Chapter 11: Relative Clause Constructions

Syntactic Constructions in English
Kim and Michaelis (2020)
Introduction

Nonsubject Wh-Relative Clauses

Subject Relative Clauses

That-Relative Clauses

Infinitival and Bare Relative Clauses

Restrictive vs. Nonrestrictive Relative Clauses

Island Constraints on the Filler-Gap Dependencies

Conclusion
Basic properties

- English relative clauses, which modifies a preceding NP, are also a type of long distance dependency constructions.

  (1) a. The video [which [you recommended __ ]] was really terrific.
  
  b. The video [which [I thought [you recommended __ ]]] was really terrific.
  
  c. The video [which [I thought [John told us [you recommended __ ]]]] was really terrific.
Basic properties (cont’d)

There are several different properties that we can use to classify English relative clauses. First, we can classify them by the type of missing element in the relative clause.

\[(2)\]

a. the student who __ won the prize
b. the student who everyone likes __
c. the baker from whom I bought these bagels __
d. the person whom John gave the book to __
e. the day when I met her __
f. the place where we can relax __
Second, relative clauses can be classified according to the type of relative pronoun. In English we find *wh*-relatives, *that*-relatives, and bare relatives.

(3) a. The president [who [Fred voted for]] has resigned.
    b. The president [that [Fred voted for]] dislikes his opponents.
    c. The president [__ [Fred voted for]] has resigned.

Third, relative clauses can also be classified according to the finiteness of the clause.

(4) a. He is the kind of person [with whom to consult __ ].
    b. These are the things [for which to be thankful __ ].
    c. We will invite volunteers [on whom to work __ ].
In addition, English allows so-called ‘reduced’ relative clauses.

(5) a. the person (who is) standing on my foot  
    b. the prophet (who is) descended from heaven  
    c. the bills (which were) passed by the House yesterday  
    d. the people (who are) in Rome  
    e. the people (who are) happy with the proposal

These examples are ‘reduced’ in the sense that the string ‘wh-phrase + be’ appears to be omitted, as indicated by the parentheses.
One thing we can observe here is that like *wh*-questions, relative clauses have bipartite structures: a relative pronoun (including a *wh*-element) and a sentence with a missing element (S/XP).

(6) a. the senators [who [Fred met ___]]
   b. the apple [that [John ate ___]]
   c. the problem [ ___ [you told us about ___]]

(7) a. *wh*-element S/XP
   b. that S/XP
   c. [___] S/XP
Non-subject *wh*-relative clauses: example tree

- A sample tree

(8)  
\[
\begin{array}{c}
N' \\
\mid \\
N'_{i} \\
\mid \\
\text{senators} \\
\mid \\
[1]NP[REL \ i] \\
\mid \\
\text{who} \\
\mid \\
S[REL \ i] \\
\mid \\
S[GAP \ \langle 1\NP \rangle] \\
\mid \\
NP \\
\mid \\
Fred \\
\mid \\
VP[GAP \ \langle 1\NP \rangle] \\
\mid \\
V[GAP \ \langle 1\NP \rangle] \\
\mid \\
\text{met}
\end{array}
\]

- The relative pronoun’s \text{REL} value is identical to the index value of the antecedent nominal.

(9)  
a. the man [who you think knows/*know the answer]  
b. the men [who you think know/*knows the answer]
Postnominal modifiers

(10) a. the people [happy with the proposal]
b. the person [standing on my foot]
c. the bills [passed by the House yesterday]
d. the paper [to finish by tomorrow]
e. the student [in the classroom]
(11) Postnominal modifiers (cont’d)

```
(11) NP
   | DP
   |   N'
   |   [MOD ⟨[1]N'⟩]
   |   V
   |   boy
   |   [MOD ⟨[1]N'⟩]
   |   PP
   |   standing
   |   on my foot
```
Head-modifier construction

\[(12) \quad \text{HEAD-MOD CONSTRUCTION:}\]
\[XP \rightarrow [\text{MOD } \langle 1 \rangle], \ H\]
Restriction on postnominal modifiers

- Not all phrases can function as postmodifiers. In particular, a base VP or finite VP cannot be found in this environment.

(13) a. *the person [stand on my foot]
   b. *the person [stood on my foot]
   c. *the person [stands on my foot]

- A complete sentence with no missing expression cannot serve as a postnominal modifier either.

(14) a. *The student met the senator [John met Bill].
   b. *The student met the senator [that John met Bill].
   c. *The student met the senator [for John to meet Bill].
Since all the relative clauses (except bare relatives) are introduced by a relative pronoun, it is reasonable to assume that a clause with the $\text{[REL } i\text{]}$ feature also bears the $\text{MOD}$ feature as a constructional constraint.

