Ling 566
Nov 16, 2011

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

- If time: Problem 12.4

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.
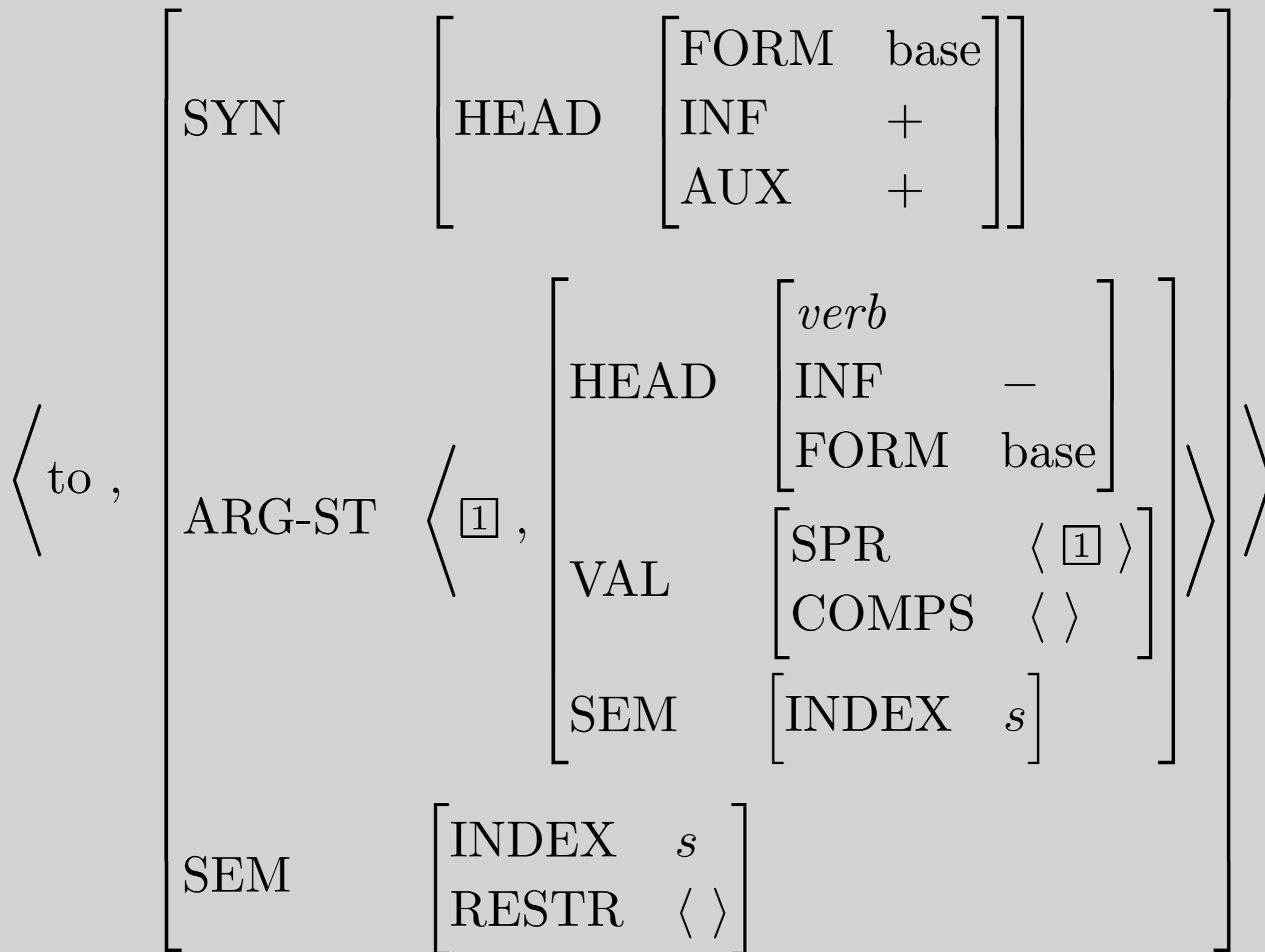
The Central Idea

- *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.

6

The Lexical Entry for Infinitival *to*

$$
\left\langle \text{to}, \begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \text{FORM} & \text{base} \\ \text{INF} & + \\ \text{AUX} & + \end{bmatrix} \end{bmatrix} \\\\ \text{ARG-ST} & \left\langle \boxed{1}, \begin{bmatrix} \text{HEAD} & \begin{bmatrix} verb \\ \text{INF} & - \\ \text{FORM} & \text{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \rangle \end{bmatrix} \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s \end{bmatrix} \end{bmatrix} \right\rangle \\\\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s \\ \text{RESTR} & \langle \rangle \end{bmatrix} \end{bmatrix} \right\rangle
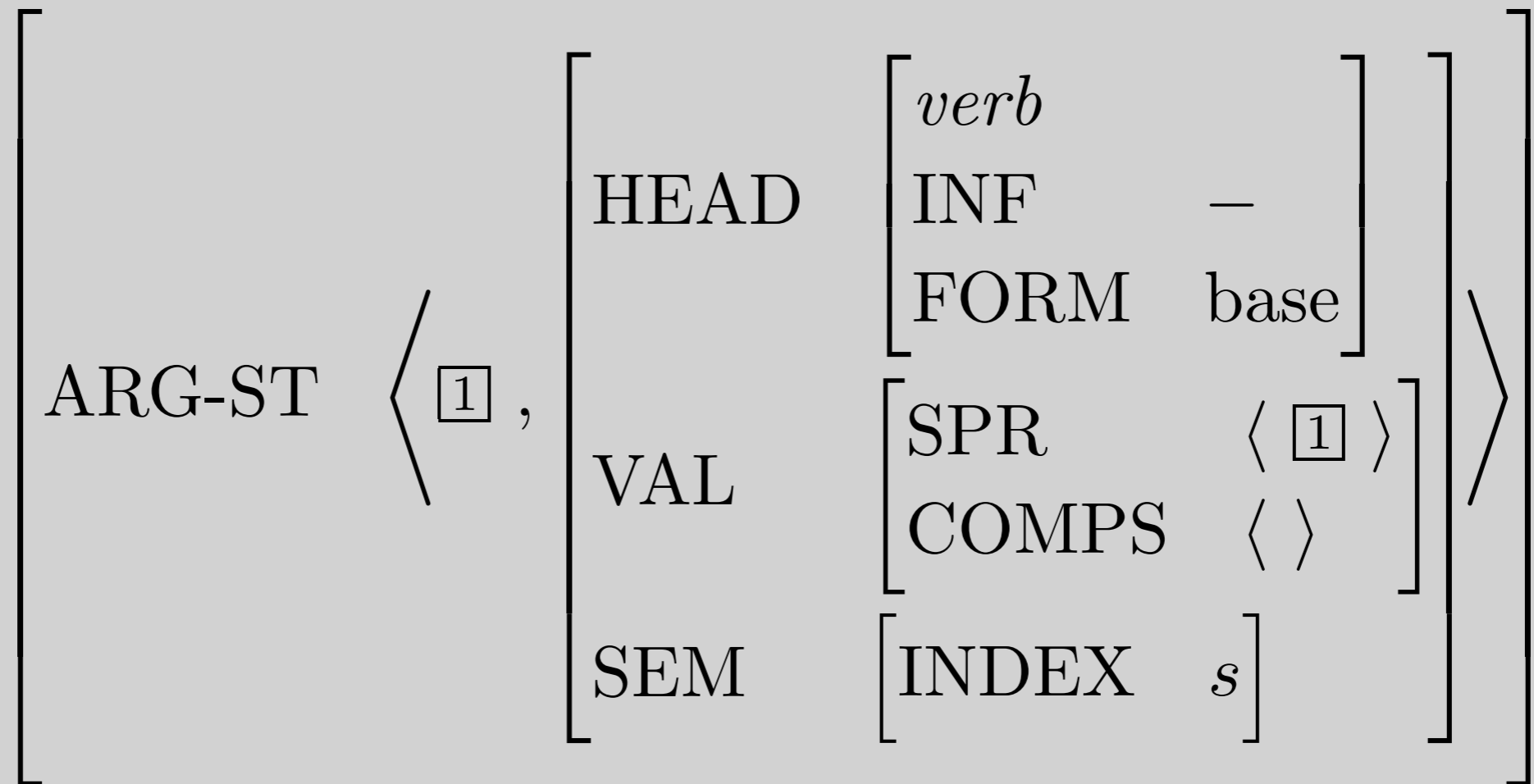$$

