Topics in English Syntax: Relative Clauses

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1 Introduction

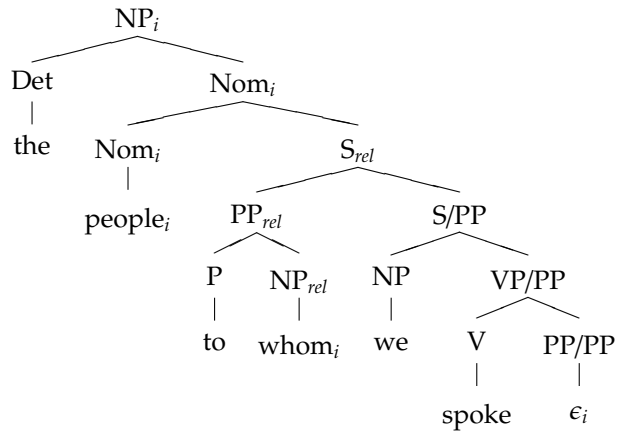
(1) The people to whom we spoke (claimed to know nothing)

We seem to have an NP (*the people to whom we spoke*) consisting of:

- a determiner,
- a noun,
- a 'relative clause' (RC) – a sentential construction that modifies the head noun
- the relative clause contains an initial *wh*-phrase, containing a relative pronoun (*who*), and a 'gap'
- the *wh*-phrase is interpreted as filling the gap

- The following is a plausible structure (2):

(2)



Relative Clause constructions involve three separate dependencies:

- Between the *rel*-Phrase (here a PP) and the trace/gap;
- Between the *rel*-item and the relative clause — 'Pied Piping';
- Between the head Nominal and the relative clause, which involves *inter alia* getting the semantics right (e.g. *the people to whom we spoke* denotes a plurality x such that x is made up of people, and we spoke to x).

2 Classification

- Various classifications are possible:
  - By the properties of the 'missing element' (the gap); many languages have quite severe restrictions on the role of the gap (e.g. they may restrict it to being a subject or direct object, or require that a resumptive pronoun occurs instead of a gap for some grammatical roles).
  - English is relatively liberal, even allowing temporal or locative adjuncts:
    (3) a. the person who is talking (subject)
    b. the person who we saw (direct object)
    c. the person who we gave the books to (oblique object)
    d. the year when I was born (temporal adjunct)
    e. the place where I was born (locative adjunct)
  - By properties of the relative pronoun (in English *wh*-expressions, *that*, zero):
    (4) a. the person who we saw
    b. the person that we saw
    c. the person we saw

- By other properties of the relative clause (e.g. finiteness):
  (5) a. a person on whom you can pin your hopes (finite)
  b. a person on whom to pin your hopes (non-finite)
- English also has 'reduced' relatives:
  (6) a. the person standing by the window (*ing* VP)
  b. the person given the first choice (*en* VP)
  c. the people by the window (PP)
  d. the people happy with this suggestion (AP)
- These are called 'reduced' because on on analysis they are derived from 'fuller' relative clauses, e.g. *the person ~~who is~~ standing by the window*.

3 Analysis

3.1 Non-subject *Wh*-Relatives

3.1.1 Ordinary *Wh*-Relatives

- From an analytic point of view, the simplest cases seem to be those involving a *wh*-expression, where the relativised constituent is a non-subject (more precisely, not a 'top-level' subject):

  (7) a. the people who we described Δ
  b. the people who we spoke to Δ
  c. the people who they said we spoke to Δ
  d. the people who everyone agrees they said we spoke to Δ

- We can deal with these if we assume relative clauses involve a head-filler structure, and use the normal gap-passing techniques for long-distance dependencies:

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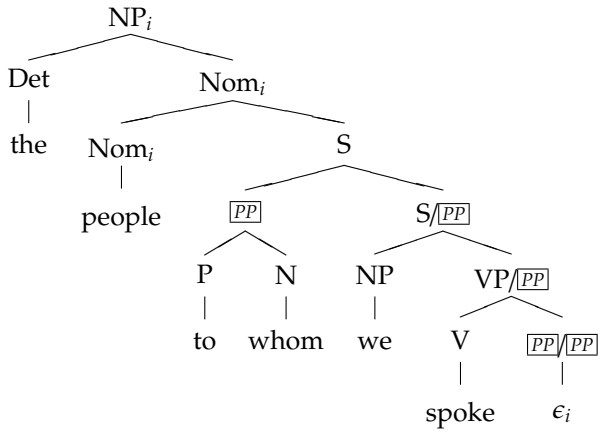

