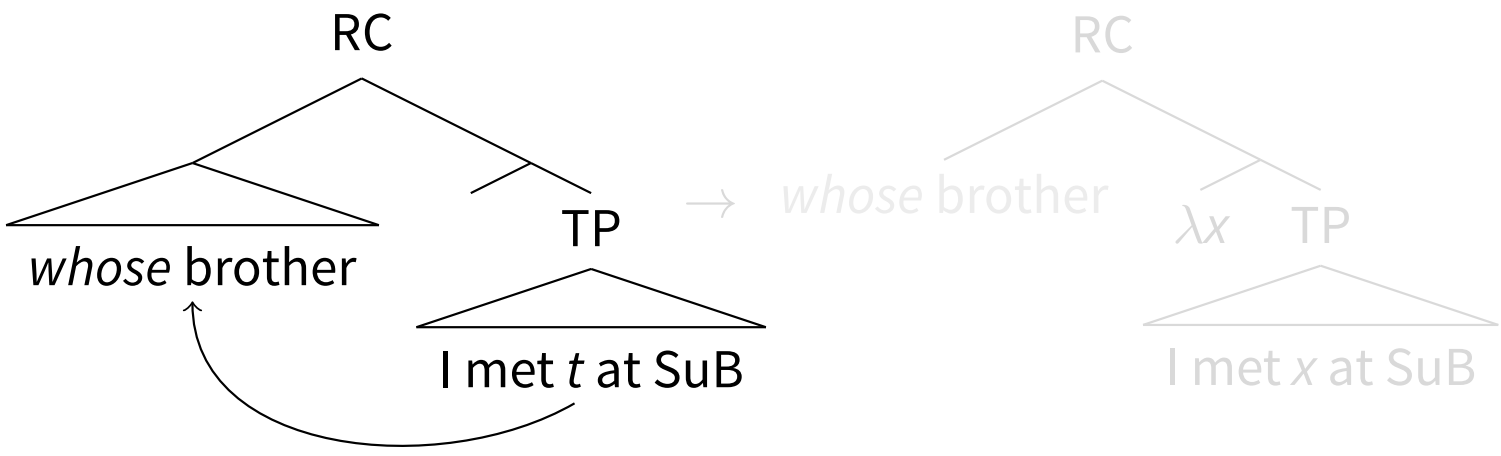
(5) The girl [$_{RC}$ [$_{RPPP}$ *whose* brother] I met at SuB]...



Again, movement and λ-abstraction gives us "λ*x* . I met *x* at SuB."

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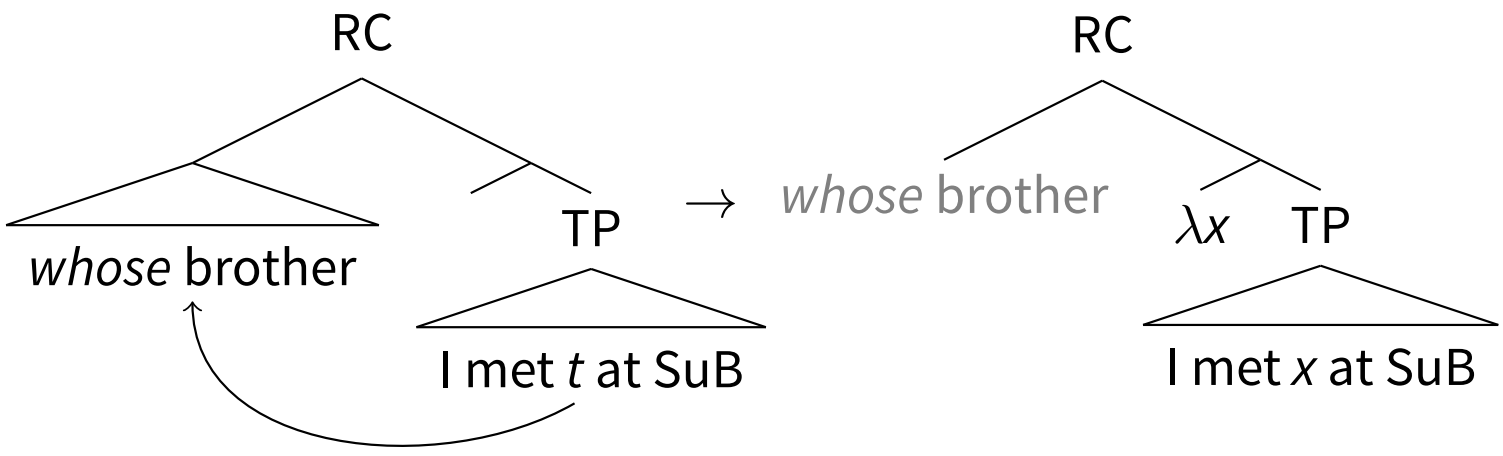