7

The Syntax of Infinitival *to*

$$
\left[\text{SYN} \left[\text{HEAD} \begin{bmatrix} \text{FORM} & \text{base} \\ \text{INF} & + \\ \text{AUX} & + \end{bmatrix} \right] \right]
$$

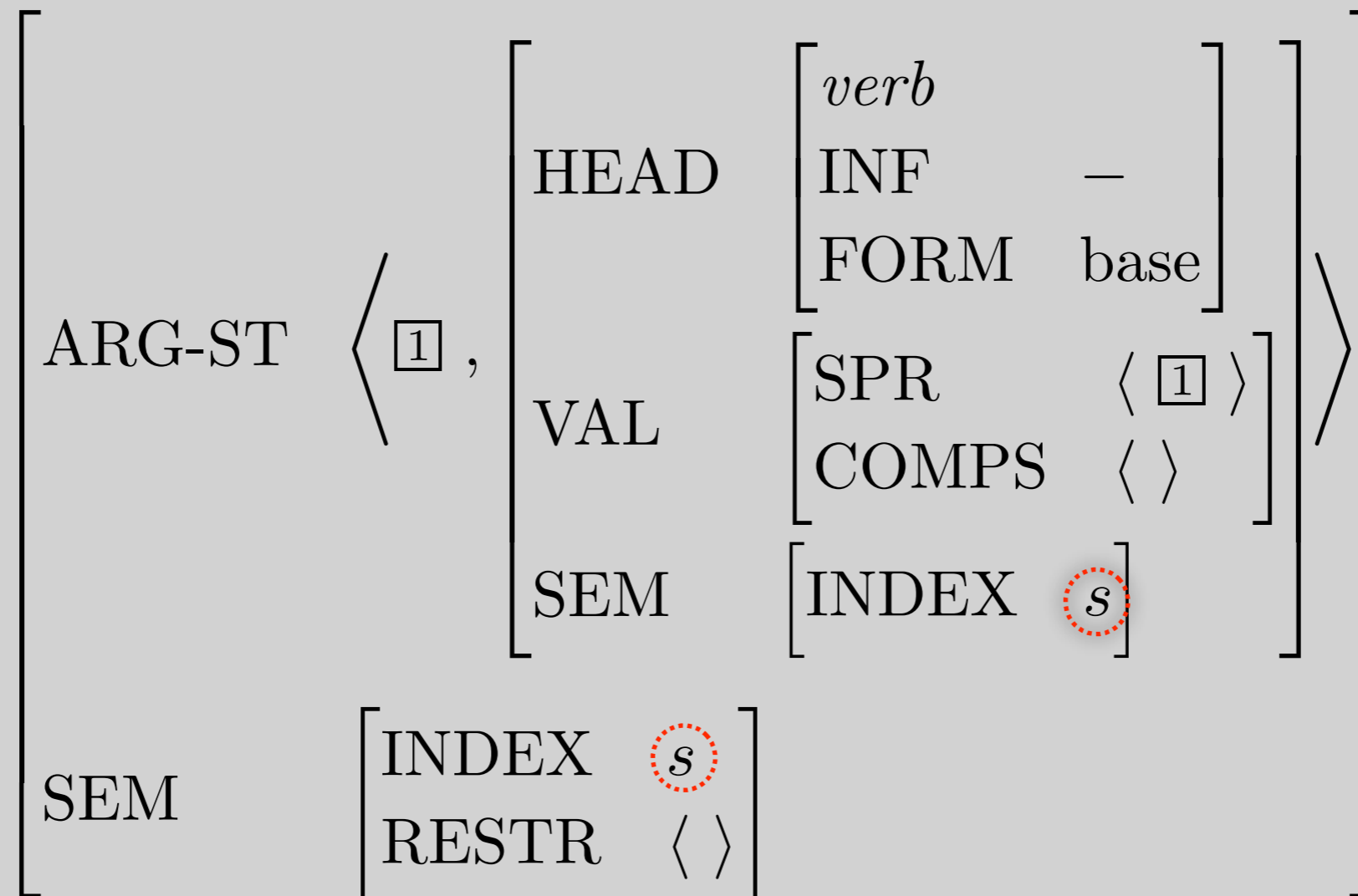- This makes it a verb, because AUX is declared on *verb*
- [INF +] uniquely identifies the infinitival *to*
- Verbs select complements with different combinations of FORM and INF values, e.g.
  - complements of *condescend* are [FORM base] and [INF +]
  - complements of *should* are [FORM base] and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

8

The Argument Structure

$$
\text{ARG-ST} \quad \left\langle \boxed{1} \, , \begin{bmatrix} \text{HEAD} & \begin{bmatrix} verb \\ \text{INF} & - \\ \text{FORM} & \text{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \, \rangle \end{bmatrix} \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s \end{bmatrix} \end{bmatrix} \right\rangle
$$

- 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*

$$
\begin{bmatrix}
\text{ARG-ST} & \left\langle \boxed{1}, \begin{bmatrix} \text{HEAD} & \begin{bmatrix} verb \\ \text{INF} & - \\ \text{FORM} & \text{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \, \rangle \end{bmatrix} \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s \end{bmatrix} \end{bmatrix} \right\rangle \\
\\
\text{SEM} & \begin{bmatrix} \text{INDEX} & s \\ \text{RESTR} & \langle \, \rangle \end{bmatrix}
\end{bmatrix}
$$

- 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*.
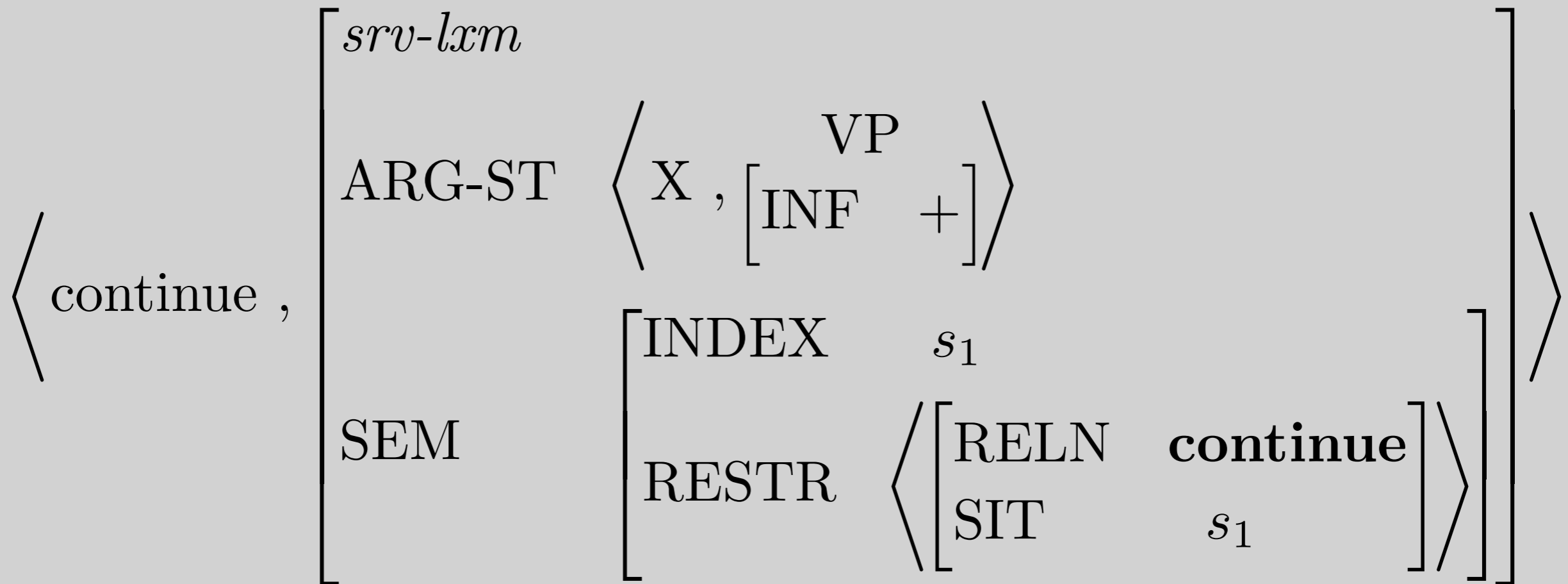
A New Type, for Verbs like *continue*