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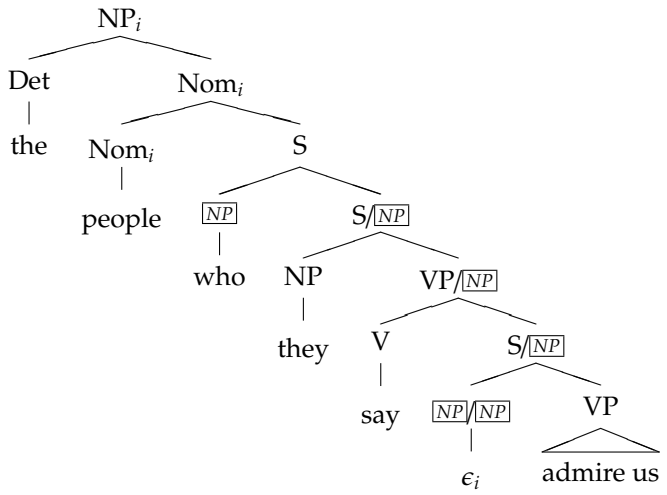


- A relative clause can be a head-filler structure whose head is a clause.
- This captures some of the facts (the initial relative expression has to match the gap):

(10) a. the people on whom we rely
b. the people who we rely on
c. *the people on who we rely on
d. *the people who we rely
e. *the people about whom we rely

- Now we need to associate the *index* of the relative pronoun with the *index* of the noun:

(11) a. the people$_i$ [who$_i$ Kim admires Δ] . . .
b. the$_x$ people(x) $\wedge$ admire(Kim,x) . . .

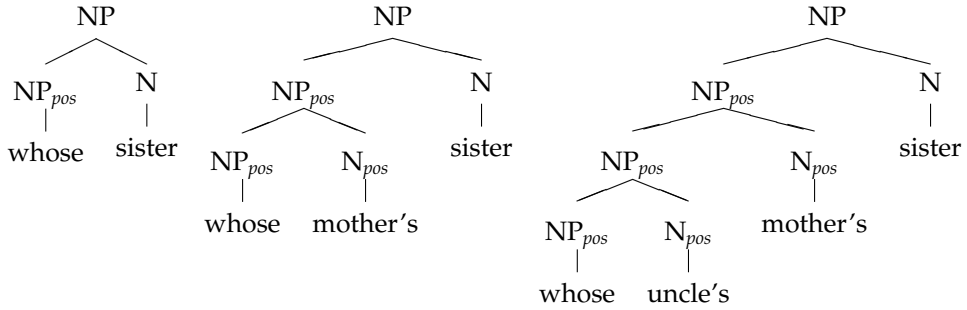
- But the relative pronoun can be arbitrarily distant from the top of the relative clause (in both it 'upstairs' and 'downstairs' positions), and hence from the antecedent noun.
- We have already seen this for the 'downstairs' position, the following show it for the 'upstairs' position (as a result of 'pied-piping'):

(12) The government regulates the height of the letters of the covers of some books.

(13) a. books [*which* they regulate the height of the letters on the covers of Δ]
b. books [*of which* they regulate the height of the letters on the covers Δ]
c. books [*the covers of which* they regulate the height of the letters on Δ]
d. books [*on the covers of which* they regulate the height of the letters Δ]
e. books [*the letters on the covers of which* they regulate the height of Δ]
f. books [*the height of the letters on the covers of which* they regulate Δ]

(14) a. a friend [*whose sister* you went to school with Δ]
b. a friend [*whose mother's sister* you went to school with Δ]
c. a friend [*whose uncles's mothers's sister* you went to school with Δ]
d. a friend [*whose wife's uncles's mother's sister* you went to school with Δ]

