Ling 566 Nov 12, 2019

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

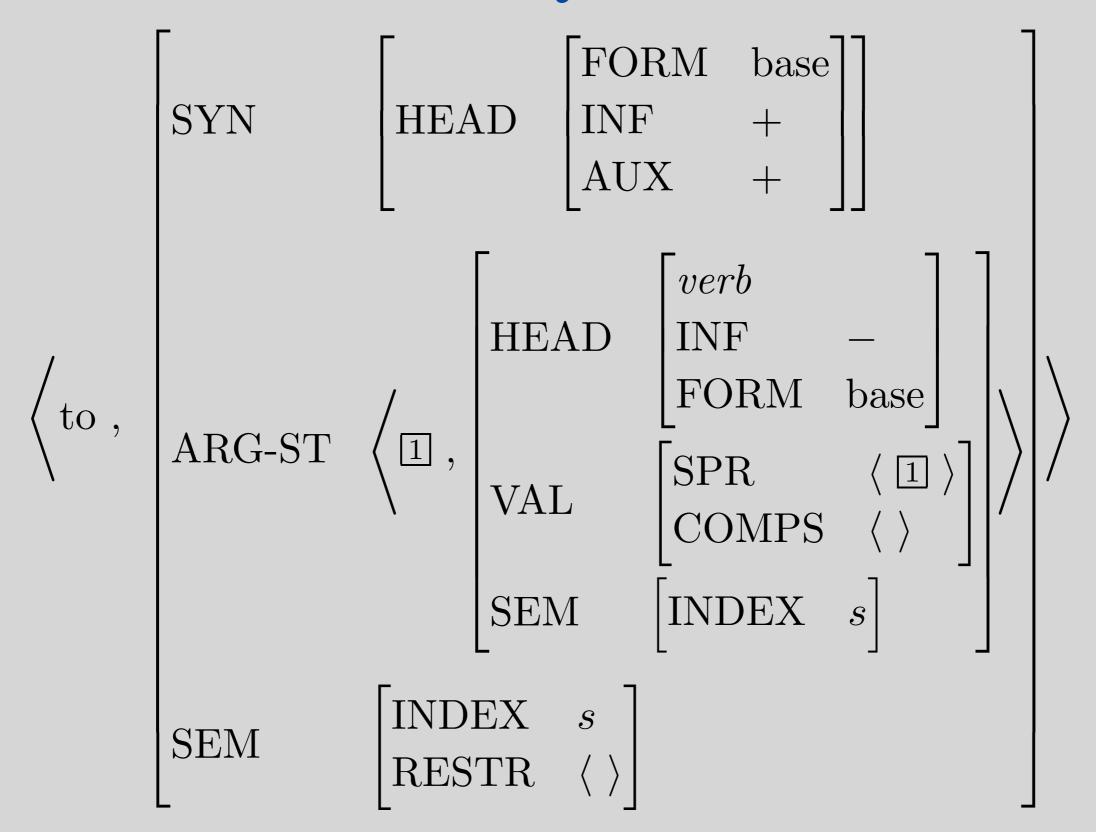
- It's not obvious what part of speech to assign to to.
- It's not the same as the preposition *to*:

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

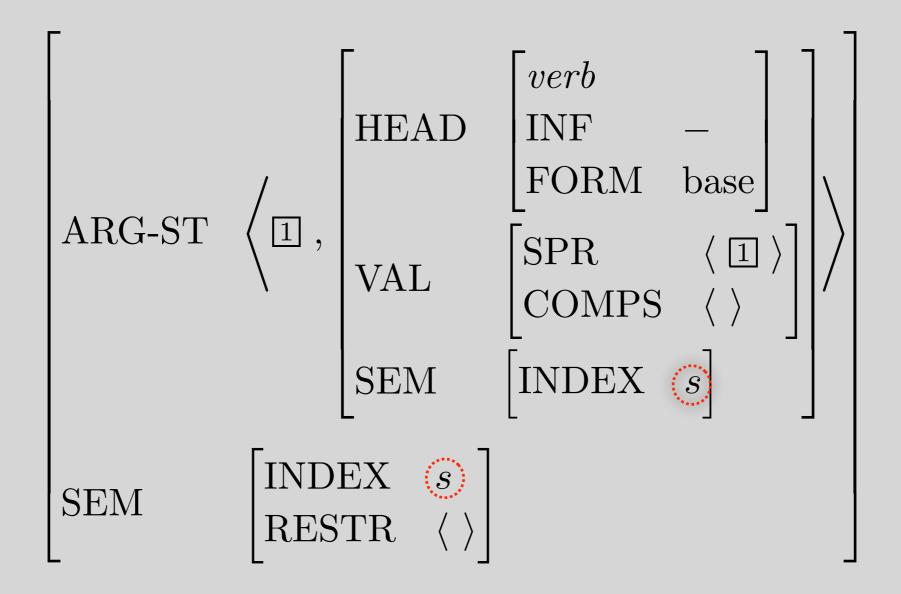


The Syntax of Infinitival to

- 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.