Subject-Raising Verb Lexeme (srv-lxm):

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

- 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

12

The Lexical Entry for *continue*

$$
\left\langle \text{continue} \;,\; \begin{bmatrix} \textit{srv-lxm} \\[4pt] \text{ARG-ST} \quad \left\langle \text{X} \;,\; \begin{bmatrix} \text{VP} \\ \text{INF} \quad + \end{bmatrix} \right\rangle \\[12pt] \text{SEM} \quad \begin{bmatrix} \text{INDEX} \quad s_1 \\[6pt] \text{RESTR} \quad \left\langle \begin{bmatrix} \text{RELN} \quad \textbf{continue} \\ \text{SIT} \quad s_1 \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
$$

13

Entry for *continue*, with Inherited Information

$$
\left\langle \text{continue} \,,\; \begin{bmatrix} \textit{srv-lxm} \\[4pt] \text{SYN} \quad \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \\ \text{PRED} & - \\ \text{INF} & - \\ \text{AGR} & \boxed{2} \end{bmatrix} \\[20pt] \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\, [\text{AGR}\;\boxed{2}]\, \rangle \end{bmatrix} \end{bmatrix} \\[40pt] \text{ARG-ST} \quad \left\langle \boxed{1}\begin{bmatrix} \text{HEAD} & \textit{nominal} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\,\rangle \\ \text{COMPS} & \langle\,\rangle \end{bmatrix} \end{bmatrix}, \begin{bmatrix} & \text{VP} \\ \text{INF} & + \\ \text{SPR} & \langle\,\boxed{1}\,\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \right\rangle \\[40pt] \text{SEM} \quad \begin{bmatrix} \text{MODE} & \text{prop} \\ \text{INDEX} & s_1 \\[10pt] \text{RESTR} & \left\langle \begin{bmatrix} \text{RELN} & \textbf{continue} \\ \text{SIT} & s_1 \\ \text{ARG} & s_2 \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
$$

14

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.

$$
\begin{bmatrix}
\text{ARG-ST} & \left\langle \boxed{1}\begin{bmatrix} \text{HEAD} & nominal \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\,\rangle \\ \text{COMPS} & \langle\,\rangle \end{bmatrix} \end{bmatrix}, \begin{matrix} \text{VP} \\ \begin{bmatrix} \text{INF} & + \\ \text{SPR} & \langle\,\boxed{1}\,\rangle \\ \text{INDEX} & s_2 \end{bmatrix} \end{matrix} \right\rangle \\[2em]
\text{SEM} & \begin{bmatrix} \text{MODE} & prop \\ \text{INDEX} & s_1 \\ \text{RESTR} & \left\langle \begin{bmatrix} \text{RELN} & \textbf{continue} \\ \text{SIT} & s_1 \\ \text{ARG} & s_2 \end{bmatrix} \right\rangle \end{bmatrix}
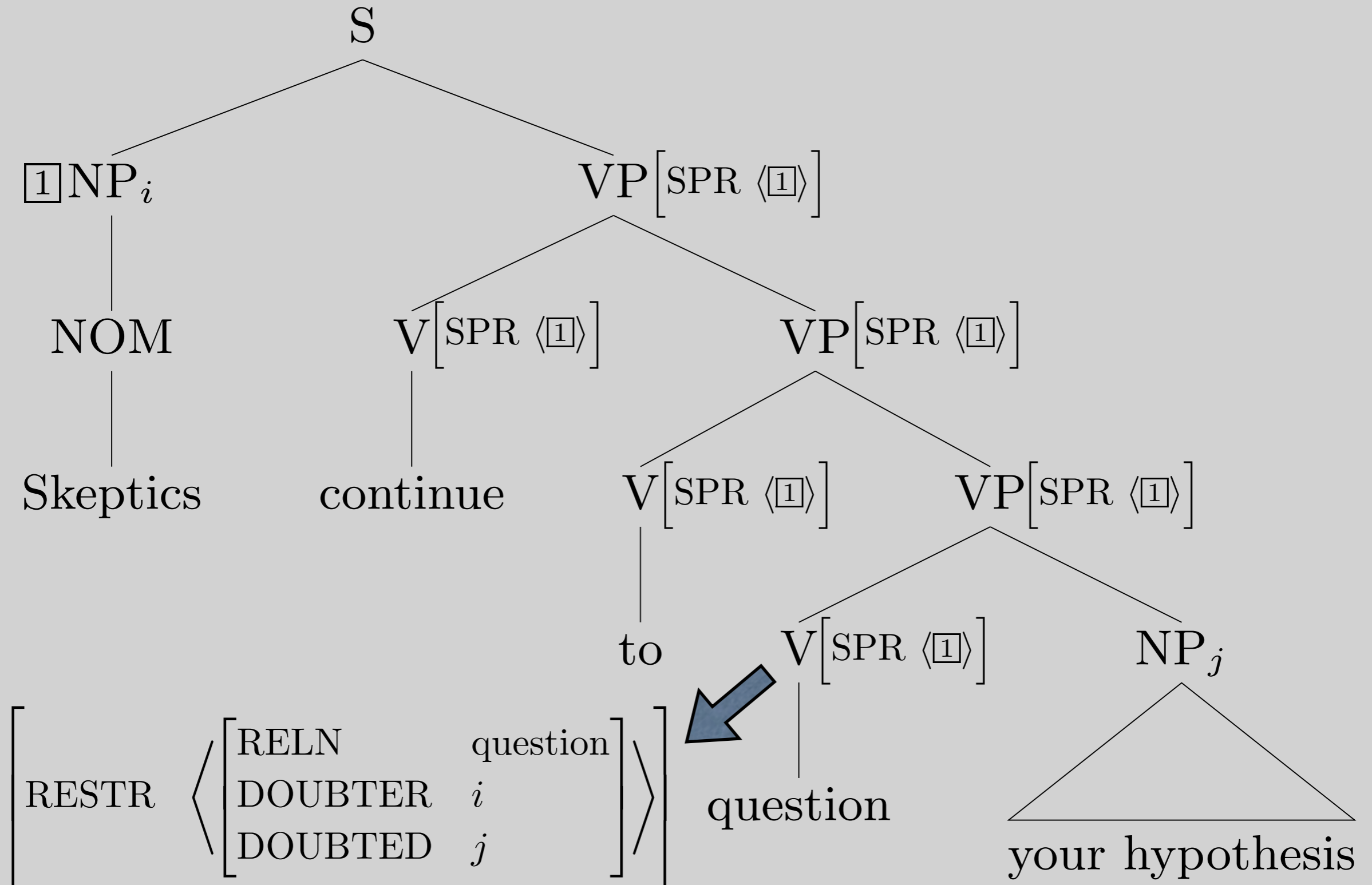\end{bmatrix}
$$