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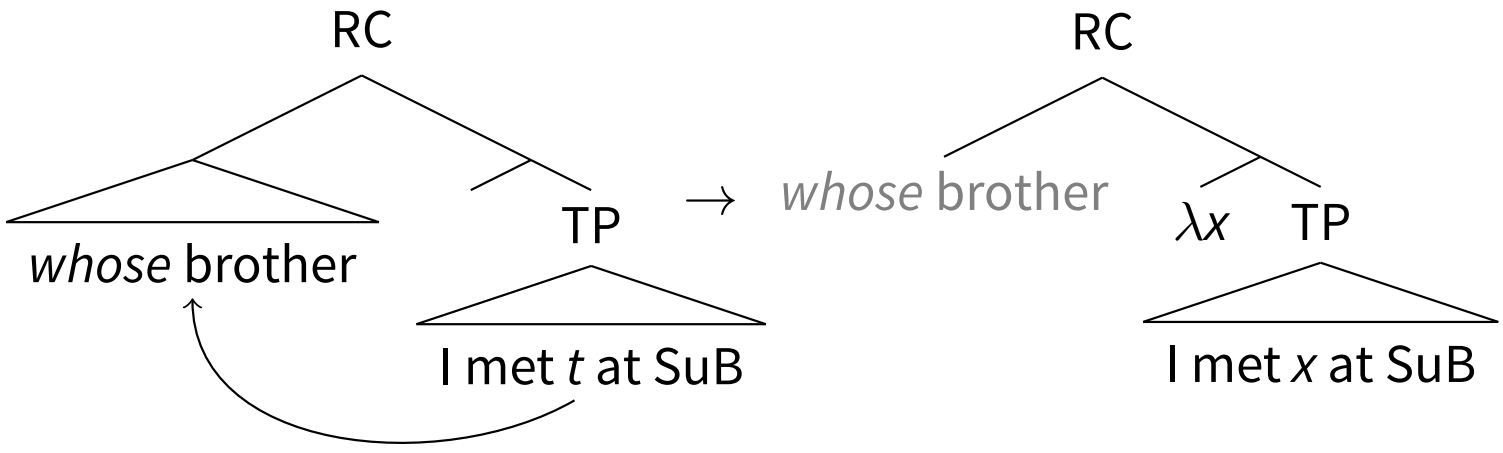

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Two ways to solve this problem of pied-piping:

1. Covert movement of the *wh*-pronoun out of the pied-piping

   (6) $[_{RC}$ *who* λy $[[_{RPPP}$ *who*'s brother$]$ λx . I met x...$]]$

   (Or similarly: movement of the head of the RC from the relative pronoun itself (Kayne, 1994).)

2. Interpret the pied-piping as is, with the relative pronoun *in-situ*

   (See von Stechow (1996, 2000) for a similar discussion for *wh*-pied-piping.)

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§2 **New evidence from intervention effects**

- Intervention in *wh*-question pied-piping
- Intervention in relative clause pied-piping

§3 Proposal

§4 Conclusion and open questions

New evidence from intervention effects

Today: The *wh* relative pronoun in non-restrictive RCs is interpreted *in-situ* inside the pied-piping, specifically using **Rooth-Hamblin alternative computation** (squiggly arrow) (Hamblin, 1973; Rooth, 1985, a.o.).

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Alternative computation and intervention effects

Descriptively, in-situ *wh*-elements cannot be c-commanded by *interveners*: certain quantifiers, negative elements, ...

(8) **Japanese: Intervention effects avoided through scrambling**

a. ✓ Hanako-ga *nani-o* yon-da-no?
Hanako-NOM what-ACC read-PAST-Q
'What did Hanako read?'

b. ?* **Dare-mo** *nani-o* yom-ana-katta-no?
no.one what-ACC read-NEG-PAST-Q

c. ✓ *Nani-o* **dare-mo** ____ yom-ana-katta-no?
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'What did no one read?'

Examples from Tomioka (2007).