- 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 Semantics of Infinitival to



- 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):

$$\begin{bmatrix} ARG-ST & \left\langle \boxed{1}, \begin{bmatrix} SPR & \left\langle \boxed{1} \right\rangle \\ COMPS & \left\langle \right\rangle \\ INDEX & s_2 \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$SEM \begin{bmatrix} RESTR & \left\langle \begin{bmatrix} ARG & s_2 \end{bmatrix} \right\rangle \end{bmatrix}$$

- 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 continue

$$\left\langle \text{continue}, \begin{bmatrix} srv\text{-}lxm \\ ARG\text{-ST} & \left\langle X, \begin{bmatrix} \text{VP} \\ X, \begin{bmatrix} \text{INF} & + \end{bmatrix} \right\rangle \\ \end{bmatrix} \right\rangle$$

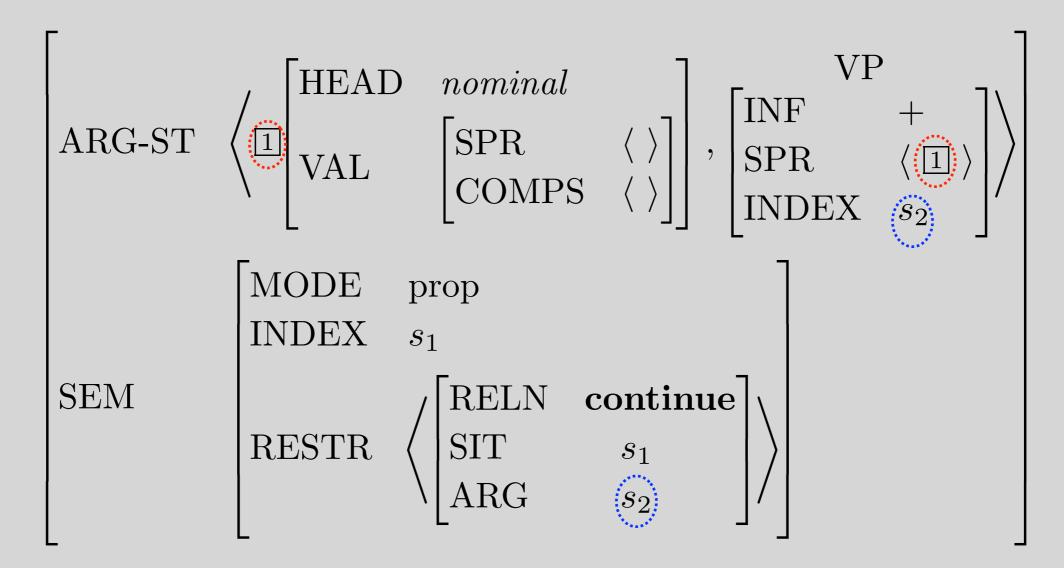
$$\left\langle \text{continue}, \begin{bmatrix} \text{INDEX} & s_1 \\ \text{RESTR} & \left\langle \begin{bmatrix} \text{RELN} & \mathbf{continue} \\ \text{SIT} & s_1 \end{bmatrix} \right\rangle \right]$$