15
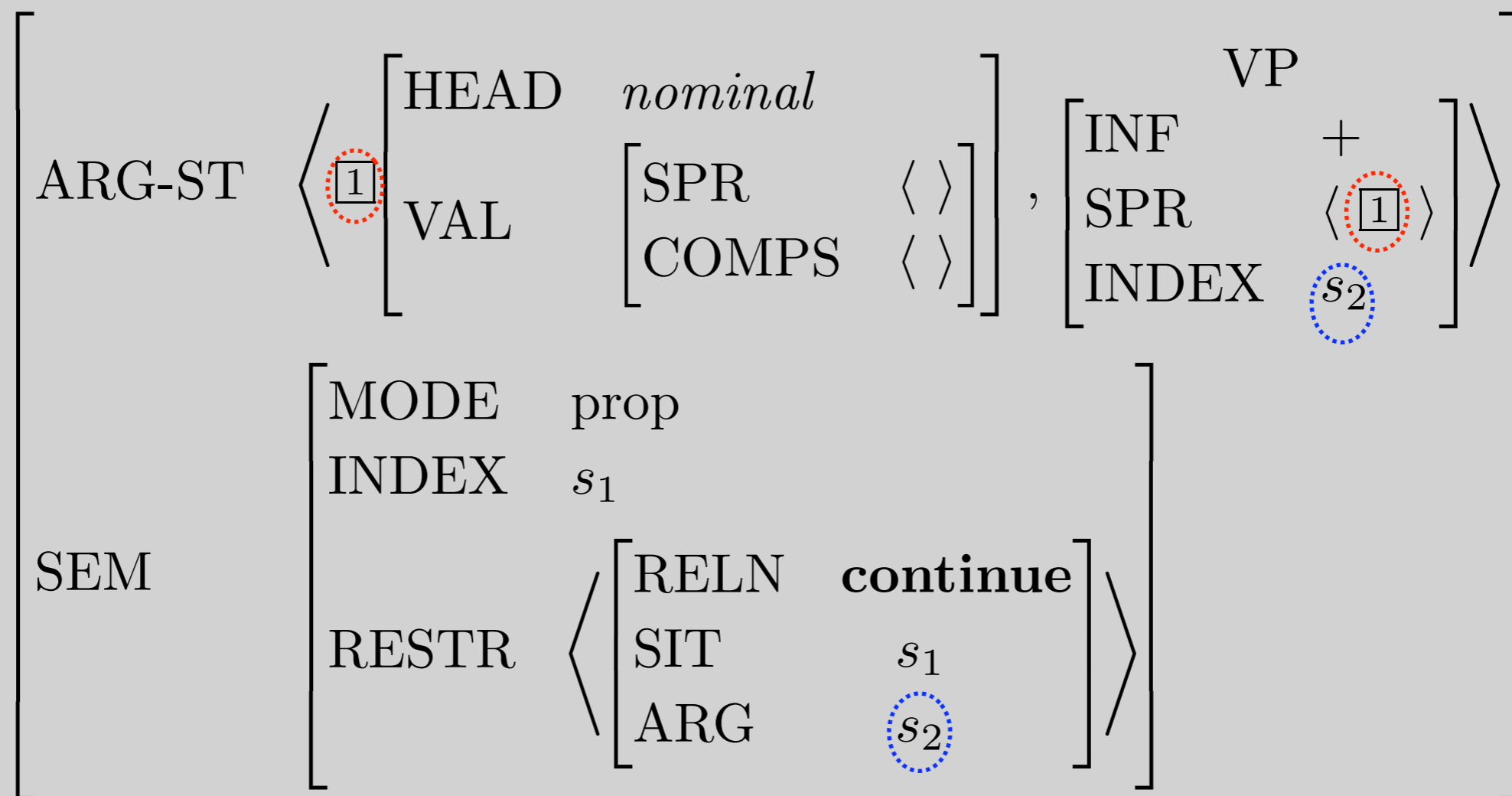
Hence, constraints on the subjects of SRVs are imposed by their complements

- 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 complement of an SRV doesn't change the truth conditions of the whole sentence:
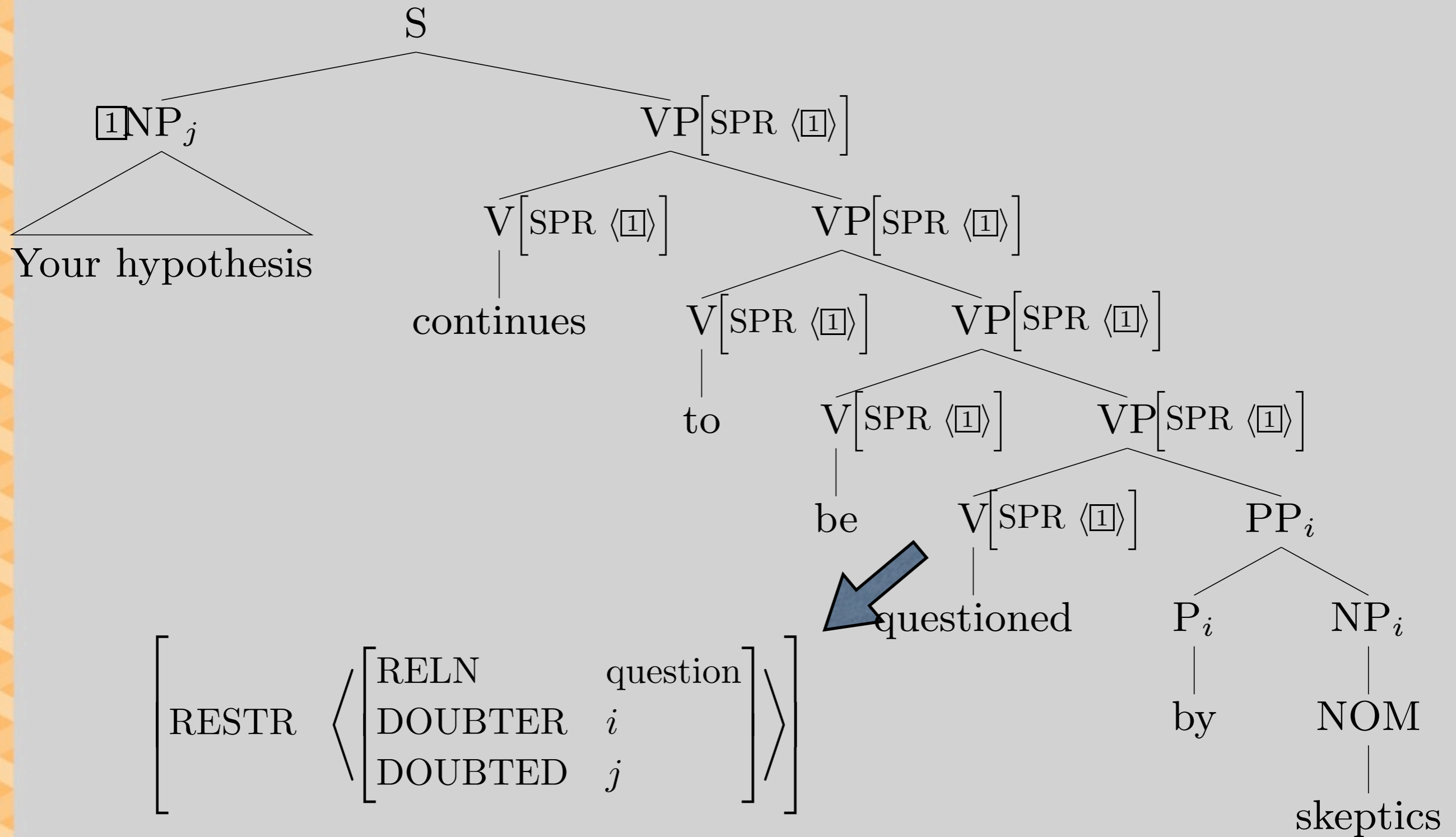
  Skeptics continue to question your hypothesis **~**
  Your hypothesis continues to be questioned by skeptics

Continue with active complement

S

$\boxed{1}\text{NP}_i$ $\quad$ $\text{VP}\big[\text{SPR }\langle\boxed{1}\rangle\big]$

NOM $\quad$ $\text{V}\big[\text{SPR }\langle\boxed{1}\rangle\big]$ $\quad$ $\text{VP}\big[\text{SPR }\langle\boxed{1}\rangle\big]$

