Ling 566
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Binding Theory, Imperatives

Overview

- Review of Ch 1 informal binding theory

- What we already have that's useful

- What we add in Ch 7 (ARG-ST, ARP)

- Formalized Binding Theory

- Binding and PPs

- Examples

- Imperatives

- Reading questions

Some Examples from Chapter 1

- *She likes herself*
- **She$_i$ likes her$_i$.*
- *We gave presents to ourselves.*
- **We gave presents to us.*
- *We gave ourselves presents*
- **We gave us presents.*

- **Leslie told us about us.*
- *Leslie told us about ourselves.*
- **Leslie told ourselves about us.*
- **Leslie told ourselves about ourselves.*

Some Terminology

- <u>Binding</u>: The association between a pronoun and an antecedent.

- <u>Anaphoric</u>: A term to describe an element (e.g. a pronoun) that derives its interpretation from some other expression in the discourse.

- <u>Antecedent</u>: The expression an anaphoric expression derives its interpretation from.

- <u>Anaphora</u>: The relationship between an anaphoric expression and its antecedent.

The Chapter 1 Binding Theory Reformulated

- Old Formulation:
  - A reflexive pronoun must be an argument of a verb that has another preceding argument with the same reference.
  - A nonreflexive pronoun cannot appear as an argument of a verb that has a preceding coreferential argument.

- New Formulation:
  - Principle A (version I): A reflexive pronoun must be bound by a preceding argument of the same verb.
  - Principle B (version I): A nonreflexive pronoun may not be bound by a preceding argument of the same verb.

Some Challenges

- Replace notions of "bound" and "preceding argument of the same verb" by notions definable in our theory.

- Generalize the Binding Principles to get better coverage.

A Question

- What would be a natural way to formalize the notion of "bound" in our theory?

- Answer: Two expressions are bound if they have the same INDEX value ("are coindexed").

Two More Questions

- Where in our theory do we have information about a verb's arguments?

- Answer: In the verb's VALENCE features.

- What determines the linear ordering of a verb's arguments in a sentence?

- Answer: The interaction of the grammar rules and the ordering of elements in the COMPS list.

The Argument Realization Principle

- For Binding Theory, we need (would like?) a single list with both subject and complements.

- We introduce a feature ARG-ST, with the following property (to be revised later):

$$\begin{bmatrix} \text{SYN} & \begin{bmatrix} \text{VAL} & \begin{bmatrix} \text{SPR} & \boxed{A} \\ \text{COMPS} & \boxed{B} \end{bmatrix} \end{bmatrix} \\ \text{ARG-ST} & \boxed{A} \oplus \boxed{B} \end{bmatrix}$$

- This is a constraint on the type word

Notes on ARG-ST

- It's neither in SYN nor SEM.

- It only appears on lexical items (not appropriate for type *phrase*)

- No principle stipulates identity between ARG-STs.

W How do you feel about ARG-ST?

Seems useful
and/or intuitive

Seems redundant
to SPR/COMPS

I'm reserving
judgment

Two Bits of Technical Machinery

- <u>Definition</u>: If *A* precedes *B* on some ARG-ST list, then *A* **outranks** *B*.

- Elements that must be anaphoric -- that is, that require an antecedent -- are lexically marked **[MODE ana]**. These include reflexive pronouns and reciprocals.

The Binding Principles

- <u>Principle A</u>:   A [MODE ana] element must be outranked by a coindexed element.

- <u>Principle B</u>: A [MODE ref] element must not be outranked by a coindexed element.

Pronoun-Antecedent Agreement

- The Binding Principles by themselves don't block:
  - * *I amused yourself.*
  - * *He amused themselves.*
  - * *She amused himself.*
- Coindexed NPs refer to the same entity, and AGR features generally correlate with properties of the referent.
- The Anaphoric Agreement Principle (AAP): Coindexed NPs agree.

Binding in PPs

- What do the Binding Principles predict about the following?

  I brought a book with me.

  *I brought a book with myself.

  *I mailed a book to me.

  I mailed a book to myself.

Two Types of Prepositions: the Intuition

- "Argument-marking": Function like case-markers in other languages, indicating the roles of NP referents in the situation denoted by the verb.

- "Predicative": Introduce their own predication.

Two Types of Prepositions: a Formalization

- Argument-marking prepositions share their objects' MODE and INDEX values.
  - This is done with tagging in the lexical entries of such prepositions.
  - These features are also shared with the PP node, by the Semantic Inheritance Principle.
- Predicational prepositions introduce their own MODE and INDEX values.

Redefining Rank

- If there is an ARG-ST list on which *A* precedes *B*, then *A* outranks *B*.

- If a node is coindexed with its daughter, they are of equal rank -- that is, they outrank the same nodes and are outranked by the same nodes.

