Ling 566
Nov 12, 2019
Raising, Control
Overview

• Intro to topic
• Infinitival to
• (Subject) raising verbs
• (Subject) control verbs
• Raising/control in TG
• Object raising and object control
• Reading questions
Where We Are & Where We’re Going

• In the last two lectures, we have seen a kind of subject sharing -- that is, cases where one NP served as the SPR for two different verbs. Examples?

• Last time, we looked at “dummy” NPs -- that is, non-referential NPs. Examples?

• Today, we’re going to look at the kind of subject sharing we saw with be in more detail.

• Then we’ll look at another kind of subject sharing, using dummy NPs in differentiating the two kinds.
What Makes This Topic Different

• The phenomena we have looked at so far (agreement, binding, imperatives, passives, existentials, extraposition) are easy to pick out on the basis of their form alone.

• In this chapter, we look at constructions with the general form NP-V-(NP)-to-VP. It turns out that they divide into two kinds, differing in both syntactic and semantic properties.
The Central Idea

• *Pat continues to avoid conflict* and *Pat tries to avoid conflict* both have the form NP-V-to-VP

• But *continues* is semantically a one-place predicate, expressing a property of a situation (namely, that it continues to be the case)

• Whereas *tries* is semantically a two-place predicate, expressing a relation between someone who tries and a situation s/he tries to bring about.

• This semantic difference has syntactic effects.
The Status of Infinitival to

• It’s not obvious what part of speech to assign to to.

• It’s not the same as the preposition to:

  *Pat aspires to stardom*
  
  *Pat aspires to be a good actor*
  
  *Pat aspires to stardom and to be a good actor*

• We call it an auxiliary verb, because this will make our analysis of auxiliaries a little simpler.
The Lexical Entry for Infinitival *to*
The Syntax of Infinitival *to*

- This makes it a verb, because AUX is declared on *verb*
- [INF +] uniquely identifies the infinitival *to*
- Verbs select complements with different combinations of FORM and INF values, e.g.
  - complements of *condescend* are [FORM base] and [INF +]
  - complements of *should* are [FORM base] and [INF −]
  - complements of *help* are [FORM base]
- The meaning of [AUX +] becomes clear in Chapter 13.
The Argument Structure

- What kind of constituent is the second argument?
- The tagging of the first argument and the SPR of the second argument is exactly like *be*. 
• The INDEX value is taken from the SEM of the second argument.
• So what is the semantic contribution of to?
Dummies and *continue*

- Some examples:

  *There continue to be seats available.*
  *It continues to matter that we lost.*
  *Advantage continues to be taken of the innocent.*
  *It continues to be seats available.*
  *There continues to matter that we lost.*
  *Advantage continues to be kept of the innocent.*

- Generalization: Non-referential NPs can appear as the subject of *continue* just in case they could be the subject of the complement of *continue*.
A New Type, for Verbs like *continue*

Subject-Raising Verb Lexeme (*srv-lxm*):

\[
\begin{align*}
\text{ARG-ST} & \left[ 1, \left[ \text{SPR} \left[ 1 \right] \right] \right] \\
\text{SEM} & \left[ \text{RESTR} \left[ \left[ \text{ARG} \ s_2 \right] \right] \right]
\end{align*}
\]

- Notes on the ARG-ST constraints
  - The subject sharing is just like for *be* and *to*: the subject of *continue* is also the subject of its complement
  - *continue* imposes no other constraints on its subject