Skeptics $\quad$ continue $\quad$ $\text{V}\big[\text{SPR }\langle\boxed{1}\rangle\big]$ $\quad$ $\text{VP}\big[\text{SPR }\langle\boxed{1}\rangle\big]$

to $\quad$ $\text{V}\big[\text{SPR }\langle\boxed{1}\rangle\big]$ $\quad$ NP_j

$$\left[\text{RESTR}\ \left\langle\begin{bmatrix}\text{RELN} & \text{question} \\ \text{DOUBTER} & i \\ \text{DOUBTED} & j\end{bmatrix}\right\rangle\right]$$

question $\quad$ your hypothesis

Continue with passive complement

S

$\boxed{1}\text{NP}_j$ $\qquad$ $\text{VP}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$

Your hypothesis

$\text{V}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$ $\qquad$ $\text{VP}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$

continues

$\text{V}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$ $\qquad$ $\text{VP}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$

to

$\text{V}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$ $\qquad$ $\text{VP}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$

be

$\text{V}\left[\text{SPR}\ \langle\boxed{1}\rangle\right]$ $\qquad$ PP_i

questioned $\qquad$ P_i $\qquad$ NP_i

by $\qquad$ NOM

skeptics

$$\left[\text{RESTR}\ \left\langle\begin{bmatrix}\text{RELN} & \text{question}\\ \text{DOUBTER} & i\\ \text{DOUBTED} & j\end{bmatrix}\right\rangle\right]$$

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 ≠
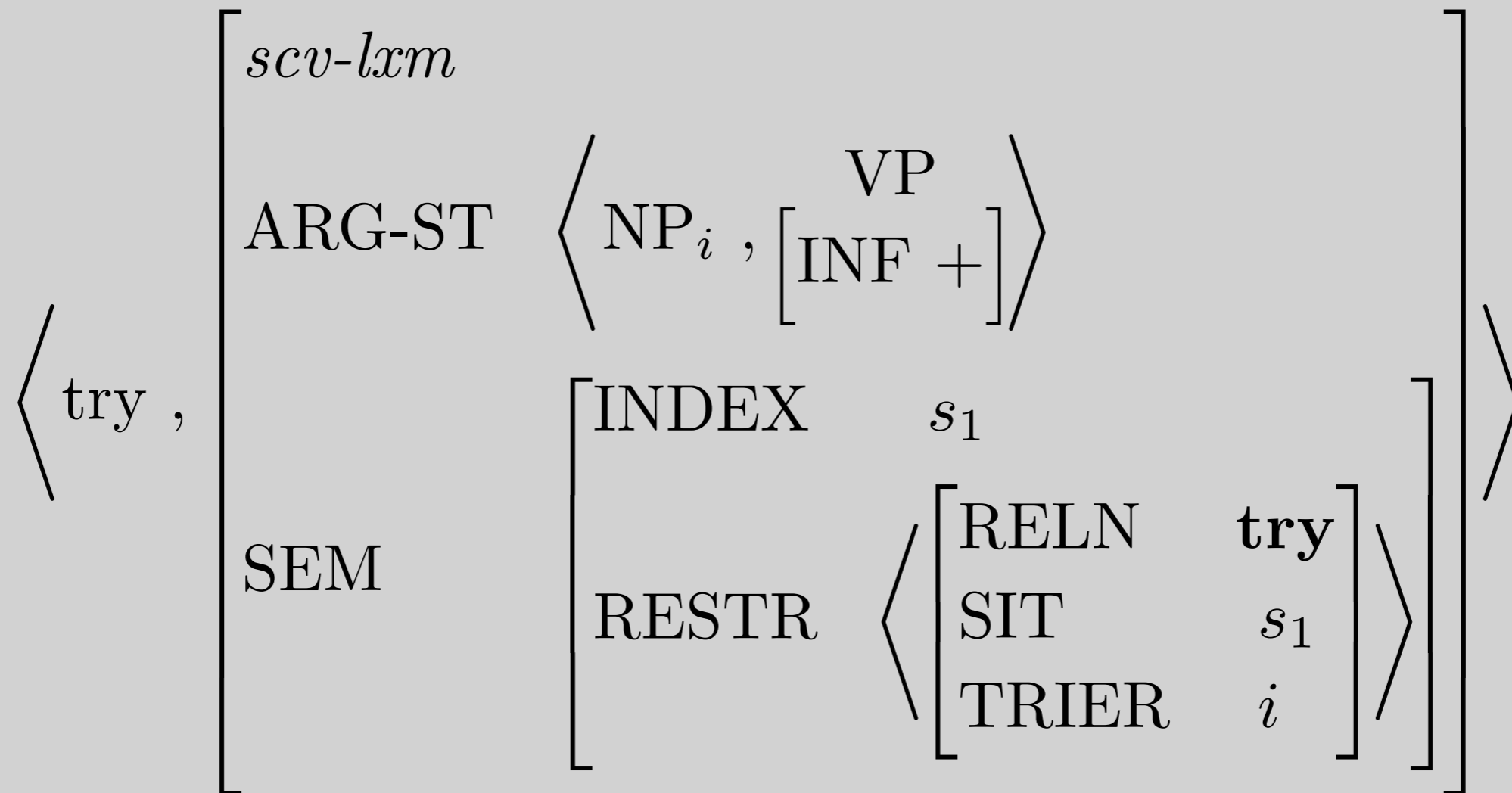 Disruptive demonstrators tried to be arrested by the police

20

A New Type

Subject-Control Verb Lexeme (scv-lxm):

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

- 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

21

The lexical entry for *try*

$$
\left\langle \text{try} , \begin{bmatrix} \textit{scv-lxm} \\[2ex] \text{ARG-ST} \quad \left\langle \text{NP}_i , \begin{bmatrix} \text{VP} \\ \text{INF} + \end{bmatrix} \right\rangle \\[4ex] \text{SEM} \quad \begin{bmatrix} \text{INDEX} \quad s_1 \\[2ex] \text{RESTR} \quad \left\langle \begin{bmatrix} \text{RELN} & \textbf{try} \\ \text{SIT} & s_1 \\ \text{TRIER} & i \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
$$