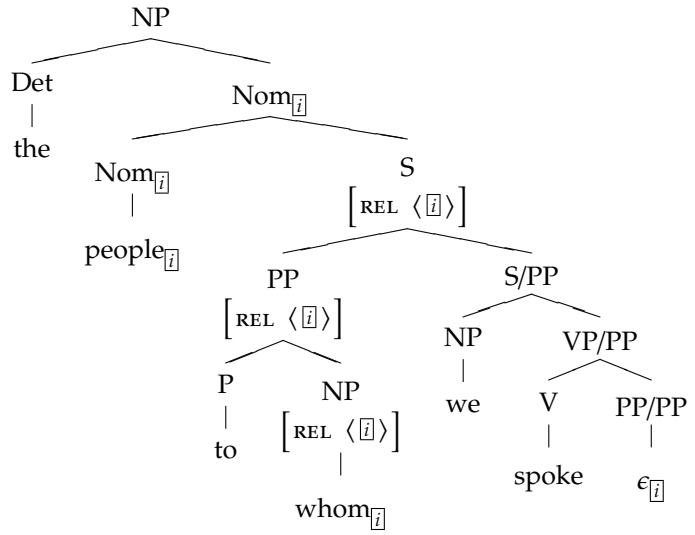
(15)



- A nice idea is to use the 'rel' feature – the feature that distinguishes relative pronouns from ordinary personal pronouns, and distinguishes relative clauses from interrogatives and declaratives for this.
- Just like SLASH, REL is involved in an unbounded dependency (see above), and we should use the same apparatus (the same general principles) to percolate it.
- We get the effect we want if the value of REL is a set or list containing the value of the *index* of the relative pronoun,
- and the relative clause identifies the element of REL value with the INDEX of the head noun.
- That is, the lexical entry for a relative pronoun like *who* should look like (16).

(16)
$$\left[\textsc{synsem}\left[\begin{array}{ll}\textsc{loc} & \left[\textsc{cat}\left[\textsc{cont}\left[\textsc{index}\ \boxed{1}\right]\right]\right] \\ \textsc{nonloc}\left[\textsc{rel}\ \langle\boxed{1}\rangle\right] & \end{array}\right]\right]$$

(17)



- This brings us to the third issue: how do we combine the head noun and the relative clause (so that the REL value and the index of the antecedent round are correctly associated)?
- Clearly, the relative clause is an adjunct of the N, and normally, heads and adjuncts combine by means of a rule like (18a), what we need is an instance of this like (19a):

(18) a. X → X, YP $\left[\text{MOD } X\right]$
b. an X can consist of an X, and a adjunct that can modify Xs

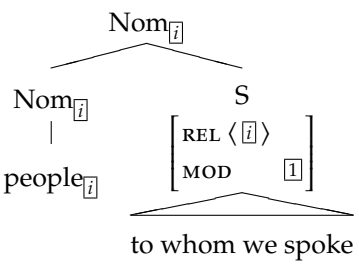
(19) a. Nom → Nom S $\left[\text{MOD } Nom\right]$
b. an Nom can consist of a Nom, and an S that can modify Noms

- In general, whether a phrase has a MOD value depends on its (lexical) head (e.g. attributive adjectives, adverbs, etc.) — the difficulty with relative clauses is that there is no obvious head to provide this property.
- We could introduce a special (phonologically empty) operator . . . , the alternative is to use a rule – a special case of (18a):

(20) a. Nom → $\boxed{1}$ Nom$_{\boxed{i}}$ S$\begin{bmatrix}\text{REL} & \langle \boxed{i} \rangle \\ \text{MOD} & \boxed{1}\end{bmatrix}$
b. a Nom can consist of a Nom and an adjunct sister S, which is a mdifier of S, and whose REL value is the *index* of the Nom.

- we could add and the S should be $\left[\text{SLASH } \langle\ \rangle\right]$
- we could also say something about the semantics (union the semantic restrictions on the Nom with those of the S)

(21)



We don't need (19a) as a separate rule; we can get effect if we say something like 'all clauses must of either *declarative*, or *interrogative*, . . . , or *relative*', and relatives must be:

(22) S$\begin{bmatrix}\text{REL} & \langle \boxed{i} \rangle \\ \text{MOD} & \boxed{1}\end{bmatrix}$

(23) *relc* ↦ *clause* & $\begin{bmatrix}\text{REL} & \langle \boxed{i} \rangle \\ \text{MOD} & N_{\boxed{1}}\end{bmatrix}$

- Roughly: a relative clause is a clause, which has a (non-empty) REL value, and which is specified as [MOD *Nom*].
- A relative clause is a noun modifying clause with a REL value (hence, typically, containing a relative pronoun)

3.1.2 *that* relatives

- It is not obvious how to deal with *that* relatives. There are two obvious possibilities:
  - treat it as complementiser (cf *the fact* that *she kissed him*)
  - treat it as relative pronoun

The main difficulty with treating it as a relative pronoun is that it does not permit pied-piping:

(24) a. the book *which/that* you read Δ
b. the idea *which/that* you read about Δ
c. the idea *about which/*that* you read Δ
d. the book *whose/*that's cover* you designed Δ

That is:

- relative *that* cannot be a possessive (i) or object of a preposition (ii).