(15) \textbf{HEAD-REL MOD CONSTRUCTION:}

\[ N' \rightarrow [I]N'_i, \quad S\left[ \text{REL} \quad i \right] \quad \text{MOD} \quad \langle 1 \rangle \]

The construction, as a subtype of the \textbf{HEAD-MOD CONSTRUCTION}, basically ensures that a clause marked with the $\text{REL}$ feature modifies a preceding noun with the identical index value.
(16)  

\[ \text{senators} \ [\text{NP} \ [\text{REL} \ i] \ \text{whom} \ \text{NP} \ [\text{REL} \ i] \ \text{S} \ [\text{GAP} \ (2)] \ \text{VP} \ [\text{GAP} \ (2)] \ \text{met} \]
Syntactic identity relation between gap and filler

Since the relative clause is a type of the **HEAD-FILLER CONSTRUCTION**, there must be a total syntactic identity between the gap and the filler with a REL value.

(17) a. Jack is the person [[NP whom] [Jenny fell in love with [NP __ ]]].
    b. Jack is the person [[PP with whom] [Jenny fell in love [PP __ ]]].

(18) a. *Jack is the person [[NP whom] [Jenny fell in love [PP __ ]]]
    .
    b. *Jack is the person [[PP with whom] [Jenny fell in love with [NP __ ]]].
Long distance dependency: example tree

(19)

```
(2) N_i'  
  \[\text{REL } i\]  
  \[\text{MOD } \langle 2N' \rangle\]

video

1NP  
\[\text{REL } i\]

which

NP  
\[\text{GAP } \langle 1NP \rangle\]

you

thought

S

S

S

S

I

V

NP

VP

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle

GAP \langle 1NP \rangle
```
Just like the QUE feature, the nonlocal REL feature can also come from a deeper position within the nonhead daughter of the relative clause.

(20) a. I met the critic [whose remarks [I wanted to object to __ ]].
   b. This is the friend [for whose mother [Kim gave a party __ ]].
   c. The teacher set us a problem [the answer to which [we can find __ in the textbook]].
Nonlocal REL feature: example tree

\[(21)\]  
\[
N' \quad S \quad \left[ \text{MOD} \langle \overbrace{2N_i'} \rangle \text{ GAP } \langle \text{ } \rangle \text{ REL } i \right]
\]

friend

\[
[1PP] \quad \left[ \text{REL } i \right]
\]

for

\[
[0x0] \quad \left[ \text{REL } i \right]
\]

whose

\[
\text{Kim} \quad \left[ \text{GAP } \langle 1PP \rangle \right]
\]

\[
\text{gave a party}
\]
With respect to the modification function, subject relative clauses do not differ greatly from non-subject relative clauses.

One major difference is that the presence of a relative pronoun (including *that*) is obligatory, and bare relative clauses are ungrammatical.

(22) a. We called the senators [who] met Fred.
    b. The kid picked up the apple [that] fell down on the ground.

(23) a. *[The student [__ met John]] came.
    b. *[The problem [__ intrigued us]] bothered me.
Subject relative clauses: example tree

(24)

\[
\begin{array}{c}
\text{senators} \\
\text{who} \quad \text{met} \quad \text{arg-st} \quad \text{Fred}
\end{array}
\]
This analysis does not license bare subject relatives.

However, the analysis also predicts that the subject of an embedded clause can be gapped.

(25) a. He made a statement [which [\textit{everyone thought} [\textit{was really interesting and important}]]].

b. They all agreed to include those matters [[\textit{everyone believed} [\textit{had been excluded from the Treaty}]]].
Embedded subject gap relatives: example tree

(26)

statement

\[3N_{i'}\]

which

everyone

thought

\[\text{was}\]

\[\text{interesting} \ldots\]
As noted earlier, *that* can be used either as a complementizer or as a relative pronoun.

(27) Complementizer *that*:
   a. Mary knows that John was elected.
   b. That John was elected surprised Frank.
   c. Mary told Bill that John was elected.

(28) Relative Pronoun *that*:
   a. This is the book [that we had read].
   b. The president abandoned the people [that voted for him].
   c. It is an argument [that people think will never end in Egypt].
Complementizer *that* vs. relative pronoun *that*: example trees

(29)  

a. Complementizer  

Comp  

\[ \text{that} \]  

\[ \ldots \]  

b. Syntactic Constructions  

Chapter 11  

\[ S[\text{REL } i] \]  

\[ [1]\text{NP}[\text{REL } i]S[\text{GAP } \langle [1]\text{NP} \rangle] \]  

\[ \text{that} \]  

\[ \ldots \]
The relative pronoun *that* differs from the *wh*-relative pronoun in several respects.