- Note on the SEM constraint
  - The index of the complement must be an argument of the predication introduced by the verb
The Lexical Entry for \textit{continue}

\[
\langle \text{continue}, \begin{bmatrix}
\text{srv-lxm} \\
\text{ARG-ST} \\
\text{SEM}
\end{bmatrix}
\begin{aligned}
\langle X, [\text{VP INF } +] \rangle \\
\text{INDEX } s_1 \\
\text{RESTR} \langle \left[\text{RELN SIT} \text{continue}\right] s_1 \rangle
\end{aligned}
\rangle
\]
Entry for *continue*, with Inherited Information

\[
\langle \text{continue}, \rangle
\]

\[
\begin{align*}
\text{SYN} & : \begin{bmatrix}
\text{HEAD} & \text{verb} \\
\text{PRED} & - \\
\text{INF} & - \\
\text{AGR} & 2
\end{bmatrix} \\
\text{VAL} & : \begin{bmatrix}
\text{SPR} & \langle \text{[AGR} 2 \text{]} \rangle
\end{bmatrix}
\end{align*}
\]

\[
\begin{align*}
\text{ARG-ST} & : \begin{bmatrix}
\text{HEAD} & \text{nominal} \\
\text{SPR} & \langle \rangle \\
\text{COMPS} & \langle \rangle
\end{bmatrix} , \begin{bmatrix}
\text{VP} & + \\
\text{SPR} & \langle 1 \rangle \\
\text{INDEX} & s_2
\end{bmatrix}
\end{align*}
\]

\[
\begin{align*}
\text{SEM} & : \begin{bmatrix}
\text{MODE} & \text{prop} \\
\text{INDEX} & s_1
\end{bmatrix} \\
\text{RESTR} & : \begin{bmatrix}
\text{RELN} & \text{continue} \\
\text{SIT} & s_1 \\
\text{ARG} & s_2
\end{bmatrix}
\end{align*}
\]
Key Property of Subject-Raising Verbs

The subject plays no semantic role in the predication introduced by the SRV itself. Its semantic role (if any) is only in the predication introduced in the complement.
Hence, constraints on the subjects of SRVs are imposed by their complements

- SRVs take dummy subjects when and only when their complements do.
- SRVs take idiom chunk subjects when and only when their complements do.
- Passivizing the verb in the VP complement of an SRV doesn’t change the truth conditions of the whole sentence:

  *Skeptics continue to question your hypothesis* ~

  *Your hypothesis continues to be questioned by skeptics*
Continue with active complement

[Diagram showing the structure of a sentence involving active complementation.]

S
  └─ [1]NP
      └─ NOM
          └─ Skeptics

VP[SPR ⟨1⟩]
  └─ V
      └─ continue
          └─ VP[SPR ⟨1⟩]
              └─ to
                  └─ VP[SPR ⟨1⟩]
                      └─ NP
                          └─ your hypothesis

RESTR
  └─ [RELN
      └─ [Doubted
          └─ question
              └─ [Doubter
                  └─ i
                      └─ your hypothesis
                          └─ j
                              └─ your hypothesis

Continue with passive complement

Your hypothesis

Your hypothesis continues to be questioned by skeptics.
Control Verbs

• Control verbs, like *try*, appear in contexts that look just like the contexts for raising verbs: *Pat tried to stay calm* looks superficially like *Pat continued to stay calm*

• Control verbs also share their subjects with their complements, but in a different way.

• A control verb expresses a relation between the referent of its subject and the situation denoted by its complement.
Control Verbs Are Not Transparent

• They never take dummies or idiom chunks as subjects.
  *There try to be bugs in my program
  *It tries to upset me that the Giants lost
  *Advantage tries to be taken of tourists

• Passivizing the complement’s verb changes the truth conditions.
  