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Intervention effects

Intervention effects affect regions of alternative computation, but not (overt or covert) movement (Beck, 2006; Beck and Kim, 2006; Kotek and Erlewine, to appear; Kotek, 2014, 2015)

(9) **Intervention affects alternatives, not movement:**

a. * [$_{CP}$ C ... **intervener** ... *wh*]

b. ✓ [$_{CP}$ C ... *wh* **intervener** ... *t*]

Wh-pied-piping and intervention effects

We can also observe intervention effects in ***wh*-question pied-piping**.

(10) Jim owns a picture of *which* president

a. [*Which* president] does Jim own a picture of _____?
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Pied-piping and intervention effects

Cable (2007): In the derivation of a question like (10c), two steps occur:

- Movement of the pied-piping constituent to Spec,CP.
- Inside pied-piping, *wh* is interpreted via Rooth-Hamblin alternative computation between *wh* and the edge of pied-piping.

(11) **Interpreting (10c) via movement & alternative computation:**

[*pied-piping* A picture of *which* president] does Jim own _____?

Rooth-Hamblin alternatives *movement with pied-piping*

(A similar proposal has also been made for pied-piping in focus movement (Krifka, 2006; Wagner, 2006; Erlewine and Kotek, 2014).)

Wh-pied-piping and intervention effects

Sauerland and Heck (2003); Cable (2007); Kotek and Erlewine (to appear) show that *intervention effects* occur inside pied-piped constituents:

(12) **Intervention effect in English pied-piping:** (exx Cable, 2007)

a. [A picture of *which* president] does Jim own _____?

b. * [**No** pictures of *which* president] does Jim own _____?

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If an *intervener* is placed between the *wh*-word and the edge of its pied-piping constituent, it results in ungrammaticality.

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Predictions for Relative Pronoun Pied-Piping

Recall: Two theories for the interpretation of RPPP

1. Covert movement of the *wh*-pronoun out of the pied-piping

(14) $[_{RC}\ wh\ \lambda y\ [[_{RPPP}\ \ldots\ y\ \ldots\ ]\ \lambda x\ .\ \ldots\ x\ \ldots]]$

2. In-situ interpretation of the *wh*-pronoun using Rooth-Hamblin alternative computation

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Intervention in RPPP

☞ **Relative pronoun pied-piping (RPPP) in non-restrictive relatives is sensitive to this form of intervention:**

(16) a. ✓ This is the unfortunate recipe, [[an ingredient for *which*] I am missing].

b. * This is the unfortunate recipe, [[**no** ingredients for *which*] I have at home].

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This pattern is not limited to *no*. It occurs with other known pied-piping interveners (Cable, 2007, 2010; Kotek and Erlewine, to appear; Erlewine and Kotek, 2014):

(17) a. ✓ This recipe, [[three ingredients for *which*] I have...],

b. ?? This recipe, [[**only** [one]$_F$ ingredient for *which*] I have...],

c. ?? This recipe, [[**very few** ingredients for *which*] I have...],

Intervention in RPPP

It is also not the case that these are strange meanings in some way...

☞ No intervention if smaller pied-piping is chosen:

(18) a. * [$_{RC}$ [$_{RPPP}$ **no** ingredients for *which*] I have __...] (=16b)

b. ✓ [$_{RC}$ [$_{RPPP}$ for *which*] I have **no** ingredients __ at home]

c. ✓ [$_{RC}$ [$_{RP}$ *which*] I have **no** ingredients for __ at home]

NB: This contrast shows that the pied-piping constituent is not uniformly *reconstructed* into its base position. That would predict no contrast between these pied-piping options.

(19) **Hypothetical LFs with reconstructed RPPP:**

[$_{RC}$ I have **no** ingredients for *which* at home]

Summary

We observe intervention effects in RPPP whenever an intervener occurs **above the relative pronoun, inside its pied-piping**.

☞ This is explained if **RPPP in non-restrictive RCs is interpreted using Rooth-Hamblin alternative computation**, but not if RPPP is interpreted using (covert) movement of the relative pronoun.

Support from RPPP with islands

Further support against the movement approach comes from island diagnostics (Ross, 1967). (Covert) movement is island-sensitive.

☞ The relative pronoun can be inside a syntactic island, inside the RPPP.

(20) a. This portrait, [[the background of *which*] is quite stunning],

b. ? This portrait, [[the background that was chosen for *which*] is quite stunning], is...