An Example
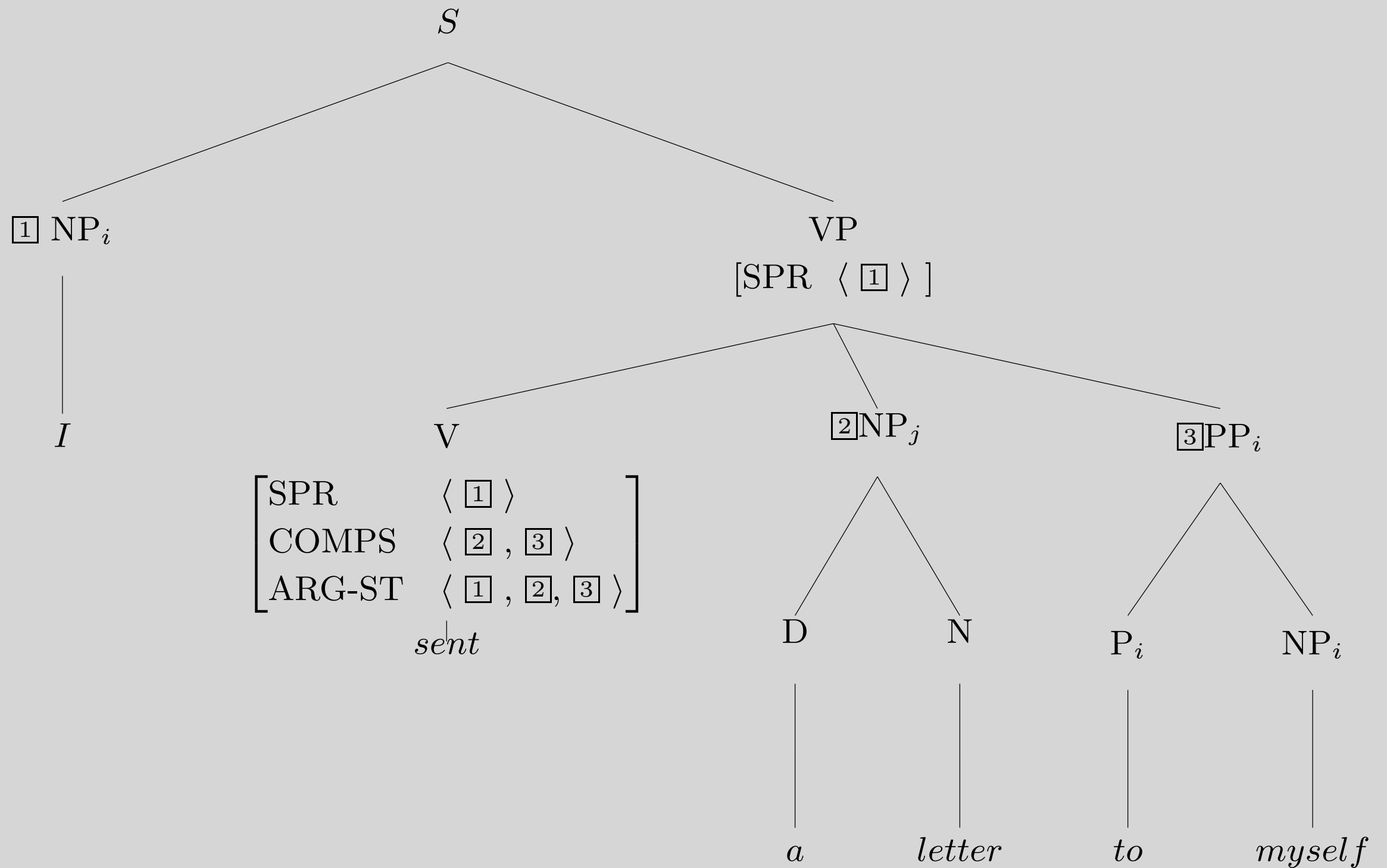
$$S$$

☐1 NP_i

VP
$[SPR \ \langle \ ☐1 \ \rangle \ ]$

I

V

$\begin{bmatrix} SPR & \langle \ ☐1 \ \rangle \\ COMPS & \langle \ ☐2 \ , \ ☐3 \ \rangle \\ ARG\text{-}ST & \langle \ ☐1 \ , \ ☐2, \ ☐3 \ \rangle \end{bmatrix}$

sent

☐2NP_j

☐3PP_i

D

N

P_i

NP_i

a

letter

to

myself

The ARG-ST

$$\left[\text{ARG-ST} \left\langle \begin{bmatrix} \text{NP}_i \\ \text{MODE ref} \end{bmatrix}, \begin{bmatrix} \text{NP}_j \\ \text{MODE ref} \end{bmatrix}, \begin{bmatrix} \text{PP}_i \\ \text{MODE ana} \end{bmatrix} \right\rangle \right]$$

- The PP is outranked by the first NP. (Why?)
- *myself* has the same rank as the PP. (Why?)
- So, *myself* is outranked by the first NP. (Why?)
- Therefore, Principle A is satisfied.