For example, the relative pronoun *that* disallows genitive and piped piping.

(30) a. the student whose turn it was  
     b. *the student that’s turn it was  

(31) a. the pencil with which he is writing  
     b. *the pencil with that he is writing  

In addition, *that* is used only in finite relative clauses.

(32) a. a pencil with which to write  
     b. *a pencil with that to write
An infinitival clause can also function as a modifier to a preceding noun.

Infinitival relative clauses in principle can but need not contain a relative pronoun.

(33) a. He bought a bench [on which to sit __ ].
   b. He bought a refrigerator [in which to put the beer __ ].

(34) a. There is a book [(for you) to give to Alice].
   b. There is a bench [(for you) to sit on].
Infinitival *wh*-relative clauses: example tree

(35)

```
(2N_i)

bench

[1PP[REL i]]

on which

[2N_i']

S

REL i
MOD ⟨2N_i’⟩
GAP ⟨ ⟩

S

GAP ⟨1PP⟩

VP

SPR ⟨PRO⟩

GAP ⟨1PP⟩

triangle

to sit
```
Infinitival *wh*-relative clauses: no overt subject

- Infinitival *wh*-relatives have an additional constraint on the realization of the subject.

  (36) a. a bench on which (*for Jerry) to sit __
      b. a refrigerator in which (*for you) to put the beer __

  (37) a. Fred knows [which politician (*for Karen) to vote for].
      b. Karen asked [where (*for Washington) to put the chairs].

- This tells us that both infinitival *wh*-relatives and infinitival *wh*-questions are subject to the same constraint.
Ill-formed example tree

(38)

```
N'
  /   \                        /   \\
N'    *S[REL i]              CP[GAP ⟨1PP⟩]
     /                     /  \
bench [1PP[REL i]]  on which C
                     /  \
                      /
                     for S[GAP ⟨1PP⟩]
                      /  \
                     /
                     Jerry to sit
```
How then can we deal with infinitival bare relative clauses?

(39)  a. the paper [(for us) to read __ by tomorrow]
    b. the paper [(for us) to finish __ by tomorrow]

Notice here that unlike infinitival *wh*-relative clauses, these lack a relative pronoun.
Bare infinitive relative clauses: example tree

(40) NP
   /   \
  DP   N'[GAP ⟨ ⟩]
     /   \   S
   [1]N'_i                   VP
     / \     [GAP ⟨NP_i[acc]⟩]
   paper                   [SPR ⟨NP[PRO]⟩]  [GAP ⟨NP_i[acc]⟩]
                                  to finish
English also allows finite bare relatives with the gapped element being accusative.

(41) a. the person [I met __ ]
    b. the box [we put the books in __ ]
HEAD-REL BARE MOD CONSTRUCTION:

(42) \[
\text{N'} \left[ \text{GAP} \langle \quad \rangle \right] \rightarrow \quad \text{1N'}_i, \quad \text{S} \left[ \text{MOD} \langle \text{1} \rangle \text{GAP} \langle \text{NP}_i[\text{acc}] \rangle \right]
\]

(43)

```
        [GAP ⟨⟩]
        /          \        S
      /            \      [MOD ⟨1N'⟩]
    person       /          \[GAP ⟨NPi⟩]
      \                     \              V[GAP ⟨NPi⟩]
        \                     \               [gap ⟨NPi⟩]
          \                     \             met
            \                     \
```

Syntactic Constructions

Chapter 11
Linguists draw an interpretive distinction between ‘restrictive’ and ‘nonrestrictive’ relative clauses.

(44) a. The person who John asked for help thinks he is foolish.
    b. The person, who John asked for help, thinks he is foolish.

The relative clause in (44a) semantically restricts the denotation of *person*, whereas that in (44b) simply gives additional information about *the person*.

(45) a. John has two sisters who became lawyers. (‘restrictive’)
    b. John has two sisters, who became lawyers. (‘non-restrictive’)

"Syntactic Constructions"

Chapter 11
Restrictive vs. nonrestrictive relative clauses: structural differences

- This meaning difference has given rise to the idea that the RRC modifies the meaning of \( N' \) – a noun phrase without a determiner – whereas the NRC modifies a fully determined NP.