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

Entry for *try*, with Inherited Information

$$
\left\langle \text{try} , \begin{bmatrix} \textit{scv-lxm} \\ \text{SYN} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \\ \text{PRED} & - \\ \text{INF} & - \\ \text{AGR} & \boxed{1} \end{bmatrix} \\ \text{VAL} \begin{bmatrix} \text{SPR} & \langle [\text{AGR } \boxed{1}] \rangle \end{bmatrix} \end{bmatrix} \\ \text{ARG-ST} \left\langle \text{NP}_i , \begin{bmatrix} \text{VP} \\ \text{INF} & + \\ \text{SPR} & \langle \text{NP}_i \rangle \\ \text{SEM} & [\text{INDEX} \quad s_2] \end{bmatrix} \right\rangle \\ \text{SEM} \begin{bmatrix} \text{INDEX} & s_1 \\ \text{MODE} & \text{prop} \\ \text{RESTR} & \left\langle \begin{bmatrix} \text{RELN} & \textbf{try} \\ \text{SIT} & s_1 \\ \text{TRIER} & i \\ \text{ARG} & s_2 \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
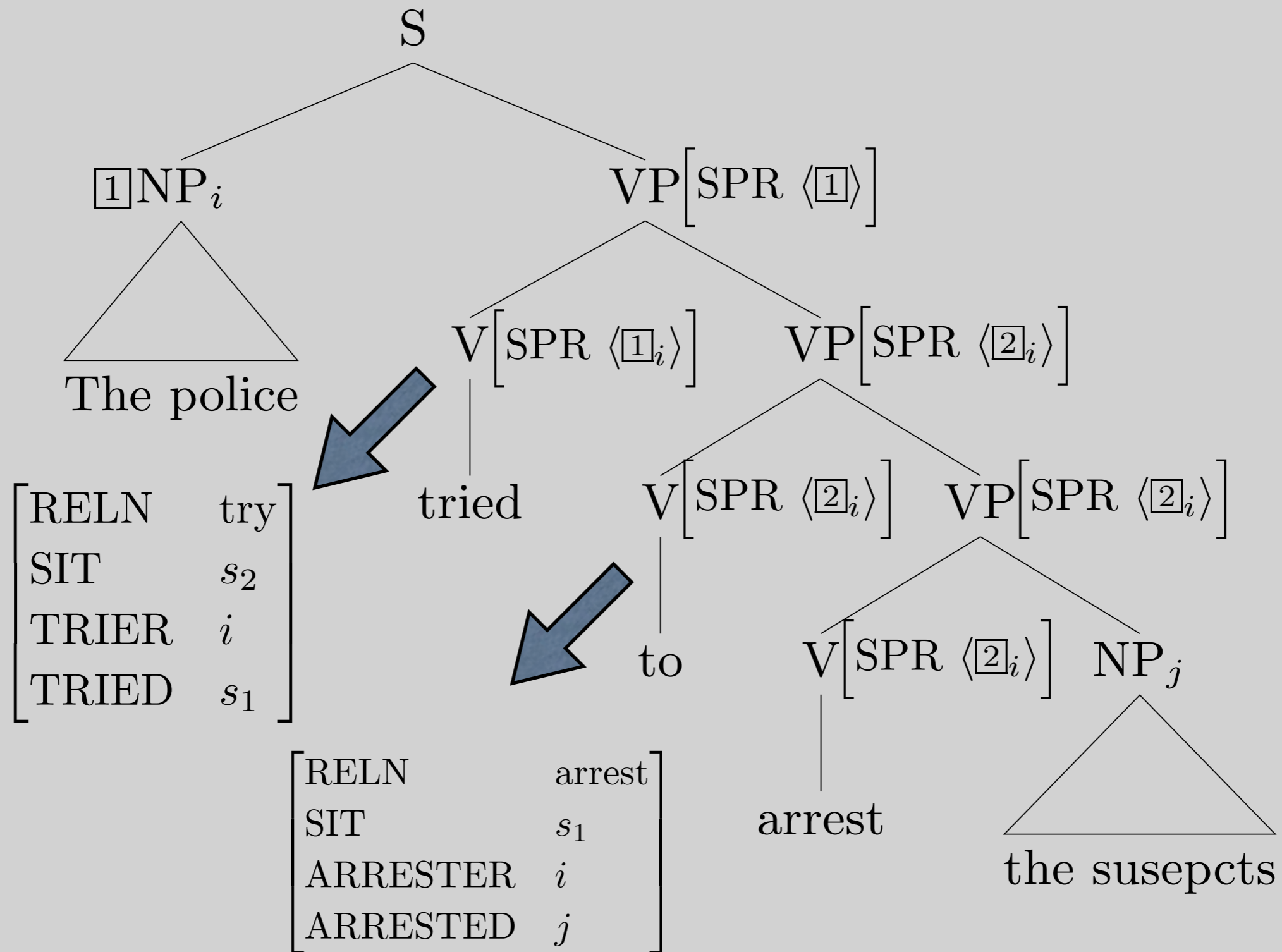$$

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
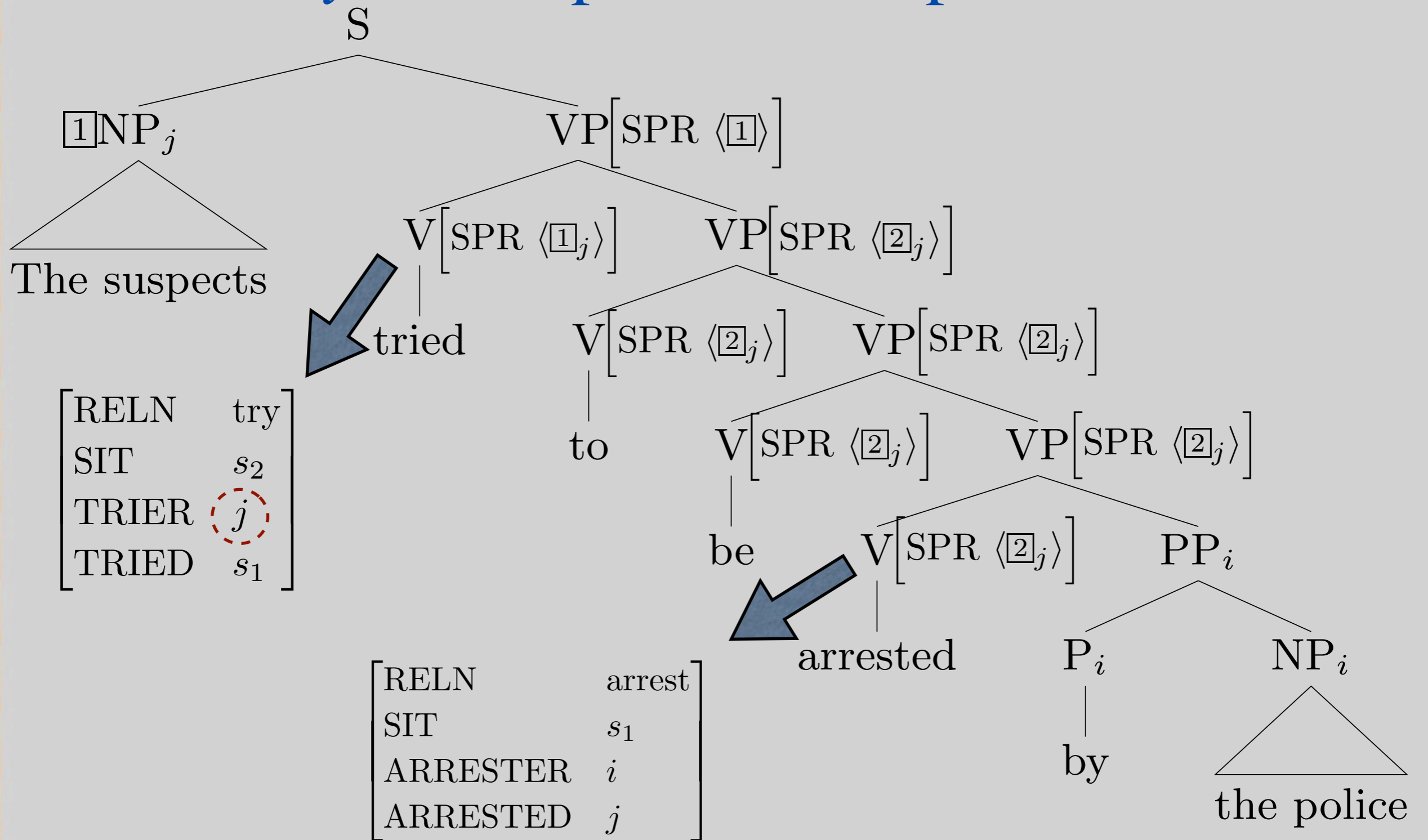- Very little had to be stipulated in the entry for *try*

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

S

$\boxed{1}\text{NP}_i$ $\text{VP}\big[\text{SPR}\ \langle\boxed{1}\rangle\big]$

The police

$\text{V}\big[\text{SPR}\ \langle\boxed{1}_i\rangle\big]$ $\text{VP}\big[\text{SPR}\ \langle\boxed{2}_i\rangle\big]$

$$\begin{bmatrix} \text{RELN} & \text{try} \\ \text{SIT} & s_2 \\ \text{TRIER} & i \\ \text{TRIED} & s_1 \end{bmatrix}$$

tried

$\text{V}\big[\text{SPR}\ \langle\boxed{2}_i\rangle\big]$ $\text{VP}\big[\text{SPR}\ \langle\boxed{2}_i\rangle\big]$

to

$\text{V}\big[\text{SPR}\ \langle\boxed{2}_i\rangle\big]$ NP_j

$$\begin{bmatrix} \text{RELN} & \text{arrest} \\ \text{SIT} & s_1 \\ \text{ARRESTER} & i \\ \text{ARRESTED} & j \end{bmatrix}$$

arrest

the susepcts

25

Try with a passive complement

S

$\boxed{1}$NP$_j$ VP$\left[\text{SPR }\langle\boxed{1}\rangle\right]$

The suspects

V$\left[\text{SPR }\langle\boxed{1}_j\rangle\right]$ VP$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$

tried

$$\begin{bmatrix}\text{RELN} & \text{try} \\ \text{SIT} & s_2 \\ \text{TRIER} & j \\ \text{TRIED} & s_1\end{bmatrix}$$