Replacing *myself* with *me*
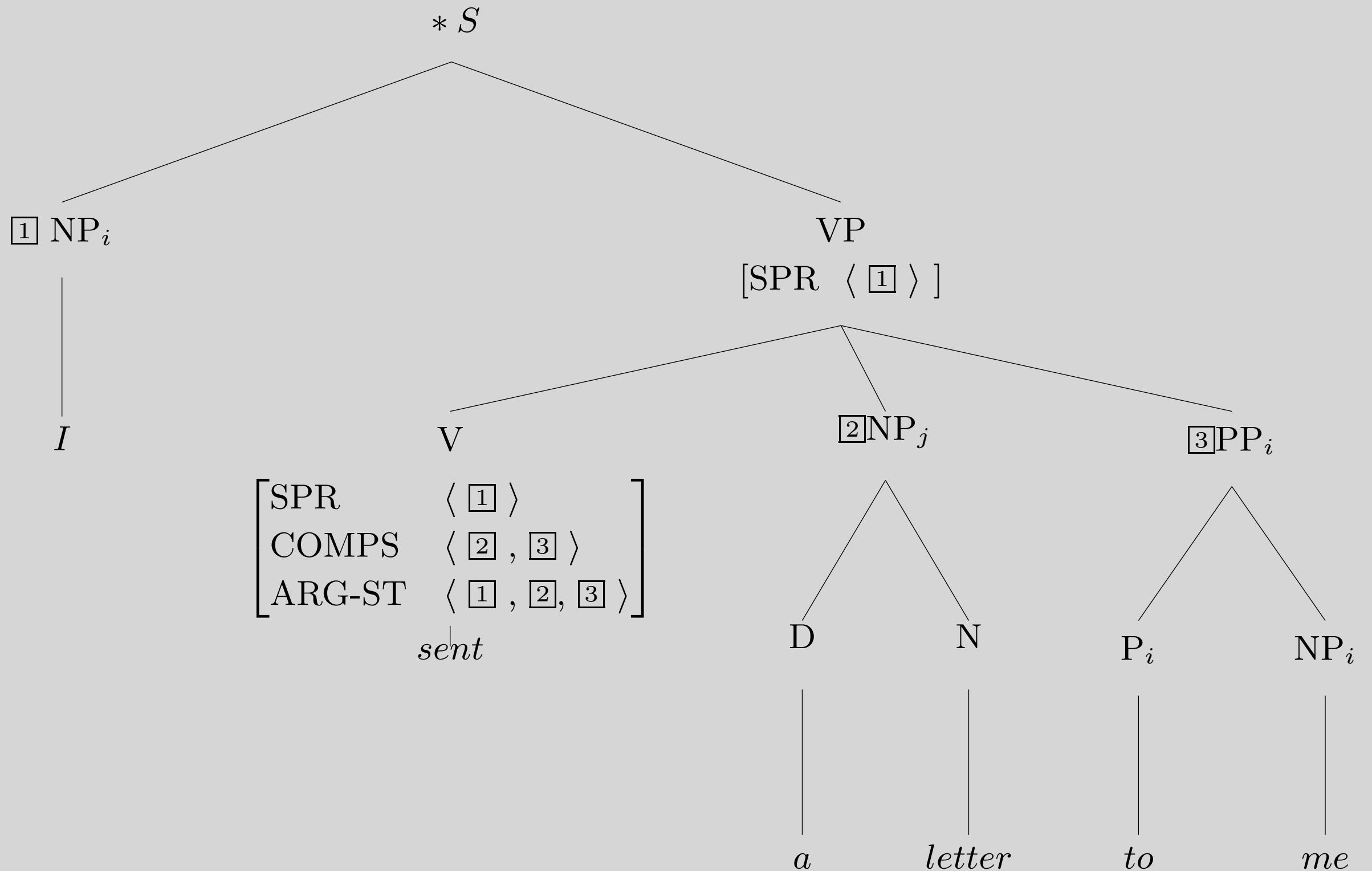
$* \, S$

$\boxed{1} \, \text{NP}_i$

VP
$[\text{SPR} \ \langle \ \boxed{1} \ \rangle \,]$

I

V

$$\begin{bmatrix} \text{SPR} & \langle \ \boxed{1} \ \rangle \\ \text{COMPS} & \langle \ \boxed{2} \ , \ \boxed{3} \ \rangle \\ \text{ARG-ST} & \langle \ \boxed{1} \ , \ \boxed{2}, \ \boxed{3} \ \rangle \end{bmatrix}$$

sent

$\boxed{2}\text{NP}_j$

D N

a *letter*

$\boxed{3}\text{PP}_i$

P_i NP_i

to   *me*

The ARG-ST

$$\left[\text{ARG-ST} \left\langle \begin{bmatrix} \text{NP}_i \\ \text{MODE ref} \end{bmatrix}, \begin{bmatrix} \text{NP}_j \\ \text{MODE ref} \end{bmatrix}, \begin{bmatrix} \text{PP}_i \\ \text{MODE ref} \end{bmatrix} \right\rangle \right]$$

- The PP is outranked by the first NP.
- *me* has the same rank as the PP.
- So, *me* is outranked by the first NP.
- Therefore, Principle B is violated.