(46)  
Restrictive Relative Clause (RRC):

```
NP
   ┌──────┐
   │      │
   │ N'   │
   └──────┘
   │      │
   │ DP   │
   └──────┘
  │      │
  └─ the ┘
```

(47)  
Non-restrictive Relative Clause (NRC):

```
NP
   ┌──────┐
   │      │
   │ NP   │
   └──────┘
  │      │
  └─ Frieda, ┘
```

```
NP
   ┌──────┐
   │      │
   │ NP   │
   └──────┘
  │      │
  └─ whom ┘
```

```
NP
   ┌──────┐
   │      │
   │ S    │
   └──────┘
```

```
S
   ┌──────┐
   │      │
   │ whom │
   └──────┘
```

```
S
   ┌──────┐
   │      │
   │ we respect │
   └──────┘
```
In terms of the syntactic combination, the RRC is licensed by the **HEAD-MOD CONSTRUCTION**, but the NRC is not, since the NP and the appositive relative clause is not in a head-modifier relation.

The NRC is quite similar to the nominal apposition constructions.

(48) a. He was one of the few that told [the president], [Johnson], to get out of Vietnam.
    b. [Dr. William], [a consultant from Seoul], is to head the new unit.
    c. That was his first trip to [the capital of Korea], Seoul.
In this respect, the NRC is also similar to nominal appositions in adding a proposition that describes a property about the anchor.

(49) a. [Isabelle], [who the police looked for], went into exile in 1975.

b. [Politicians], [who make extravagant promises], cannot be trusted.

c. For camp, the children need [sturdy shoes], [which are expensive].
Appositive construction

(50)  **APPOSITIVE CONSTRUCTION:**

\[
\text{NP}\left[\text{SEM}\left[\begin{array}{c}
\text{IND} \\
\text{RELS}
\end{array}\right]\langle 1, 2 \rangle \right] \rightarrow \text{NP}\left[\text{SEM}\left[\begin{array}{c}
\text{IND} \\
\text{RELS}
\end{array}\right]\langle 1 \rangle \right], \text{NP/S}\left[\text{SEM}\left[\begin{array}{c}
\text{IND} \\
\text{RELS}
\end{array}\right]\langle 2 \rangle \right]
\]
Isabelle, NP

(51) 

\[
\text{appositive-cxt} \\
\text{SEM | RELS} \langle 1, 2 \rangle \\
\]

NP

\[
\text{SEM | RELS} \langle 1 \rangle \\
\]

S

\[
\text{SEM | RELS} \langle 2 \rangle \\
\]

who

the police looked for
The structural difference can provide us with a way of explaining why the RRC cannot modify a pronoun or proper noun.

(52) a. I met the man who grows peaches.
    b. I met the lady from France who grows peaches.

(53) a. *I met John who grows peaches.
    b. *I met her who grows peaches.

(54) a. In the classroom, the teacher praised Lee, whom I also respect.
    b. Reagan, whom the Republicans nominated in 1980, lived most of his life in California.
There is another semantic implication of the restrictive-non-restrictive distinction: only a restrictive clause can modify a quantified NP like every $N$ or no $N$.

(55) a. Every student who attended the party had a good time.
    b. *Every student, who attended the party, had a good time.

(56) a. No student who scored 80 or more in the exam was ever failed.
    b. *No student, who scored 80 or more in the exam, was ever failed.
The distinction between N’ and NP has also been used to explain why a restrictive clause must precede a nonrestrictive clause.

(57) a. The contestant who won the first prize, who is the judge’s brother-in-law, sang dreadfully.

b. *The contestant, who is the judge’s brother-in-law, who won the first prize sang dreadfully.
Restrictive vs. nonrestrictive relative clauses: properties explained (cont’d)

(58) a. 

```
NP
   NP
      DP
         the
N'
  contestant
S
  who is the judge’s . . .
```

b. 

```
*NP
   NP
      NP
         the contestant,
S
   S
      S
         who is the judge’s brother-in-law,
```

the contestant, who won the first prize,
Island constraints

- We have observed that in *wh*-interrogatives and relative clauses, the filler and the gap can be in a long-distance relationship.
- Yet, there are constructions in which this dependency seems to be restricted in certain ways.

(59) a. [Who] did he believe [that he would one day meet __ ]?
b. [Which celebrity] did he mention [that he had run into __ ]?

(60) a. *[Who] did he believe [the claim that he had never met __ ]?
b. *[Which celebrity] did he mention [the fact that he had run into __ ]?
Island constraints: example trees

(61) a. \[ \text{VP}_{\text{GAP } \langle \text{NP} \rangle} \]

\[ \text{V} \]

\[ \text{believe} \]

\[ \text{C} \]

\[ \text{that} \]

\[ \text{S}_{\text{GAP } \langle \text{NP} \rangle} \]

\[ \text{he would meet} \]

b. \[ \text{VP}_{\text{GAP } \langle \text{NP} \rangle} \]

\[ \text{V} \]

\[ \text{believe} \]

\[ \text{NP}_{\text{GAP } \langle \text{NP} \rangle} \]

\[ \text{DP} \]

\[ \text{the} \]

\[ \text{N} \]

\[ \text{claim} \]

\[ \text{that he has never met} \]
Types of island constraints

- The Coordinate Structure Constraint (CSC): In a coordinate structure, no element in one conjunct alone can be *wh*-questioned or relativized.