Notice that *who* also has property (ii):

(25) a. the author who we talked about
b. *the author about who we talked (cf *about whom we talked*)

And if we accept that *whose* is a separate form from *who*, then it also has property (i).

It is not clear how to implement this, e.g. saying that *who* and *that* are *nominative* explains the data above, but makes it hard to explain why they can be associated with accusative gaps:

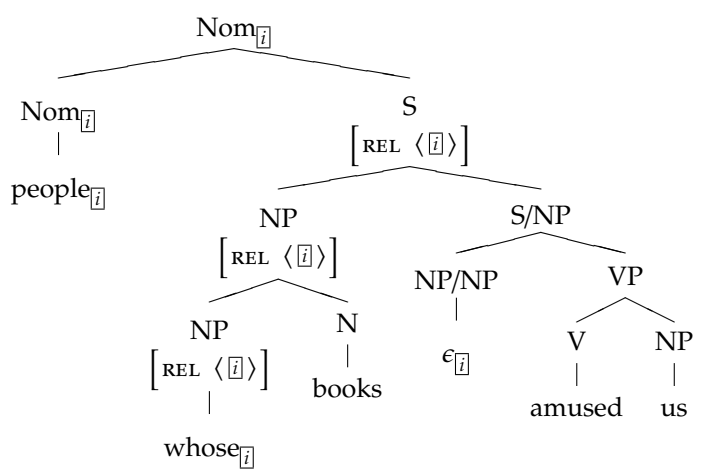
(26) The person [*who/that* we spoke to Δ_{acc}].

3.2 Subject Relatives

(27) a. the person who spoke to me
b. the person that spoke to me
c. the book which amused us
d. the book whose cover amused us

In principle, these might just be instances of 'ordinary' *wh*-relatives:

(28)



And in fact, we would need to do some special work to exclude this as an analysis.

The main reason for doubting this is that subject extraction works differently in interrogatives, compare:

(29) a. Who do you admire Δ? (non-subject, subject-aux inversion)
b. Who admires you? (subject, no subject-aux inversion)

So some analyses use a different approach here, treating subject relatives as essentially normal NP-VP structures (e.g. Sag (1997)).

The main problem with subject relatives is that they are subject to some special constraints, notably the relative pronoun (or *that*) is obligatory (in most dialects):

(30) a. the people [$\left\{\begin{array}{c}\text{who}\\ \text{that}\\ \epsilon\end{array}\right\}$ we spoke to Δ] (non subject relative)
b. the people [$\left\{\begin{array}{c}\text{who}\\ \text{that}\end{array}\right\}$ Δ spoke to us] (subject relative)
c. *the people [ϵ spoke to us] (subject relative)

It has sometimes been argued that this is some kind of processing constraint (this is not very convincing, since there is dialectal variation).

It's not clear (to me) what the right solution to this is (see below)