Another Example

$$S$$

□1 NP_i VP [SPR ⟨ □1 ⟩]

I

V

$$\begin{bmatrix} \text{SPR} & \langle\ \boxed{1}\ \rangle \\ \text{COMPS} & \langle\ \boxed{2}\ ,\ \boxed{3}\ \rangle \\ \text{ARG-ST} & \langle\ \boxed{1}\ ,\ \boxed{2},\ \boxed{3}\ \rangle \end{bmatrix}$$

brought

□2 NP_j

□3 PP_k

D   N P_k NP_i

a   *pencil*   *with*   *me*
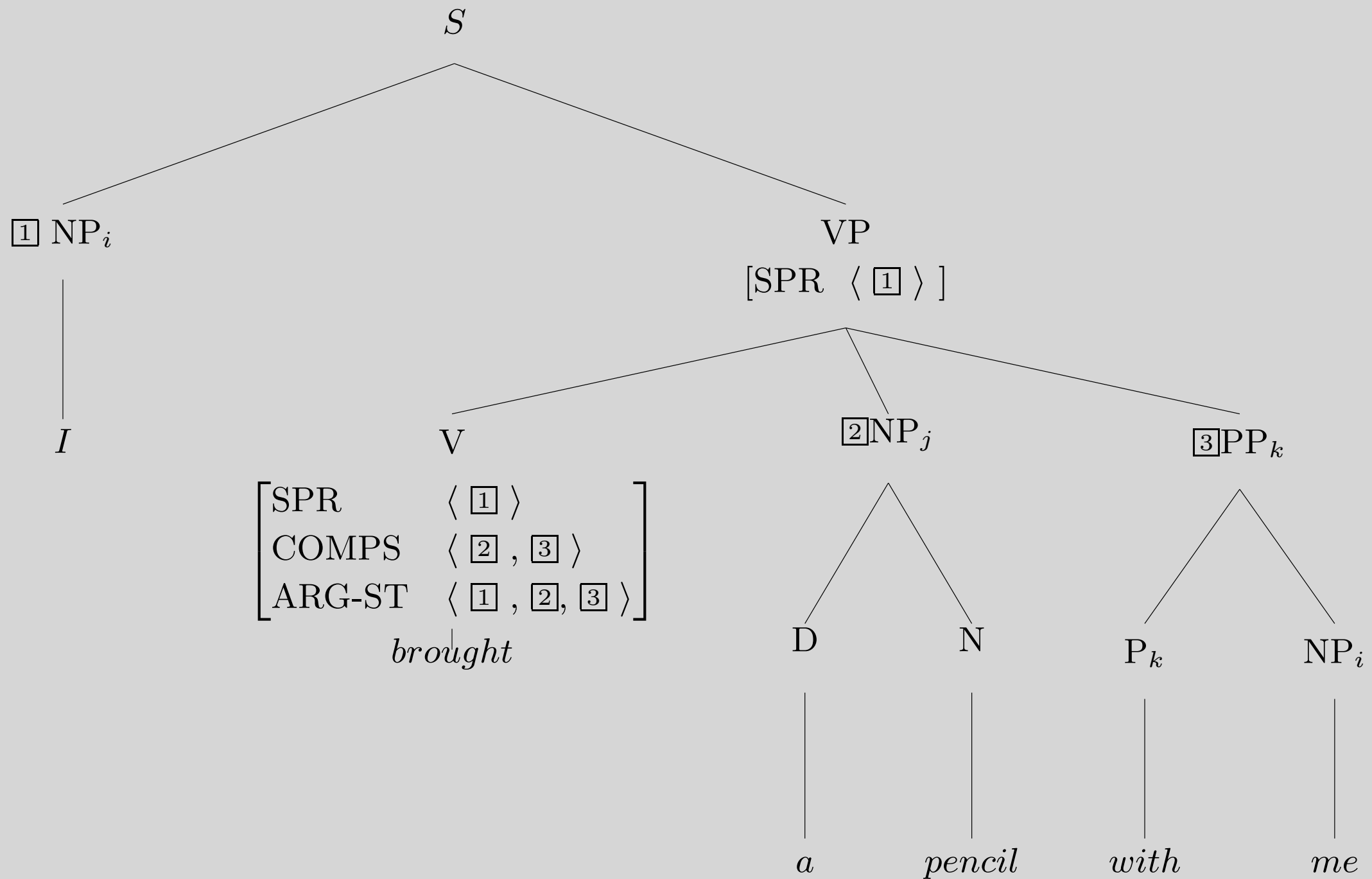
- Here *I* does not outrank *me*, so Principle B is satisfied.