  (62) a. Bill cooked supper and washed the dishes.
  b. *What did Bill [[cook __ ] and [wash the dishes]]?*
  c. *What did Bill [[cook supper] and [wash __ ]]?*

- The Complex Noun Phrase Constraint (CNPC): No element within a CP or S dominated by an NP can be *wh*-questioned or relativized.

  (63) a. He refuted the proof that you cannot square it.
  b. *What did he refute [the [proof [that you cannot square __ ]]]?*

  (64) a. They met someone [who knows the professor].
  b. *[Which professor] did they meet [someone [who knows __ ]]?*
The Sentential Subject Constraint (SSC): An element within a clausal subject cannot be \textit{wh}-questioned or relativized.

(65) a. [That he has met the professor] is extremely unlikely.
   b. *Who is [that he has met __ ] extremely unlikely?

The Left-Branch Constraint (LBC): No NP that is the leftmost constituent of a larger NP can be \textit{wh}-questioned or relativized.

(66) a. She bought [John’s] book.
   b. *[Whose] did she buy __ book?
The Adjunct Clause Constraint: An element within an adjunct cannot be questioned or relativized.

(67) a. Which topic did you choose __ without getting his approval?
    b. *Which topic did you get bored [because Mary talked about __ ]?

Indirect Wh-question Constraint: An NP that is within an indirect question cannot be questioned or relativized.

(68) a. Did John wonder who would win the game?
    b. *What did John wonder [who would win __ ]?
Island constraints: a sketch

(69) *VP

\[
\text{VP[ GAP } \langle \text{NP} \rangle \text{]} \quad \text{Conj} \quad \text{VP[ GAP } \langle \text{NP} \rangle \text{]}
\]

\[
\text{V[ GAP } \langle \text{NP} \rangle \text{]} \quad \text{and} \quad \text{V} \quad \text{NP}
\]

- cook
- wash
- the dishes
The existence of some island constraints has been questioned since violations of island constraints can sometimes produce acceptable sentences.

(70) a. What did he get the impression that the problem really was __ ? (CNPC)

b. This is the paper that we really need to find the linguist who understands __ . (CNPC)
Examples involving island constraints can have identical syntactic structures but differ in acceptability.

(71) a. *Which rebel leader did you hear [Cheney’s rumor [that the CIA assassinated __ ]]?
b. ??Which rebel leader did you hear [the rumor [that the CIA assassinated __ ]]?
c. ?Which rebel leader did you hear [a rumor [that the CIA assassinated __ ]]? 
d. Which rebel leader did you hear [rumors [that the CIA assassinated __ ]]? 

This implies that processing factors closely interact with the grammar of filler-gap constructions.
In this chapter, we explored the syntax of various types of English relative clauses.

Like the wh-interrogative constructions explored in the previous chapter, relative clauses have been taken as unbounded dependency constructions.

Adopting the same mechanisms that we used for the analysis of wh-interrogatives, we offered a declarative, feature-based analysis of a range of relative clauses in English, including subject wh-relatives, non-subject wh-relatives, that-relatives, infinitival relatives, and bare relatives.
To capture the linkage between the filler *wh*-relative pronoun (including *that*) and the gap in the relative clause, as in the analysis of *wh*-interrogatives, we employed key mechanisms including ARC (the Argument Realization Constraint), head features like MOD, nonlocal features like GAP and REL, NIP (the Nonlocal Inheritance Principle), constructional constraints in the HEAD-FILLER CONSTRUCTION, and subtypes of the HEAD-MOD CONSTRUCTION (HEAD-REL MOD and HEAD-REL BARE MOD).

We demonstrated that interactions among these can license each sub-pattern of the English relative clause constructions.
In addition, we discussed two important phenomena: differences between restrictive and non-restrictive relative clauses, and island constraints on filler-gap dependencies.

We saw that restrictive and non-restrictive relative clauses behave differently with respect to both syntax and semantics.

Island constraints refer to a configuration that blocks a syntactic dependency (e.g., movement or linkage) across the particular structure.

We discussed how these constraints can be interpreted within the present system, although many, if not all, island constraints are potentially reducible to non-syntactic (interpretive processing or discourse) principles.