Intervention effects and restrictive RCs

☞ **Non-restrictive RCs allow for larger pied-piping than restrictives**
(Emonds, 1976, 1979; Jackendoff, 1977; Nanni and Stillings, 1978, a.o.).

(21) **Larger pied-piping in non-restrictive relatives:** (exx Cable, 2010)

a. This book, [$_{RC}$ [$_{RPPP}$ the reviews of *which*] were awful], is really quite nice.

b. * No book [$_{RC}$ [$_{RPPP}$ the reviews of *which*] are awful] is really quite nice.

Intervention effects and restrictive RCs

Hence we cannot test intervention effects in restrictive relatives:

(22) a. * QR is one topic [[an/every/the/some article(s) about *which*] the journal rejected].

b. * QR is one topic [[**only one**/**no**/**very few** article(s) about *which*] the journal rejected].

☞ **We will argue that this is not a coincidence, but points to a fundamental difference between restrictive and non-restrictive relatives.**

Roadmap

§1 Background

§2 New evidence from intervention effects

§3 **Proposal**

§4 Conclusion and open questions

Proposal

We propose that Relative Pronoun Pied-Piping in English non-restrictive RCs is interpreted using **Rooth-Hamblin alternative computation**.

(23) $[_{RC}\ [[_{RPPP} \ldots wh \ldots\ ]\ \lambda x\ .\ \ldots\ x \ldots]]$

- Alternative computation is a method of semantic composition in another "dimension."
- Alternative computation has been used for the interpretation of in-situ focus (Rooth, 1985, 1992), as well as for interrogative *wh*-words (Hamblin, 1973; Beck, 2006, a.o.).

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Alternative computation

For example, for a *wh*-in-situ question, alternatives are computed between the in-situ *wh*-word and C (Hamblin, 1973; Beck, 2006, a.o.).

(24) [C [$_{TP}$ Alex likes *who*]]

Ordinary semantic values are computed using $[\![\cdot]\!]^o$ and the alternatives (focus semantic values) using $[\![\cdot]\!]^f$ (Rooth, 1992, a.o.).

(25) **The denotation of a *wh*-word:** (Beck, 2006)

a. $[\![who]\!]^o$ undefined

b. $[\![who]\!]^f$ = the set of human individuals = {Bobby, Chris, Dana...}

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Alternative computation

$[\![\cdot]\!]^f$ is computed recursively, like $[\![\cdot]\!]^o$, composing alternatives pointwise.

(26) a. $[\![\text{TP}]\!]^o$ undefined

b. $[\![\text{TP}]\!]^f = \left\{ \begin{array}{c} \lambda w \text{ . Alex likes Bobby in } w, \\ \lambda w \text{ . Alex likes Chris in } w, \\ \lambda w \text{ . Alex likes Dana in } w, \ldots \end{array} \right\}$

C takes the alternatives in its complement ($[\![\text{TP}]\!]^f$) to form the question denotation (Beck and Kim, 2006; Kotek, 2014, a.o.). The alternatives in $[\![\text{TP}]\!]^f$ correspond to *possible answers* to the question.

Alternative computation

This works for the interpretation of *wh*-question pied-piping, too.

(27) [[$_{PP}$ *whose* brother] [λx [you like x]]]

(28) $[\![\textit{whose}\ \text{brother}]\!]^f$ = the set of brothers =

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Alternative computation for RPPP

Now consider the RPPP. In order to construct the derived predicate "λx . I met [x's brother] at SuB," we need the RPPP to provide **a function from individuals to their brothers**.

(30) Mary, [$_{RC}$ [[$_{RPPP}$ *whose* brother] λx . I met x at SuB]],...

☞ However, a naive attempt to interpret RPPP using Rooth-Hamblin alternative computation runs into difficulties.

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The problem: this meaning of RC could be derived from the correct mapping: Mary $\rightarrow$ John, Chris $\rightarrow$ Bill, Dana $\rightarrow$ Fred.

But it can also be obtained from other possible functions, e.g. Mary $\rightarrow$ Fred, Chris $\rightarrow$ John, Dana $\rightarrow$ Bill.

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Once we compute the RC, **the correct mapping between individuals and their brothers cannot be recovered**.

This problem has been observed by previous authors (Rooth 1992 fn. 15, citing Ede Zimmermann (p.c.); Sternefeld 2001; Sauerland and Heck 2003), leading them to ultimately not pursue this approach to the interpretation of RPPP.