Replacing *me* with *myself*

$* S$

$\boxed{1}\,NP_i$

VP
$[SPR \ \langle \ \boxed{1} \ \rangle \ ]$

I

V

$$\begin{bmatrix} SPR & \langle \ \boxed{1} \ \rangle \\ COMPS & \langle \ \boxed{2} \ , \ \boxed{3} \ \rangle \\ ARG\text{-}ST & \langle \ \boxed{1} \ , \ \boxed{2}, \ \boxed{3} \ \rangle \end{bmatrix}$$
brought

$\boxed{2}NP_j$

D

N

$\boxed{3}PP_k$

P_k

NP_i

a

pencil

with
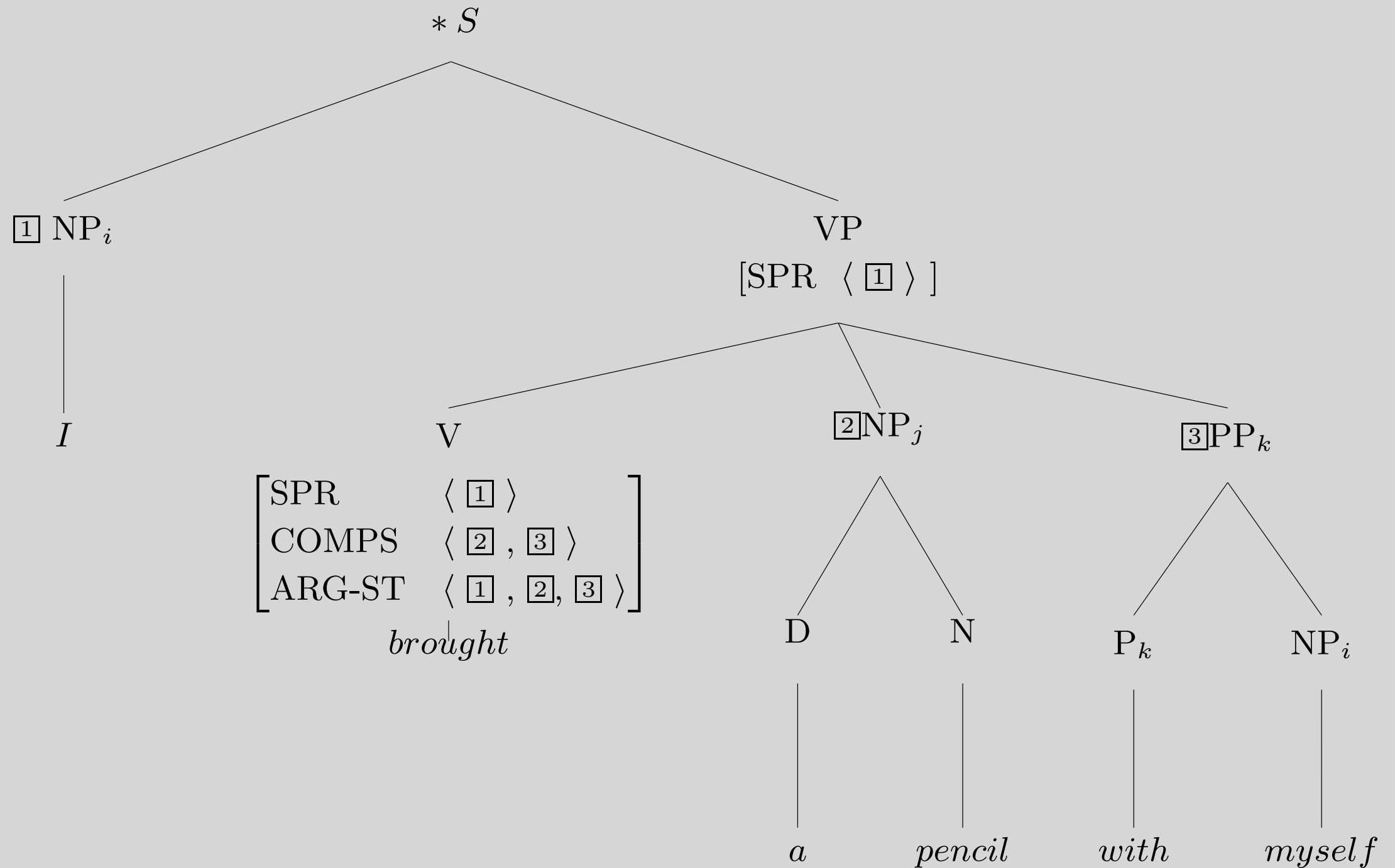
myself

- Here *I* does not outrank *myself*, so Principle A is violated.