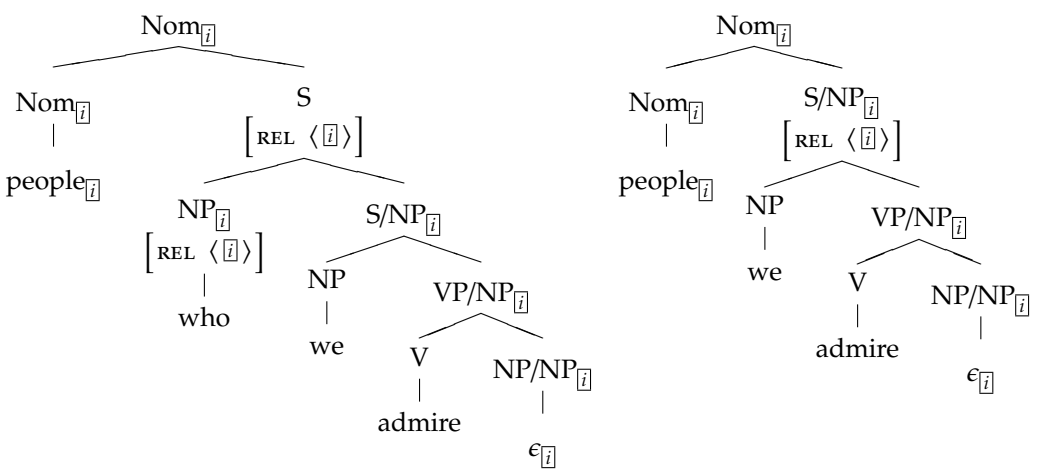
3.3 Bare Relatives

Except for subject relatives, a nominal relative pronoun can be omitted:

(31) a. people (who/that) we admire Δ
b. people (who/that) I think we admire Δ

A straightforward analysis is that these are cases of a gap with no filler (cf the second tree in (32), the first is the 'normal' case):

(32)



So now we have, relative clauses must satisfy (33):

(33) *relc* ↦ *clause* & $\begin{bmatrix}\text{REL} & \langle i \rangle\\ \text{MOD} & N_i\end{bmatrix}$

- and be either:
  - a head-filler structure – a *wh-relative-clause*
  - a 'gapped' clause – *bare-relative-clause*

(34) a. *wh-relc* ↦ *relc* & *head-filler-phrase*
b. *bare-relc* ↦ *relc* $\begin{bmatrix}\text{SLASH} & \langle NP i \rangle\\ \text{MOD} & 1\end{bmatrix}$

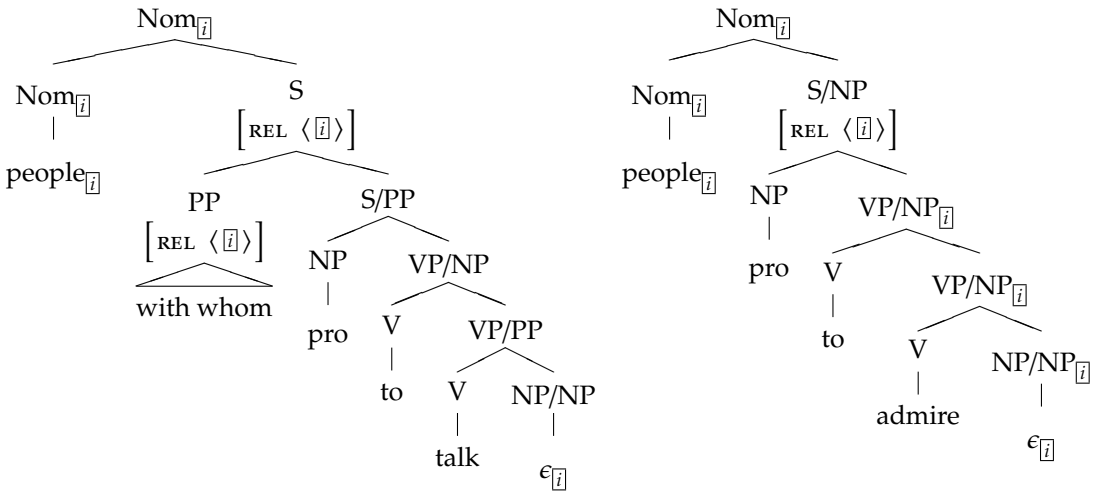
3.4 Non-finite Relatives

- The following are some examples of infinitival relatives clauses:

(35) a. people [with whom to talk Δ] (with relative pronoun, *wh-*)
b. people [to talk to Δ] (no relative pronoun: *non-wh*)