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The antecedent of a non-restrictive relative

Important: Non-restrictive relatives require a referential antecedent (Thorne, 1972; Karttunen, 1976; McCawley, 1988; Potts, 2002, a.o.).

The antecedent of a non-restrictive relative is an E-type anaphor (Sells, 1985; Demirdache, 1991; Del Gobbo, 2007). This is motivated through parallels between non-restrictive RCs and cross-sentential anaphora.

The antecedent of a non-restrictive relative

Cross-sentential anaphora can pick out the correct referent for the antecedent of parallel non-restrictive RCs (Demirdache, 1991, p. 114–116).

(33) **Non-restrictive RCs and parallel cross-sentential anaphora:**

a. i. I saw Mary, [$_{RC}$ *who* was late].

ii. I saw Mary$_i$. She$_{i/*j}$ was late.

b. i. I go there [whenever I have time], [$_{RC}$ *which* isn't actually very often].

ii. I go there [whenever I have time]$_i$. It/that$_{i/*j}$ isn't actually very often. (Sells, 1985)

The antecedent of a non-restrictive relative

Non-restrictive relatives are only compatible with referring expressions. The availability of cross-sentential anaphora patterns with non-restrictive RCs:

(34) **Limits on antecedents of non-restrictives, cross-sent. anaphora:**

a. Indefinites: (Emonds, 1979, p. 236)

i. {✓One, ✓some, *each, *no} student at this conference, [$_{RC}$ *who* I talked to _____ on the phone], is happy.

ii. [{✓One, ✓some, *each, *no} student at this conference]$_i$ is happy. I talked to him/her$_i$ on the phone.

b. Non-specific indefinite under neg: (Demirdache, 1991, p. 134)

i. * I didn't see a donkey, [$_{RC}$ *who*/*which* eats too much].

ii. * I didn't see a donkey$_i$. It$_i$ eats too much.

Proposal

Proposal: Following Sells (1985); Demirdache (1991); Del Gobbo (2007), we can dynamically refer to the E-type referent denoted by the antecedent of a non-restrictive RC.

For *Mary, whose brother I met at SuB*:

(35) $antecedent_{RC}$ = Mary

Proposal

Proposal: We contextually restrict the alternative denotation of the relative pronoun. For *Mary, whose brother I met at SuB*:

(36) a. $[\![who]\!]^o$ undefined

b. $\boxed{[\![who]\!]^f = \{antecedent_{RC}\} = \{\text{Mary}\}}$

(37) a. $[\![whose\ brother]\!]^o$ undefined

b. $[\![whose\ brother]\!]^f = \{\text{John (= Mary's brother)}\}$

(38) a. $[\![\text{RC}]\!]^o$ undefined

b. $[\![\text{RC}]\!]^f = \{(\lambda x\ .\ \text{I met } x \text{ at SuB})(\text{John})\}$
$= \{\text{I met John at SuB}\}$

Notice that there is no step in this computation where we compute the property "λx . I met x's brother at SuB."

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Notice that there is no step in this computation where we compute the property "λx . I met x's brother at SuB."

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Proposal: An operator at the edge of the pied-piping introduces the projective meaning of the non-restrictive relative (cf Potts, 2005).

(39) [*Op* RC] : for $\phi \in [\![\text{RC}]\!]^f$, ϕ is true

(40) [*Op* [$_{RC}$ *whose* brother I met at SuB]] $\rightsquigarrow$

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Non-singleton referents?

Q: Are there cases where the meaning of the non-restrictive RC ranges over a set of individuals?

A: **Apparently no.** Even if a plurality is described, it is described together as a single, plural individual.

(41) a. Every mother whose son is in the army is concerned.
⇒ each (relevant) mother has her own son *restrictive*

b. Mary and Sue, whose son is in the army, are concerned.
⇒ Mary and Sue have a son together. *non-restrictive*

☞ Non-restrictive RCs do not "distribute" over individuals; there is always a single referent (possibly a plurality) which is described.

(See also discussion of Weakest Crossover in Lasnik and Stowell (1991).)

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Comparison to binding

Note that because we contextually restrict $[\![wh]\!]^f$ to be a singleton set, this is in effect a lot like coindexation/binding.

(42) Mary$_i$, [[who$_i$'s brother] I met at SuB],

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Summary

Non-restrictive relatives are proposition-denoting (Del Gobbo, 2007).

☞ The denotation of RC is constructed without first composing the corresponding predicate.