Imperatives

- ## Have the internal structure of a VP
  Leave!
  Read a book!
  Give the dog a treat!
  Put the ice cream in the freezer!
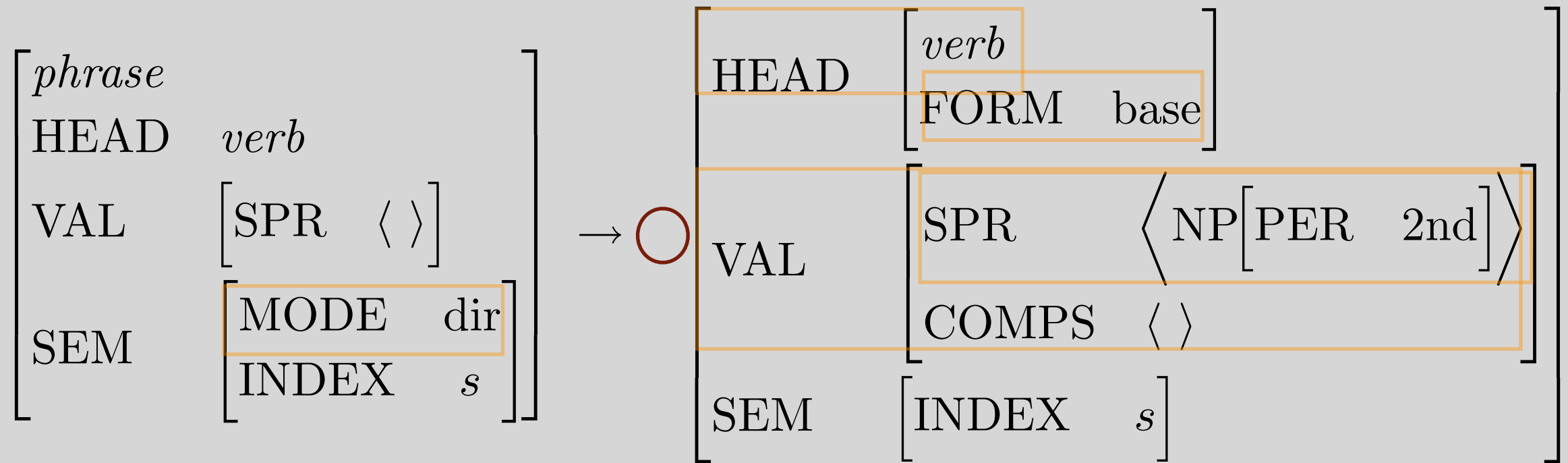
- ## Function as **directives**

- ## Have the verb in base form

  Be careful!   not   **Are careful!*

- ## Allow 2nd person reflexives, and no others

  Defend yourself! vs. **Defend myself/himself!*

The Imperative Rule

$$
\begin{bmatrix}
phrase \\
\text{HEAD} \quad verb \\
\text{VAL} \quad \begin{bmatrix} \text{SPR} \quad \langle\,\rangle \end{bmatrix} \\
\text{SEM} \quad \begin{bmatrix} \text{MODE} \quad \text{dir} \\ \text{INDEX} \quad s \end{bmatrix}
\end{bmatrix}
\rightarrow \bigcirc
\begin{bmatrix}
\text{HEAD} \quad \begin{bmatrix} verb \\ \text{FORM} \quad \text{base} \end{bmatrix} \\
\text{VAL} \quad \begin{bmatrix} \text{SPR} \quad \langle \text{NP}\begin{bmatrix} \text{PER} \quad \text{2nd} \end{bmatrix} \rangle \\ \text{COMPS} \quad \langle\,\rangle \end{bmatrix} \\
\text{SEM} \quad \begin{bmatrix} \text{INDEX} \quad s \end{bmatrix}
\end{bmatrix}
$$

- Internal structure of a VP
- Directive function
- Base form
- Only 2nd person reflexives

- Note that this is not a headed rule. Why?
- Answer: It would violate the HFP and the SIP.

Imperative example
(Combining constraints again)