  *The police tried to arrest disruptive demonstrators ≠
  Disruptive demonstrators tried to be arrested by the police
A New Type

**Subject-Control Verb Lexeme (scv-lxm):**

\[
\begin{align*}
&\text{ARG-ST} \left< \text{NP}_i, \left[ \text{SPR} \big< \text{NP}_i \big> \right] \text{COMPS} \big< \big> \text{INDEX} s_2 \right]\ \\
&\text{SEM} \left[ \text{RESTR} \left< \left[ \text{ARG} s_2 \right] \right> \right]
\end{align*}
\]

- This differs from *srv-lxm* in that the first argument and the SPR of the second argument are coindexed, not tagged.
- This means that they only need to share INDEX values, but may differ on other features.
- And the first argument -- the subject -- must have an INDEX value, so it cannot be non-referential.
The lexical entry for *try*

\[
\begin{align*}
&\text{ARG-ST} \quad \left\langle \text{NP}_i , \left[ \text{INF} + \right] \right. \\
&\text{SEM} \quad \left. \left[ \text{INDEX} \quad s_1 \right. \right.
\end{align*}
\]

Note that the subject (NP\(_i\)) plays a semantic role with respect to the verb, namely the “TRIER”
Entry for *try*, with Inherited Information

Things to Note:

- The first argument has an index
- The first argument is coindexed with the SPR of the second argument
- Both the first and second arguments play semantic roles in the ‘try’ relation
- Very little had to be stipulated in the entry for *try*
Questions

• What rules out dummies and idiom chunks as subjects of *try*?

• What accounts for the semantic non-equivalence of pairs like the following?
  - *Reporters tried to interview the candidate*
  - *The candidate tried to be interviewed by reporters*

• Why does *continue* behave differently in these respects?
Try with an active complement

[Diagram of syntactic tree]

The police

1NP_i

V[SPR \langle 1_i \rangle]

V[SPR \langle 2_i \rangle]

V[SPR \langle 1_i \rangle]

V[SPR \langle 2_i \rangle]

V[SPR \langle 2_i \rangle]

NP_j

depicting the structure of a sentence with active complement.
Try with a passive complement

S

[1]NP_j

The suspects

RELN  try

SIT  s_2

TRIER  j

TRIED  s_1

VP[SPR 〈1〉]

V[SPR 〈1_j〉]

V[SPR 〈2_j〉]

V[SPR 〈2_j〉]

V[SPR 〈2_j〉]

be

arrested

VP[SPR 〈2〉]

PP_i

P_i

NP_i

by

the police
The main formal difference between raising and control verbs is in ARG-ST

\[ \langle \text{NP}_i , \begin{bmatrix} \text{INF} + \\ \text{SPR} \langle \text{NP}_i \rangle \\ \text{SEM} \begin{bmatrix} \text{INDEX} \\ s_2 \end{bmatrix} \end{bmatrix} \rangle \quad \langle \Box \text{NP} , \begin{bmatrix} \text{INF} + \\ \text{SPR} \langle \Box \rangle \\ \text{SEM} \begin{bmatrix} \text{INDEX} \\ s_2 \end{bmatrix} \end{bmatrix} \rangle \]

CONTROL  RAISING

Which is which?
Why?
Raising & Control in Transformational Grammar

• Raising

_____ continue [the dogs to bark]

• Control

[the dogs]_i try [NP_i to bark]

• In early TG, the NP got deleted.
• In more recent TG, it’s a silent pronoun.
We make another raising/control distinction

Object-Raising Verb Lexeme (orv-lxm)

\[
\begin{align*}
\text{ARG-ST} & \left[ \langle \text{NP} , [1] , \left[ \text{SPR} \left[ \langle \text{INDEX} \, s_2 \rangle \right] \right] \right] \right) \\
\text{SEM} & \left[ \text{RESTR} \left[ \langle [\text{ARG} \, s_2] \rangle \right] \right]
\end{align*}
\]

Object-Control Verb Lexeme (ocv-lxm)

\[
\begin{align*}
\text{ARG-ST} & \left[ \langle \text{NP} , \text{NP}_i , \left[ \text{SPR} \left[ \langle \text{INDEX} \, s_2 \rangle \right] \right] \right] \right) \\
\text{SEM} & \left[ \text{RESTR} \left[ \langle [\text{ARG} \, s_2] \rangle \right] \right]
\end{align*}
\]