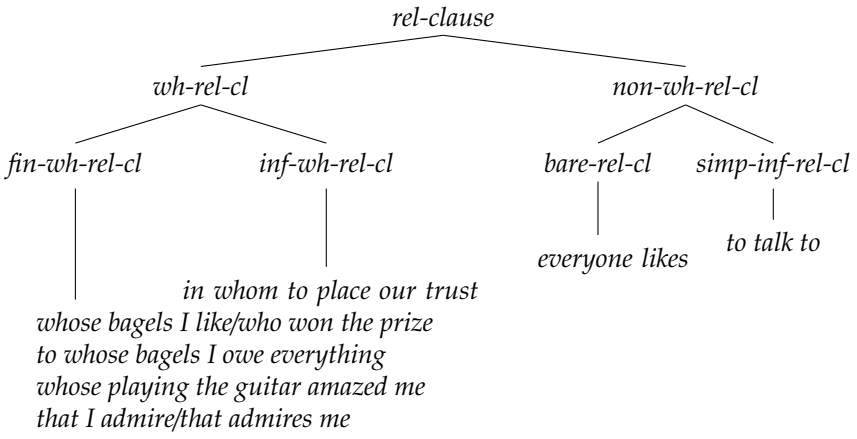
- Cases involving a *wh*-expression (relative pronoun) look very like finite *wh*-relatives; in fact, if we are prepared to allow an unexpressed ('pro') subject in non-finites, they are very similar indeed:
- and, like finite relatives, we both we have 'head-filler' and 'gap-with-no-filler' variants (compare (32)):

(36)



So we appear to have *wh-relatives* and *non-wh-relatives*, and either can be finite or non-finite, as in (37)

(37)



Unfortunately, things are not quite this simple, since non-finite relatives are subject to some (rather odd restrictions).

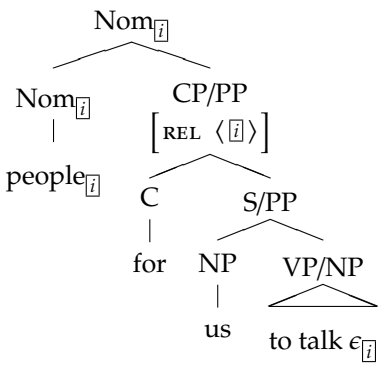
There is a rather puzzling restriction that in a non-finite *wh*-relative, the filler must be a PP (unlike finite relatives where it can be an NP or PP):

(38) a. people [with whom to talk Δ]
b. *people [who to talk with Δ]

(39) *inf-wh-fill-relc* ↦ $\left[\text{NON-HEAD-DAUGHTER} \langle PP \rangle\right]$

Moreover, 'bare' non-finites (*simp-inf-rel-cl* in (37)) are not restricted to cases without a subject like (40a), they can also have subject, but then there must be *for* complementiser. So, we need to allow structures like (40):

(40)

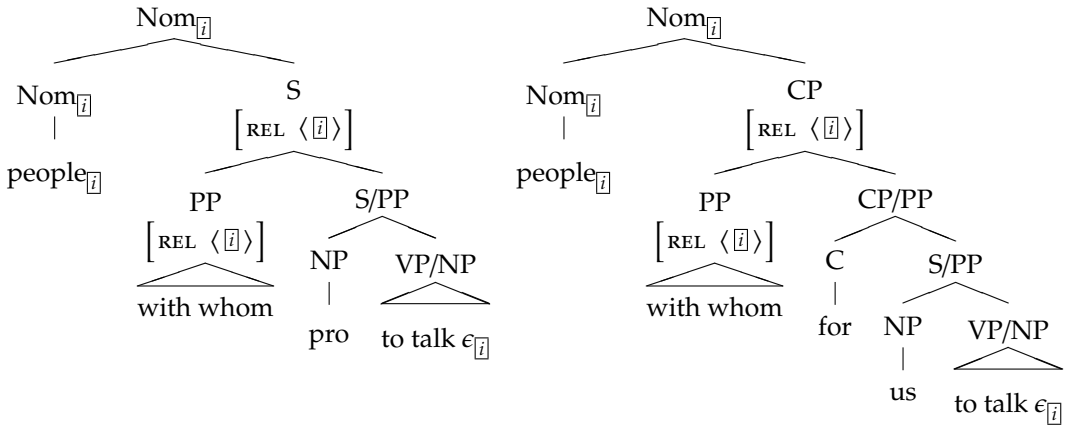


- The complication is that if there is a *for* (complementiser) there cannot be a relative expression:

(41) a. people [for us to talk to]
b. *people [to whom for us to talk]

We can express what is wrong with (42) if we say the head of a relative clause cannot be a 'slashed CP' — CP'/XP:

(42) *people to whom for us to talk to



3.5 Non-restrictive Relatives

See Arnold (2007) and references there (basically the same syntax, but different semantics)

References

Arnold, D.J. 2007. Non-Restrictive Relatives are not Orphans. *Journal of Linguistics* 43(2), 272–309.

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