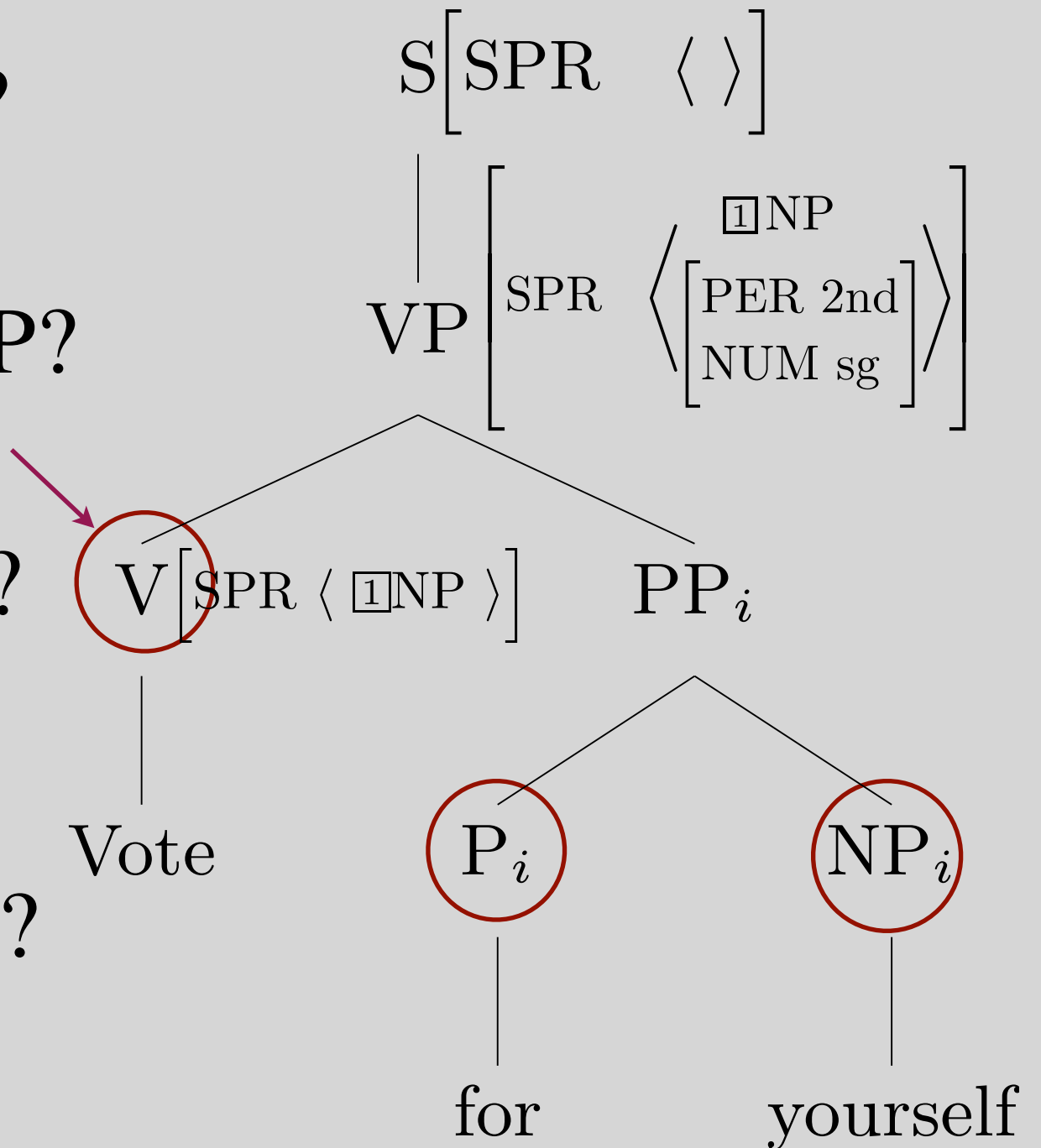What's the SPR value on S?

Why?

What's the SPR value on VP?

Why?

What's the SPR value on V?

Why?

Which nodes have ARG-ST?

Which ARG-ST matters for
 the licensing of yourself?

$$S\left[SPR \quad \langle \; \rangle\right]$$

$$VP\left[SPR \quad \left\langle \begin{bmatrix} \boxed{1}NP \\ \begin{bmatrix} PER\ 2nd \\ NUM\ sg \end{bmatrix} \end{bmatrix} \right\rangle\right]$$

$V\left[SPR \; \langle \; \boxed{1}NP \; \rangle\right]$ PP_i

Vote P_i NP_i

for yourself

The Imperative Rule just does away with that SPR requirement, without providing an overt constituent:
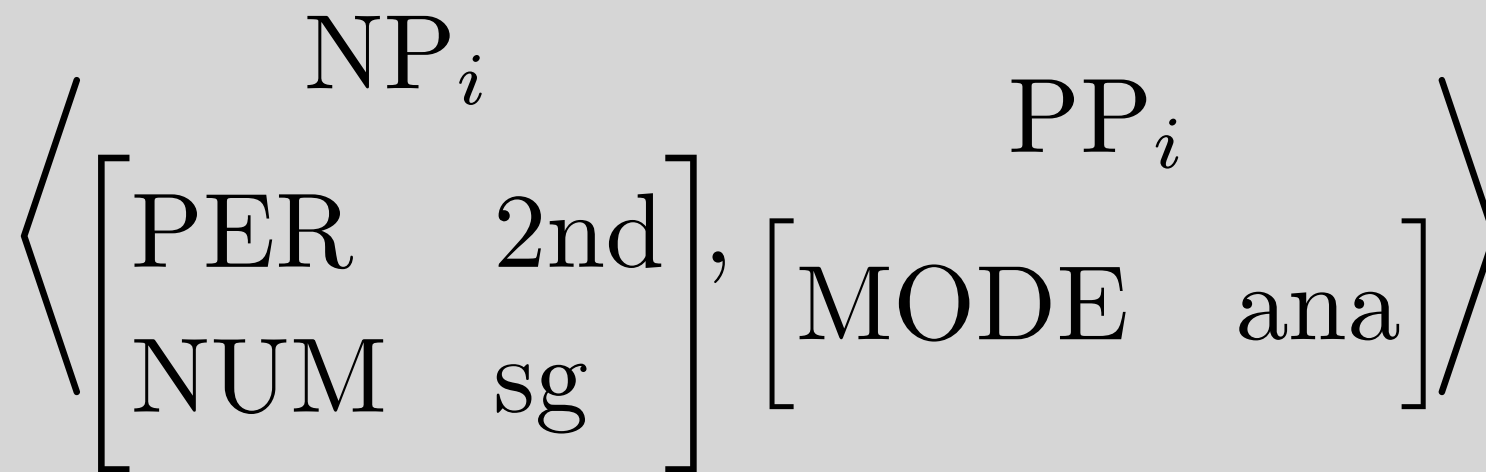
Sneaky!