Entry for continue, with Inherited Information

$$\left\{ \begin{array}{l} \text{Srv-lxm} \\ \text{SYN} \end{array} \right. \left\{ \begin{array}{l} \text{Werb} \\ \text{PRED} \\ -\text{INF} \\ -\text{AGR} \quad \boxed{2} \end{array} \right] \\ \left\{ \begin{array}{l} \text{VAL} \quad \left[\text{SPR} \quad \left\langle \left[\text{AGR} \; \boxed{2} \right] \right\rangle \right] \end{array} \right. \\ \left\{ \begin{array}{l} \text{Continue} \\ \text{VAL} \end{array} \right. \left\{ \begin{array}{l} \text{EAD} \quad nominal} \\ \text{VAL} \quad \left[\begin{array}{l} \text{SPR} \quad \left\langle \; \right\rangle \\ \text{COMPS} \quad \left\langle \; \right\rangle \end{array} \right] , \left[\begin{array}{l} \text{INF} \quad + \\ \text{SPR} \quad \left\langle \; \boxed{1} \right\rangle \\ \text{INDEX} \quad s_{2} \end{array} \right] \right\} \\ \left\{ \begin{array}{l} \text{MODE} \quad \text{prop} \\ \text{INDEX} \quad s_{1} \\ \text{RESTR} \quad \left\langle \begin{bmatrix} \text{RELN} \quad \textbf{continue} \\ \text{SIT} \quad s_{1} \\ \text{ARG} \quad s_{2} \end{array} \right] \right\} \\ \end{array} \right.$$

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.