- This is crucially the case because we are able to restrict the denotation of the relative pronoun in the non-restrictive relative.

(43) **In-situ interpretation of RPPP in non-restrictive RCs:**

$[_{RC}\ [[_{RPPP} \ldots wh \ldots\ ]\ \lambda x\ .\ \ldots\ x \ldots]]$

Such a solution *cannot* work for restrictive relatives, which modifies nominal domains, not entire referents.

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Summary

Restrictive relatives are property-denoting.

☞ Restrictive relatives cannot use Rooth-Hamblin alternatives for their interpretation. They must use a movement strategy (Kayne, 1994).

(44) **Covert movement of *wh*-pronoun in restrictive RCs:**

$[_{RC}\ wh\ \lambda y\ [[_{RPPP}\ \ldots\ y\ \ldots\ ]\ \lambda x\ .\ \ldots\ x\ \ldots]]$

Implications

The current proposal **brings RPPP in line with other instances of pied-piping**, in questions and focus constructions.

- Pied-piping in all of these cases is interpreted through a combination of movement and Rooth-Hamblin alternative computation.
- All pied-piping constituents are sensitive to intervention effects.

Implications

This proposal helps explain why **a *wh*-pronoun must be used with non-restrictive RCs**, but a *that*/∅ strategy is available to restrictive RCs.

(45) **Non-restrictive relatives can't be introduced by *that*/∅:**

a. Every semanticist [$_{RC}$ that/∅ I met __ at SuB] gave a great talk.

b. * Mary, [$_{RC}$ that/∅ I met __ at SuB], gave a great talk.

☞ Only the *wh*-pronoun strategy can lead to a propositional denotation for RC, because of the semantic contribution of the *wh*.

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Implications

This proposal explains why **relative pronoun pied-piping in non-restrictive RCs can be substantially larger** than in restrictive RCs.

☞ This is due to the semantics of Rooth-Hamblin alternatives.

- R-H alternatives are insensitive to syntactic barriers such as islands, but they are susceptible to intervention effects.
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Roadmap

§1 Background

§2 New evidence from intervention effects

§3 Proposal

§4 **Conclusion**

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Today we investigated the structure and interpretation of **English relatives** with **relative pronoun pied-piping** (RPPP).

We argued that restrictive and non-restrictive relatives have fundamentally different semantic interpretations.

Restrictive-relatives are property-denoting, while non-restrictive relatives are proposition-denoting (Del Gobbo, 2007).

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Restrictive-relatives are property-denoting, while non-restrictive relatives are proposition-denoting (Del Gobbo, 2007).

Conclusion

- RPPP in **non-restrictive relatives** is interpreted via **Rooth-Hamblin alternative computation**, with the *wh* relative pronoun *in-situ*.

(46) $[_{RC}\ [[_{RPPP}\ \ldots\ wh\ \ldots\ ]\ \lambda x\ .\ \ldots\ x\ \ldots]]$

- RPPP in **restrictive relatives** is interpreted via **covert movement** (Kayne, 1994, a.o.).

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(47) $[_{RC}\ wh\ \lambda y\ [[_{RPPP} \ldots\ y\ \ldots\ ]\ \lambda x\ .\ \ldots\ x\ \ldots]]$

Thank you!

Thank you! Questions?

For comments and discussion we would like to thank Martin Hackl, Danny Fox, David Pesetsky, Chris Kennedy, Gary Thoms, and audiences at CLS 51 and McGill. The second author is supported by a Mellon fellowship at McGill University. Errors are each other's.

Handouts and slides at `http://mitcho.com` and `http://hkotek.com`.

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Non-singleton referents?

Describing a plurality vs quantifying over individuals is a distinguishing characteristic between non-restrictive and restrictive RCs.

(48) Carlson (1977):

a. The men, of whom all were astronauts, left.

b. * The men of whom all were astronauts left.