Unfair! The verb needed that SPR!

Confusing! How can a requirement just go away?

Subtle! I can see it works, but it's still surprising

Elegant!

Imperative example
(Combining constraints again)

$$
S\left[\text{SPR} \quad \langle\,\rangle\right]
$$

$$
VP\left[\text{SPR} \quad \left\langle \begin{array}{l} \boxed{1}\text{NP} \\ \left[\begin{array}{l} \text{PER 2nd} \\ \text{NUM sg} \end{array}\right] \end{array} \right\rangle\right]
$$

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

Vote P_i NP_i

for   yourself

ARG-ST on *vote*

$$\left\langle \begin{bmatrix} \text{NP}_i \\ \text{PER} \quad \text{2nd} \\ \text{NUM} \quad \text{sg} \end{bmatrix}, \begin{bmatrix} \text{PP}_i \\ \text{MODE} \quad \text{ana} \end{bmatrix} \right\rangle$$

- Is Principle A satisfied?

- How?

- Is Principle B satisfied?

- How?

Day 1 Revisited

- Recall

  F---- yourself!   *F---- you!*
  Go f---- yourself!   **Go f---- you!*

- *F--- NP!* has two analyses
  - As an imperative
  - As a truly subjectless fixed expression.

- *Go f---- NP!* can only be analyzed as an imperative.

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Reading Questions

- Is coreferential the opposite of anaphoric?

- Is coreferential the opposite of coindexed?

- What's the difference between coindexation and coreference?

  - *The solution to that problem is rest and relaxation.*

  - *The ham sandwich at table 5 is expecting you to bring him the check.*

Reading Questions

- In footnote 6 (p209), it says that the theory doesn't allow examples like *Pat's family is enjoying themselves*. That sentence is grammatical, so why doesn't the theory account for it? How could the sentence be rewritten to allow it and keep the same meaning?

- The definition of *they* is changing in English. Does this also change how we apply Binding Theory to the word?

Reading Questions

- From 27, I can recognize this pattern:

    - a. Predicate - PP grammatical only with non-reflexive pronoun

    - b. Argument-Marking - PP grammatical only with reflexive pronoun

    - c. Ambiguous - PP grammatical with either kind of pronoun

- But, the logic behind the distribution of pronouns isn't clicking for me. Especially since to me, *The house had a fence around itself* sounds grammatical.

Reading Questions

- To determine whether a preposition is an argument-making preposition in a sentence, it seems we still reply on the meaning of the sentence, right?

- Are there prepositions that are only argument-making ones and that are only non-argument-making ones?

Reading Questions

- On page 215, the book says "It seems correct to say that as far as grammar is concerned, both the ARG-ST configurations in (33) and (34) are acceptable" but (34) (*Susan_j told a story_i to herself_i*.) violates the Anaphoric Agreement Principle. Wouldn't the AAP prevent the ARG-ST configuration for (34) from being grammatical?

Reading Questions

- Why did we adopt the AAP constraint rather than integrate agreement into the binding principles themselves? Do the binding principles have to be referenced alongside the AAP in some manner (to indicate that they are not exhaustive/independent), or is the latter just accepted as a general constraint for our grammar?

Reading Questions

- Does the Argument Realization Principle take into account optional complements from the lexical entry when building the ARG-ST list?

Reading Questions

- How would languages with more than one word ordering deal with ARG-ST on the lexical entry of the verb. Would there be multiple orderings and you can select using a "|" (or bar)? I guess in English one example we have is "We gave the ball to him" vs. "We gave him the ball".

- How would you go about this if the verb could have many different orderings as well?

Reading Questions

- For the ARG-ST hierarchy, I am confused on how much weight is being placed on the actual linear order of the elements vs the specific argument type (subject vs direct object…). The cross-linguistic generalizations given to provide justification for the hierarchy use the term "outrank", but does the notion of "outrank" always apply strictly to linear order on the ARG-ST list, or is it ever expanded to give increased importance to certain arguments regardless of their position?

- Is it that elements on the ARG-ST list are thought to always be ordered according to the ARG-ST hierarchy even if that doesn't match the way the arguments actually appear in a sentence for a given language? For example, in English, the subject outranks everything else in the ARG-ST list, but given the cross-linguistic generalizations about the importance of subjects, should this same idea hold in other languages that don't have the subject as the first argument of a verb?

Reading Questions

- (47) If a language can relativize X, then it can relativize any element that outranks X.

- (44) Subject > Direct Object > 2nd Object > Other Complement

- How does this hold for languages with VOS/OVS/OSV orders?

Reading Questions

- The ARG-ST can include elements that are not overtly expressed, so pro-drop languages could be treated the same way as the imperatives right?

Reading Questions

- I was also curious on ambiguous names such as "Alex" or "Taylor," the sentences Alex hurt himself/ Alex hurt herself are both grammatical given we don't have context. How would we determine if they are grammatical through computer parsing? Is it based on probability of what gender the name typically appears to be?