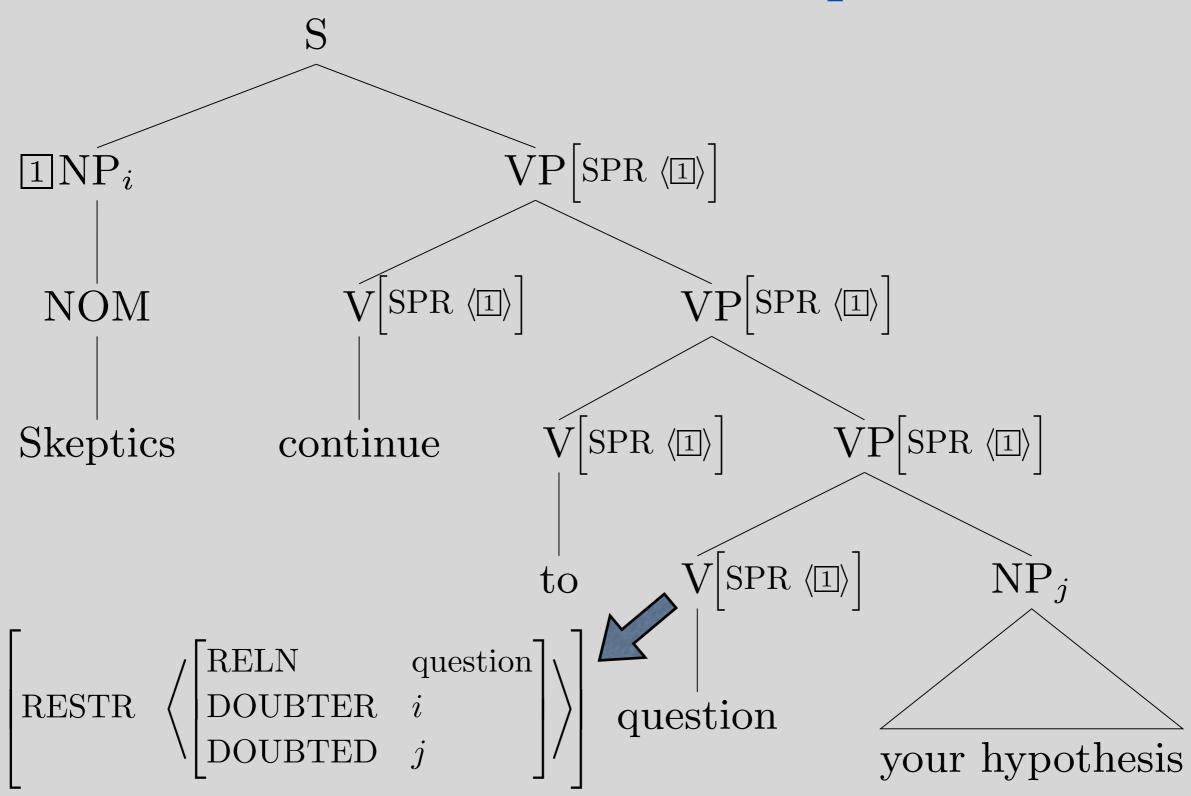


Hence, constraints on the subjects of SRVs are imposed by their complements

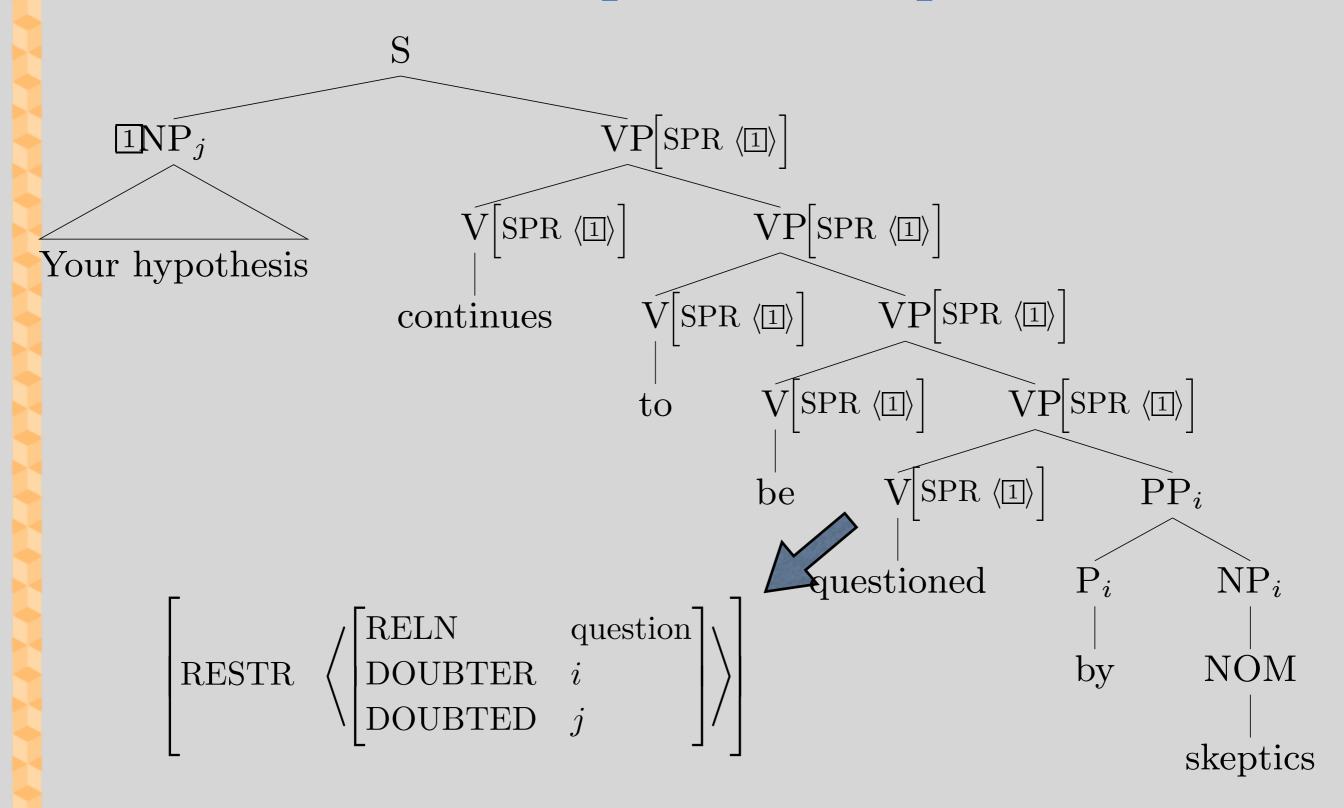
- SRVs take dummy subjects when and only when their complements do.
- SRVs take idiom chunk subjects when and only when their complements do.
- Passivizing the verb in the VP complement of an SRV doesn't change the truth conditions of the whole sentence:

Skeptics continue to question your hypothesis ~ Your hypothesis continues to be questioned by skeptics

Continue with active complement



Continue with passive complement



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):

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP}_i \right\rangle \\ \text{NP}_i & \left\langle \text{COMPS} & \left\langle \right\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix}$$

$$\begin{bmatrix} \text{SEM} & \left[\text{RESTR} & \left\langle \left[\text{ARG} & s_2 \right] \right\rangle \right] \end{bmatrix}$$

- 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

$$\left\langle \text{try ,} \begin{bmatrix} scv\text{-}lxm \\ \text{ARG-ST } & \left\langle \text{NP}_i \text{ ,} \begin{bmatrix} \text{VP} \\ \text{INF } + \end{bmatrix} \right\rangle \\ \text{SEM } \begin{bmatrix} \text{INDEX } s_1 \\ \text{RESTR } & \left\langle \begin{bmatrix} \text{RELN } & \mathbf{try} \\ \text{SIT } & s_1 \\ \text{TRIER } & i \end{bmatrix} \right\rangle \right]$$