- The formal distinction is again between tagging and coindexing.
- This time it’s the second argument and the SPR of the third argument.
Example *orv-lxm* and *ocv-lxm* Entries

- Note that the ‘persuade’ relation has three arguments, but the ‘expect’ relation has only two

- And the object’s INDEX plays a role in the ‘persuade’ relation, but not in the ‘expect’ relation
Ch 12 Prob 4

• Construct examples of each of the following four types which show a contrast between *expect* and *persuade*:
  
  • Ex with dummy *there*
  
  • Ex with dummy *it*
  
  • Ex with idiom *chunks*
  
  • Ex of relevant active/passive pairs
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Reading Questions

- I wonder, instead of adding an INF feature to all verbs when there is only one lexical entry with [INF +], might it have been preferable to add a new verb subtype in the type hierarchy? That way, a) rules could select for the type instead of the feature, and b) it would not be necessary to change verb-lxm in a way that affects all verb lexical entries.
Reading Questions

• Why do we need INF as a binary feature?
• The textbook doesn't specify it in clear words but it treats feature INF as a head feature. Why should we treat INF as a head feature and what are the benefits of doing so?
I get how the infinitival *to* works with the words *try* and *continue*, but are there other constructions where the infinitival *to* is used? I think I understand what the book is saying with it's examples, but I'm lost when trying to use infinitival *to* in other sentences.
Reading Questions

- I was surprised at how simple it seemed to have the infinitival *to* act as an auxiliary verb. Are there any downsides to this, and are there any other cases (in HPSG or otherwise) like this where a word that we would think of as one part of speech is treated as another?

- It came as a surprise that the infinitival *to* is apparently treated as an auxiliary verb. While the chapter does a good job justifying why this analysis would work with the grammar's rules and principles, it still seems counterintuitive. Did I miss any cases when some elements in the grammar pretended to be something they are not? What would happen if we decided that *to* was a different type of lexeme (I was taught it was a particle)?
Reading Questions

- I am confused about how do we know if a word is used in the what sense. For example, to is defined here as a subtype of verb-lexeme, to also acts as a preposition as we have seen it before. The questions then is that in general, while parsing sentences, how do we know what type of usage it is?
Reading Questions

• What are some other examples of object raising and object control verbs?
The full menagerie

v_vp_seq_le  B intended to win.
v_vp_seq-from_le  B refrained from smoking.
v_prd_seq_le  B remained doubtful.
v_prd_seq-idm_le  B made sure that C won.
v_prd_seq-va_le  B became impatient | admired.
v_ap_seq_le  B proved competent | admired.
v_pp_seq_le  B wanted into the game.
v_pp_seq-e_le  My battery shows as empty.
v_vp_seq-prp_le  B loves playing chess.
v_vp_seq-bse_le  B helped finish the paper.
v_vp_seq-go_le  B will go play chess | goes play chess.
v_vp_seq-and_le  They try and find it | tried and found it.
v_vp_seq-and-bse_le  B will try and find it.
v_vp_seq-but_le  B couldn't help but continue.
v_p-vp_seq_le  B turned out to be wrong.
The full menagerie

v_pp-vp_seq_le B arranged with C to stay.
v_np-vp_oeq_le B invited C to stay.
v_np-vp_oeq-ntr_le B got C to stay.
v_np-vp_oeq-bse_le B helped C win.
v_np-vp_oeq-psv_le The teacher promised me to be allowed to play outside.

v_np-prd_oeq_le B proved C wrong.
v_np-ap_oeq_le B imagined C taller.
v_np-prd_oeq-ntr_le B wanted C ready. | *C was wanted ready (by B).
v_np-vpslnp_oeq_le B had C to talk to.
v_np-vp_oeq-from_le B excused C from playing.
v_p-vp_oeq_le B geared up C to go.
The full menagerie

There failed to be a link.
We needn't wait here.
We need only wait here.
B has yet to win.
It became obvious that Kim arrived.
It finished raining.
There tend to be problems.
It seems to B to be windy.
The full menagerie

B promised C to stay. | *C was promised by B to stay.