V$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$ VP$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$

to

V$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$ VP$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$

be

V$\left[\text{SPR }\langle\boxed{2}_j\rangle\right]$ PP$_i$

arrested

$$\begin{bmatrix}\text{RELN} & \text{arrest} \\ \text{SIT} & s_1 \\ \text{ARRESTER} & i \\ \text{ARRESTED} & j\end{bmatrix}$$

P$_i$ NP$_i$

by the police

26

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

$$\left\langle \text{NP}_i \, , \begin{bmatrix} & \text{VP} & \\ \text{INF} & + & \\ \text{SPR} & \langle \, \text{NP}_i \, \rangle & \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix} \right\rangle \qquad \left\langle \boxed{1} \, \text{NP} \, , \begin{bmatrix} & \text{VP} & \\ \text{INF} & + & \\ \text{SPR} & \langle \, \boxed{1} \, \rangle & \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s_2 \end{bmatrix} \end{bmatrix} \right\rangle$$
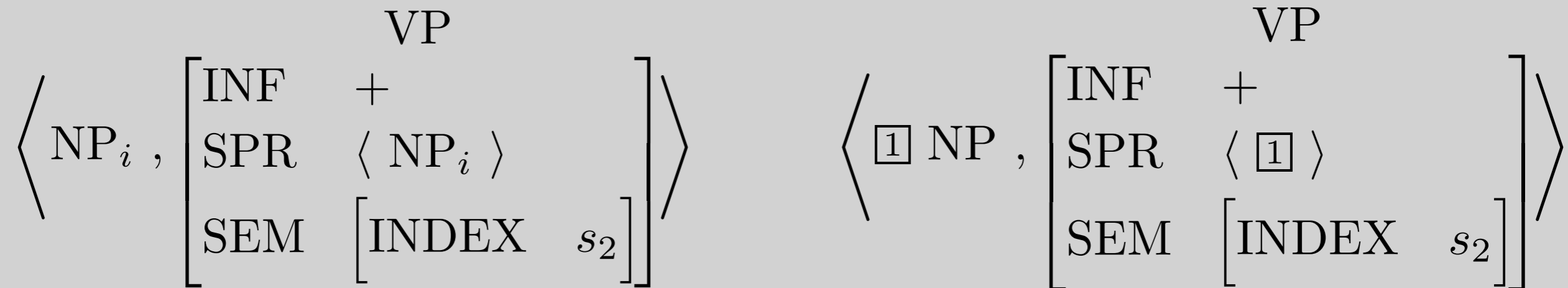
$$\text{CONTROL} \qquad\qquad\qquad\qquad\qquad \text{RAISING}$$

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.

Problems with the TG Accounts

- Details never fully worked out (e.g. where does *to* come from?)

- What blocks *The cat continued (for) the dog to bark* or *The cat tried (for) the dog to bark*?

- Failure of experimental attempts to find evidence for psychological reality of these transformations.

We make another raising/control distinction

Object-Raising Verb Lexeme (*orv-lxm*)

$$\begin{bmatrix} \text{ARG-ST} & \left\langle \text{NP} , \boxed{1} , \begin{bmatrix} \text{SPR} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \rangle \\ \text{INDEX} & s_2 \end{bmatrix} \right\rangle \\ \\ \text{SEM} & \begin{bmatrix} \text{RESTR} & \langle [\text{ARG} \quad s_2] \rangle \end{bmatrix} \end{bmatrix}$$

- The formal distinction is again between tagging and coindexing
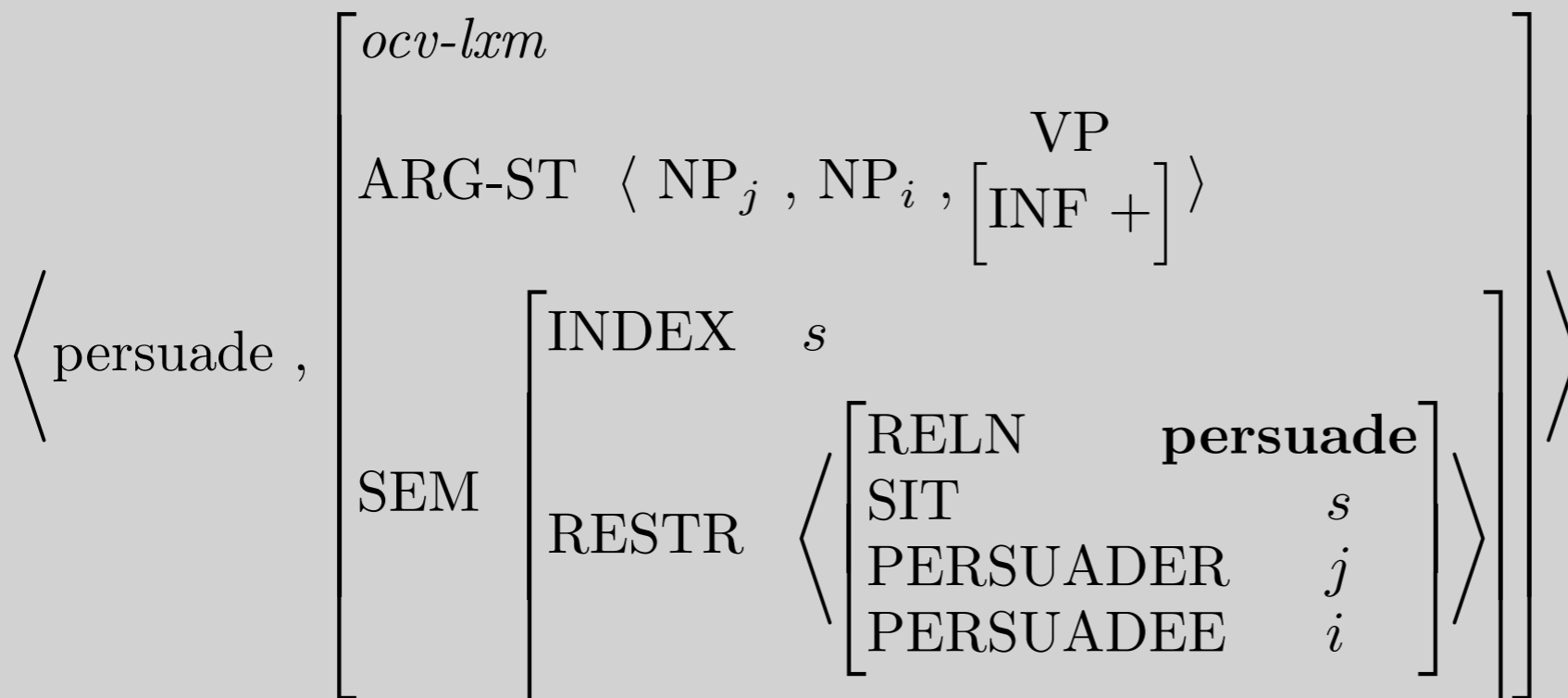
Object-Control Verb Lexeme (*ocv-lxm*)

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

- This time it's the **second** argument and the SPR of the **third** argument.