Note that the subject (NP_i) plays a semantic role with respect to the verb, namely the "TRIER"

Entry for try, with Inherited Information

$$\begin{bmatrix} scv\text{-}lxm \\ \\ SYN \end{bmatrix} \begin{bmatrix} verb \\ PRED - \\ INF - \\ AGR & I \end{bmatrix} \\ VAL \begin{bmatrix} SPR & \langle [AGR & I] & \rangle \end{bmatrix} \end{bmatrix} \\ VP \\ ARG-ST & \langle NP_i & \langle NP_i & \langle NP_i & \rangle \\ SEM & [INDEX & s_1 \\ MODE & prop \end{bmatrix} \\ SEM \begin{bmatrix} INDEX & s_1 \\ MODE & prop \\ RESTR & \langle RELN & try \\ SIT & s_1 \\ TRIER & i \\ ARG & s_2 \end{bmatrix} \\ \end{bmatrix}$$

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

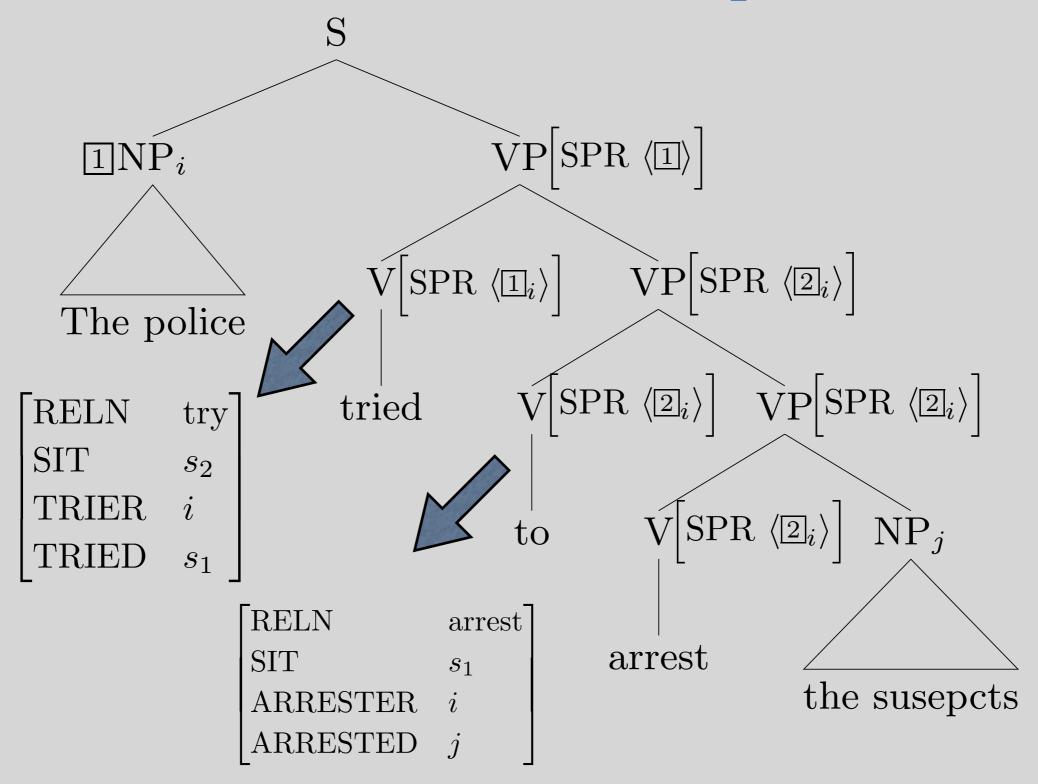
- What rules out dummies and idiom chunks as subjects of *try*?
- What accounts for the semantic non-equivalence of pairs like the following?