B used C to reach D.

B asked C to be allowed to leave. | #B asked C to leave.

B took an hour to finish.

B had trouble sleeping.
It is easy for B to win.
It is urgent for B to win. | *B is urgent to win.
It is incumbent on B to go.
It is nice of B to go.
This race is tough to win.
It is easier to solve this problem than that one
It is worth reading that book.
There are destined to be unicorns in the garden.
The race is worth running.
Paris is pretty to look at.
B is supposed to win.
B is done running.
The full menagerie

n_vp_c_le  B has the ability to win.
n_vp_m_le  B has permission to stay.
n_vp_mc_le  B has clearance to stay.
n_vp_c-it_le  It is a pleasure for B to sleep.
n_vp_m-it_le  It is drudgery for B to do that.
n_vpslnp_c_le  B is a pleasure for C to mmet.
Reading Questions

• How do we model *arrange* as in (1)?

(1) Alice arranged for Bob to meet with Charlie.

• It looked similar to raising/control verbs to me at first, but then I found:

(2) And so it was arranged for her to meet Bill Thompson... (ABC special)

• which suggests that *(for) her to meet Bill* is actually a single CP, doesn't it? Maybe with *for* as a C?
Reading Questions

• What's the relationship between the *to* form of a verb and the *-ing* form? Can one form be freely substituted for the other? Thinking about the verb *try*, it seemed that both forms appear to have no real difference in meaning or distribution. For example:

  I tried to talk to them the other day.

  I tried talking to them the other day.

• I guess the *-ing* form has a more continuous feeling to it, but it feels especially close to the *to* form when combined with *try*. 
Reading Questions

• For figure (37), Why do we use tags for the object-raising rule and indices (ie NPi) for the object-control rule? In both instances, it seems the implicit object is the same for both cases.
We make another raising/control distinction

Object-Raising Verb Lexeme (orv-lxm)

\[
\begin{align*}
\text{ARG-ST} & \left< \text{NP} , \text{[1]} , \left[ \text{SPR} \left< \text{[1]} \right> \right] \right> \\
\text{SEM} & \left[ \text{RESTR} \left< \left[ \text{ARG} \ s_2 \right] \right> \right]
\end{align*}
\]

Object-Control Verb Lexeme (ocv-lxm)

\[
\begin{align*}
\text{ARG-ST} & \left< \text{NP} , \text{NP}_i , \left[ \text{SPR} \left< \text{NP}_i \right> \right] \right> \\
\text{SEM} & \left[ \text{RESTR} \left< \left[ \text{ARG} \ s_2 \right] \right> \right]
\end{align*}
\]

- The formal distinction is again between tagging and coindexing.
- This time it’s the second argument and the SPR of the third argument.
Reading Questions

- In *scv-lxm* (p 373), it is confusing why the two NPi subjects have the same index but are not identical.

- I skimmed problem 5 and that argument sort of makes sense, but on the other hand, don't the two NPis always refer to the same sequence of words in a given sentence?
In the control verb example, adding a new semantic argument (TRIER in the word *try*) will rule out the subject without INDEX, does this addition have other usage or is it specifically intended to make this rule more grammatical?
Reading Questions

• Would it be possible to walk through an example step-by-step of how our grammar would passivize a sentence like "I expect Sandy to go"?
Reading Questions

(43) a. Chris was expected to leave (by everyone).
b. Chris was persuaded to leave (by Ashley).

(46) (VP (V expected) (?? (NP Leslie) (VP to be aggressive)))

- "Since passivization involves a rearrangement of the ARG-ST list, i.e. a lexical rule that 'promotes' an object NP to become the first argument of the passive verb form, such putative lexical entries (as would be included in (46)) would give us no way to analyze examples like (43)."