Example *orv-lxm* and *ocv-lxm* Entries

$$
\left\langle \text{expect} \;, \; \begin{bmatrix} \textit{orv-lxm} \\[6pt] \text{ARG-ST} \; \left\langle \text{NP}_j \;, \text{X} \;, \begin{bmatrix} \text{VP} \\ \text{INF} \; + \end{bmatrix} \right\rangle \\[14pt] \text{SEM} \begin{bmatrix} \text{INDEX} \quad s \\[6pt] \text{RESTR} \; \left\langle \begin{bmatrix} \text{RELN} & \textbf{expect} \\ \text{SIT} & s \\ \text{EXPECTER} & j \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
$$
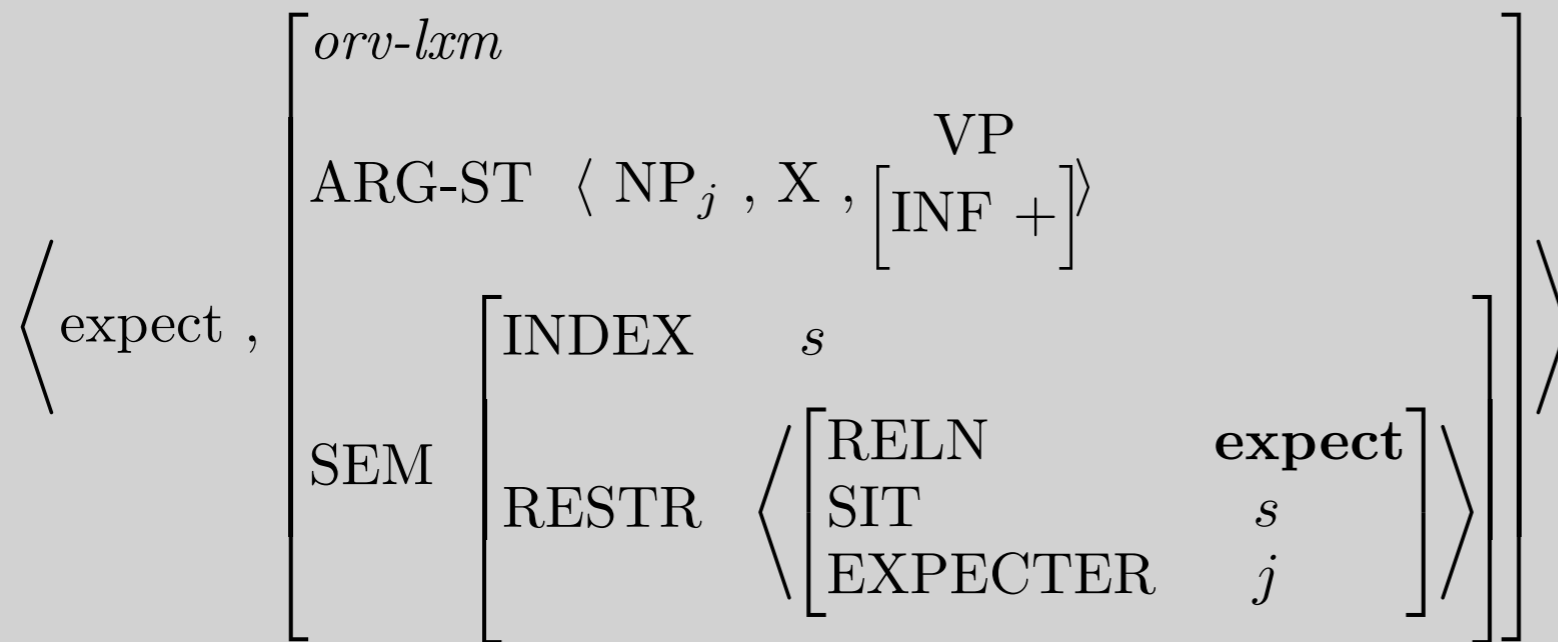
- Note that the 'persuade' relation has three arguments, but the 'expect' relation has only two

$$
\left\langle \text{persuade} \;, \; \begin{bmatrix} \textit{ocv-lxm} \\[6pt] \text{ARG-ST} \; \left\langle \text{NP}_j \;, \text{NP}_i \;, \begin{bmatrix} \text{VP} \\ \text{INF} \; + \end{bmatrix} \right\rangle \\[14pt] \text{SEM} \begin{bmatrix} \text{INDEX} \quad s \\[6pt] \text{RESTR} \; \left\langle \begin{bmatrix} \text{RELN} & \textbf{persuade} \\ \text{SIT} & s \\ \text{PERSUADER} & j \\ \text{PERSUADEE} & i \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle
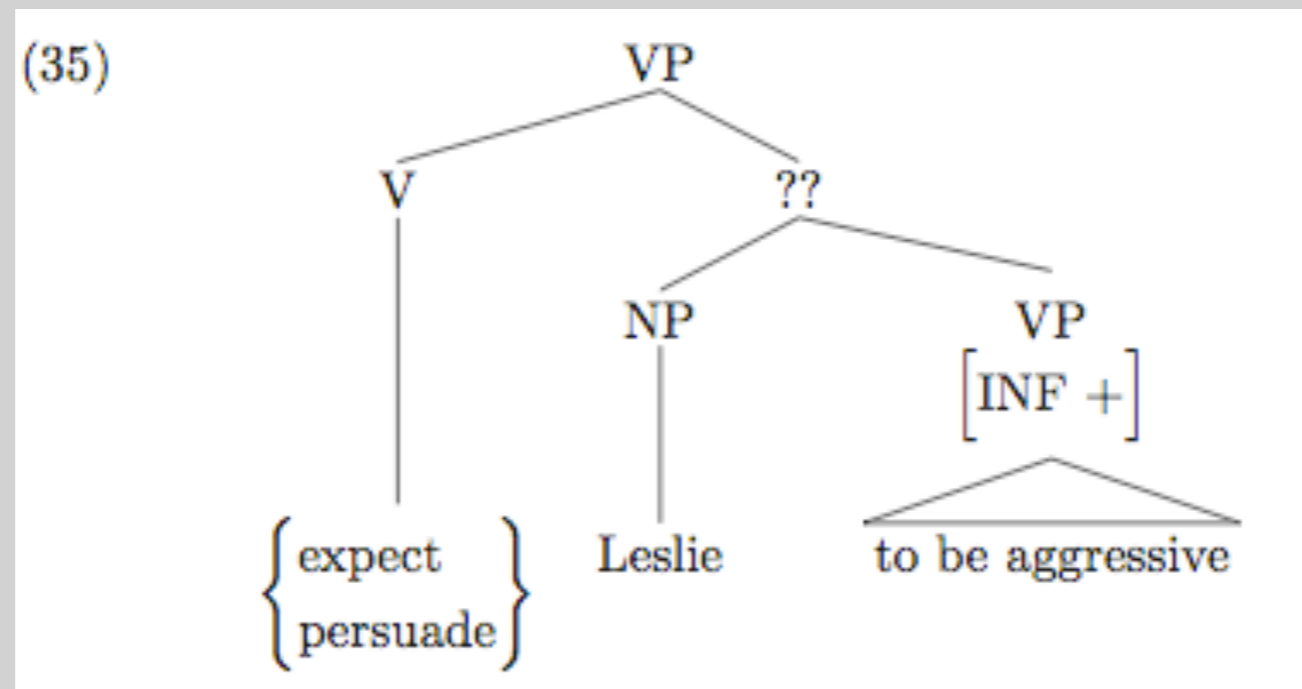$$

- And the object's INDEX plays a role in the 'persuade' relation, but not in the 'expect' relation

31

Reading Questions

- How does the sentence in (2b) get licensed? If Chris solve the problem is the complement of helped, what sort of complement is it? N

    - Pat helped [Chris solve the problem].

Reading Questions

- Is it fair to say that the reason that the structure in (35) is invalid because the passive rule would front the entire VP[to] structure instead of just the object NP?

(35)
```
              VP
           /      \
          V         ??
          |       /    \
       {expect}  NP     VP
       {persuade} |     [INF +]
                Leslie    /‾‾\
                     to be aggressive
```

Reading Questions

- Is subject-raising-lxm used for any parts of speech other than adjectives or verbs?

- Why can't scv-lxm just be a subtype under srv-lxm in the hierachy?

Reading Questions

- This isn't really a question, but more a comment. It bothers me how many interpretations of syntax we declare "semantically empty." It's either a linguistic generalization about English or the grammar writers.

Justifying the difference between *expect* and *persuade* (Prob. 12.4)

Construct examples of each of the following four types which show a contrast between *expect* and *persuade*:

i.   Examples with dummy *there*

ii.   Examples with dummy *it*

iii. Examples with idiom chunks

iv. Examples of relevant pairs of sentences containing active and passive complements. Indicate whether they are or are not paraphrases of each other.

Overview

- Intro to topic

- Infinitival *to*

- (Subject) raising verbs

- (Subject) control verbs

- Raising/control in TG

- Object raising and object control

- If time: Problem 12.4

- Next time: Auxiliaries