Reporters tried to interview the candidate

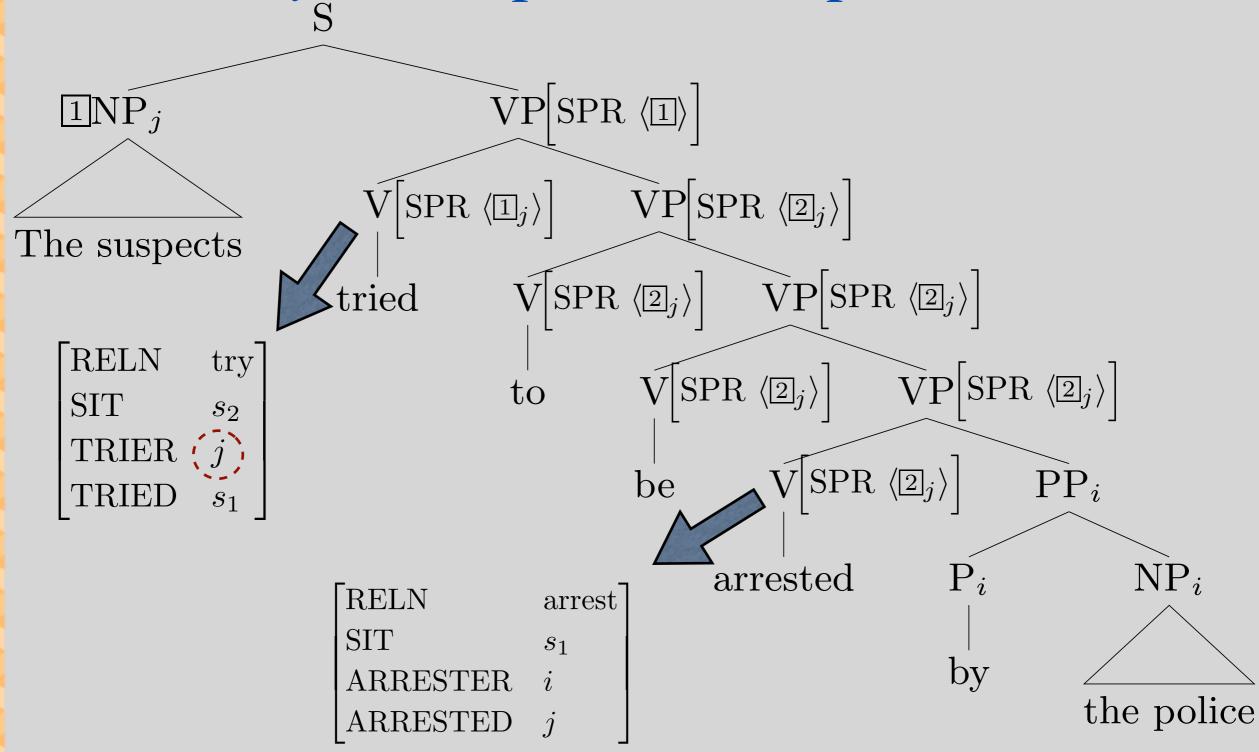
The candidate tried to be interviewed by reporters

• Why does *continue* behave differently in these respects?

Try with an active complement



Try with a passive complement



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

$$\left\langle \begin{array}{c} \text{VP} & \text{VP} \\ \left\langle \text{NP}_i \right\rangle, \begin{bmatrix} \text{INF} & + \\ \text{SPR} & \langle \text{NP}_i \rangle \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s_2 \end{bmatrix} \end{array} \right\rangle \qquad \left\langle \begin{array}{c} \mathbb{I} \text{NP} \\ \mathbb{I} \text{NP} \end{array}, \begin{bmatrix} \text{INF} & + \\ \text{SPR} & \langle \begin{array}{c} \mathbb{I} \end{array} \right\rangle \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s_2 \end{bmatrix} \end{array} \right\rangle$$

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)

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP}, \square, \begin{bmatrix} \text{SPR} & \left\langle \square \right\rangle \\ \text{COMPS} & \left\langle \right\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix}$$
• The formal distinction is again between tagging and coindexing the state of the st

Object-Control Verb Lexeme (ocv-lxm)

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP}, \text{NP}_i, \begin{bmatrix} \text{SPR} & \left\langle \text{NP}_i \right\rangle \\ \text{COMPS} & \left\langle \right\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

$$\begin{bmatrix} \text{SEM} & \left[\text{RESTR} & \left\langle [\text{ARG} & s_2] \right\rangle \right] \end{bmatrix}$$

- 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

$$\left\langle \text{expect} \;,\; \begin{bmatrix} \textit{orv-lxm} & & & & \\ & & \text{VP} & & \\ & & \text{ARG-ST} \; \left\langle \; \text{NP}_j \;,\; \mathbf{X} \;, \begin{bmatrix} \text{INF} \; + \end{bmatrix} \right\rangle \\ \text{expect} \;,\; \begin{bmatrix} \text{INDEX} \quad s & & \\ & \text{SEM} & \begin{bmatrix} \text{RELN} & \mathbf{expect} \\ \text{SIT} & s \\ & \text{EXPECTER} & j \end{bmatrix} \right\rangle \right]$$