(49) **Adding 'all' in the RC forces non-restrictive RC:**

a. The linguists who chose not to go to SuB regretted their decision, because [the linguists(,) [$_{RC}$ who went]](,) had fun.

i. ✓ restrictive: two sets of linguists

ii. # non-restrictive: infelicitous because of preceding context

b. # The linguists who chose not to go to SuB regretted their decision, because the linguists(,) who **all** went(,) had fun.

i. * restrictive: two sets of linguists

ii. # non-restrictive: infelicitous because of preceding

Reconstruction of the RPPP

Safir (1999) argues that R-expressions which are pied-piped trigger condition C just like they do in *wh*-questions:

(50) **Condition C in questions**

a. ?? *Which* picture of John$_i$ does he$_i$ like?

b. ✓ I bought the picture of John$_i$ that he$_i$ liked

(51) **Condition C in RPPP**

a. * I always respect a journalist [*whose* depiction of Jesse$_i$]$_j$ he$_i$ objects to t$_j$

b. ?? Max, [*whose* depiction of Jesse$_i$]$_j$ he$_i$ objects to t$_j$...

c. ✓ I always respect a journalist [*whose* depiction of Jesse$_i$]$_j$ t$_j$ offends him$_i$

d. ✓ Max, [*whose* depiction of Jesse$_i$]$_j$ t$_j$ offends him$_i$ ...

Weakest Crossover

Lasnik and Stowell (1991) notes that WCO seems to affect restrictive RCs but not non-restrictive RCs: (Judgments differ from Chomsky (1982).)

(52) **Restrictive RCs:**

a. * the man$_i$ who$_i$ [his$_i$ mother] loves t_i

b. * the book$_i$ which$_i$ [its$_i$ author] read t_i

(53) **Non-restrictive RCs:**

a. Gerald$_i$, who$_i$ [his$_i$ mother] loves t_i], is a nice guy.

b. This book$_i$, which$_i$ [its$_i$ author] wrote t_i last week, is a hit.

See also **?**Safir (1986).

Intervention in RPPP

A similar pattern can be observed with other *wh*-words:

(54) I hope to someday meet the President,

a. ✓ [$_{RC}$ [$_{RPPP}$ a cousin of *whom*] I've met __ before].

b. ✓ [$_{RC}$ [$_{RPPP}$ the supporters of *whom*] are __ out of their minds].

c. * [$_{RC}$ [$_{RPPP}$ **no** supporters of *whom*] I've (ever) met __ before].

d. * [$_{RC}$ [$_{RPPP}$ **only** [one]$_{F}$ supporter of *whom*] I've (ever) met __ before].

e. * [$_{RC}$ [$_{RPPP}$ **very few** supporters of *whom*] I've (ever) met __ before].

(55) a. ✓ [$_{RC}$ [$_{RPPP}$ of *whom*] I've met **no** supporters __ before].

b. ✓ [$_{RC}$ [$_{RPPP}$ *who(m)*] I've met **no** supporters of __ before].

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Partitives

There is, however, more to this story. **The addition of a partitive layer allows us to get around intervention.** (Gary Thoms, p.c.)

(56) **Avoiding intervention with a partitive (Gary Thoms, p.c.):**

a. * This recipe, [[**no** ingredients for *which*] I have at home], is...

b. ✓ This recipe, [[**none** of the ingredients for *which*] I have at home], is...

c. ✓ This recipe, [[**only** some of the ingredients for *which*] I have at home], is...

☞ Perhaps the partitive structure allows for covert movement of a smaller *wh*-containing phrase, within the RPPP. Relative pronouns are susceptible to intervention only if they cannot be covertly moved to the edge.

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Pied-piping in overt focus movement

Erlewine and Kotek (2014) show that intervention effects also affect overt focus movement.

The pivot in English *it*-clefts can be considered to be a form of pied-piping movement (Krifka, 2006):

(57) **Pied-piping in *it*-clefts:**
John read a book from THIS$_F$ library.

a. It's [THIS$_F$ library] that John read a book from _____.
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Pied-piping in overt focus movement

The *it*-cleft associates with focus inside the pivot (Jackendoff, 1972; Krifka, 2006). Therefore *it*-clefts are interpreted using both movement and alternative computation, much like *wh*-pied-piping:

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Rooth-Hamblin alternatives — *movement*

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Rooth-Hamblin alternatives

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Rooth-Hamblin alternatives (wavy arrow) — *movement* (underbrace)

Intervention in overt focus movement

There is intervention in focus pied-piping

(59) **Intervention in *it*-cleft pivots:**

a. * It's [**no** book from THIS$_F$ library] that John read _____.

b. It's [from THIS$_F$ library] that John read **no** book _____.

c. It's [THIS$_F$ library] that John read **no** book from _____.

(60) a. * It's [**few** books from THIS$_F$ library] that John read _____.

b. * It's [**only**$_i$ BOOKS$_{F,i}$ from THIS$_F$ library] that John read _____.