Note that the
 'persuade'
 relation has three
 arguments, but
 the 'expect'
 relation has only
 two

$$\left\langle \text{persuade} \right. \left\langle \begin{array}{l} \text{ocv-lxm} \\ \text{ARG-ST} \left\langle \right. \text{NP}_{j} \right. , \text{NP}_{i} \right. , \left[\text{INF} \right. + \left] \right\rangle \\ \text{persuade} \right. , \left\langle \begin{array}{l} \text{INDEX} \quad s \\ \text{SIT} \quad s \\ \text{PERSUADER} \quad j \\ \text{PERSUADEE} \quad i \end{array} \right] \right\rangle$$

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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• 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 verblxm in a way that affects all verb lexical entries.

- 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.

- 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)?

• 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?

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

```
B intended to win.
v_vp_seq_le
v_vp_seq-from_le
                    B refrained from smoking.
v_prd_seq_le
                    B remained doubtful.
                    B made sure that C won.
v_prd_seq-idm_le
v_prd_seq-va_le
                    B became impatient | admired.
                    B proved competent | ?admired.
v_ap_seq_le
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.
                    They try and find it | #tried and found it.
v_vp_seq-and_le
                        B will try and find it.
v_vp_seq-and-bse_le
v_vp_seq-but_le
                     B couldn't help but continue.
v_p-vp_seq_le
                     B turned out to be wrong.
```

```
B arranged with C to stay.
v_pp-vp_seq_le
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_leB excused C from playing.
v_p-vp_oeq_le B geared up C to go.
```

```
v_vp_ssr_le There failed to be a link.
v_vp_ssr-n3sg_le We needn't wait here.
v_vp_ssr-n3sg-r_le We need only wait here.
v_p-vp_ssr_le B has yet to win.
v_prd_ssr-va_le It became obvious that Kim arrived.
v_vp_ssr-prp_le It finished raining.
v_vp_ssr-nimp_le There tend to be problems.
v_pp-vp_ssr_le It seems to B to be windy.
```

```
v_np-vp_aeq-ntr_le B promised C to stay. | *C was promised by B to stay.

v_np-vp_aeq_le B used C to reach D.

v_np-vp_aeq-psv_le B asked C to be allowed to leave. | #B asked C to leave.

v_np-vp_aeq-noel_le B took an hour to finish.

v_np-vp_aeq-prp_le B had trouble sleeping.
```

```
aj_pp-vp_i-it_le It is easy for B to win.
aj_pp-vp_i-it-nt_le It is urgent for B to win. | *B is urgent to win.
aj_pp-vp_i-on-it_le It is incumbent on B to go.
aj_pp-vp_i-of-it_le It is nice of B to go.
aj_pp-vp_i-tgh_le This race is tough to win.
aj_pp-vp-pp_i-cmp-it_le It is easier to solve this problem than that one
aj_vp_i-it-prp_le It is worth reading that book.
aj_vp_i-ssr_le There are destined to be unicorns in the garden.
aj_vp_i-wrth_le
                     The race is worth running.
aj_vp_i-prty_le Paris is pretty to look at.
aj_vp_i-seq-nmd_le B is supposed to win.
aj_vp_i-seq-prp_le B is done running.
```

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.

- 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?

• 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.

• 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)

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP}, \square, \begin{bmatrix} \text{SPR} & \left\langle \square \right\rangle \\ \text{COMPS} & \left\langle \right\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix}$$
• The formal distinction is again between tagging and coindexing the state of the st

Object-Control Verb Lexeme (ocv-lxm)

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP}, \text{NP}_i, \begin{bmatrix} \text{SPR} & \left\langle \text{NP}_i \right\rangle \\ \text{COMPS} & \left\langle \right\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix}$$

$$\begin{bmatrix} \text{SEM} & \begin{bmatrix} \text{RESTR} & \left\langle [\text{ARG} & s_2] \right\rangle \end{bmatrix} \end{bmatrix}$$

- distinction is again between tagging and coindexing
- This time it's the second argument and the SPR of the third argument.

- 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 has other usage or it's specifically intended to make this rule more grammatical?

• 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"?

- (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)."