

Ling 566

Jan 30, 2006

Binding Theory, Imperatives

# Overview

- Review of Chapter 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

# *Some Examples from Chapter 1*

- *She likes herself*
- *\*She<sub>i</sub> likes her<sub>i</sub>.*
- *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

- Binding: The association between a pronoun and an antecedent.
- Anaphoric: A term to describe an element (e.g. a pronoun) that derives its interpretation from some other expression in the discourse.
- Antecedent: The expression an anaphoric expression derives its interpretation from.
- Anaphora: 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 a single list with both subject and complements.
- We introduce a feature ARG-ST, with the following property (to be revised later):

$$\left[ \begin{array}{l} \text{SYN} \\ \text{ARG-ST} \end{array} \left[ \begin{array}{l} \text{VAL} \\ \boxed{A} \oplus \boxed{B} \end{array} \left[ \begin{array}{l} \text{SPR} \\ \text{COMPS} \end{array} \left[ \begin{array}{l} \boxed{A} \\ \boxed{B} \end{array} \right] \right] \right] \right]$$

- This is a constraint on the type *word*

# Notes on ARG-ST

- It's neither in SYN nor SEM.
- It only appears on lexical heads (not appropriate for type *phrase*)
- No principle stipulates identity between ARG-STs.

# Two Bits of Technical Machinery

- Definition: 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

- Principle A: A [MODE ana] element must be outranked by a coindexed element.
- Principle B: 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.*

- Answer: With the current formulation, only the non-reflexive pronouns should be good.

# 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

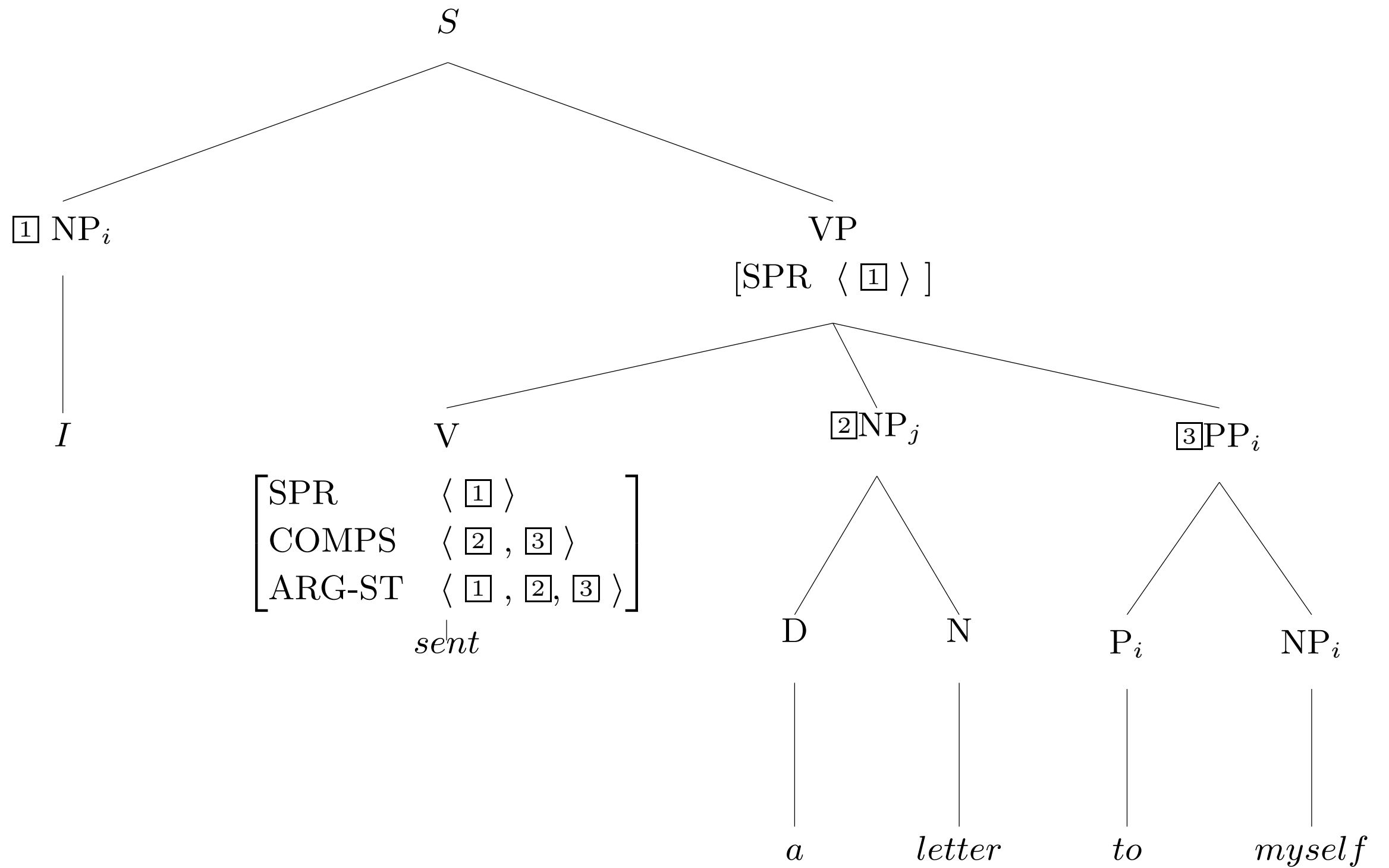
- Argument-marking prepositions share their objects' **MODE** and **INDEX** values.
  - This is done with tagging in the lexical entries of such prepositions.
  - These features are also shared with the PP node, by the Semantic Inheritance Principle.
- Predicative prepositions introduce their own **MODE**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

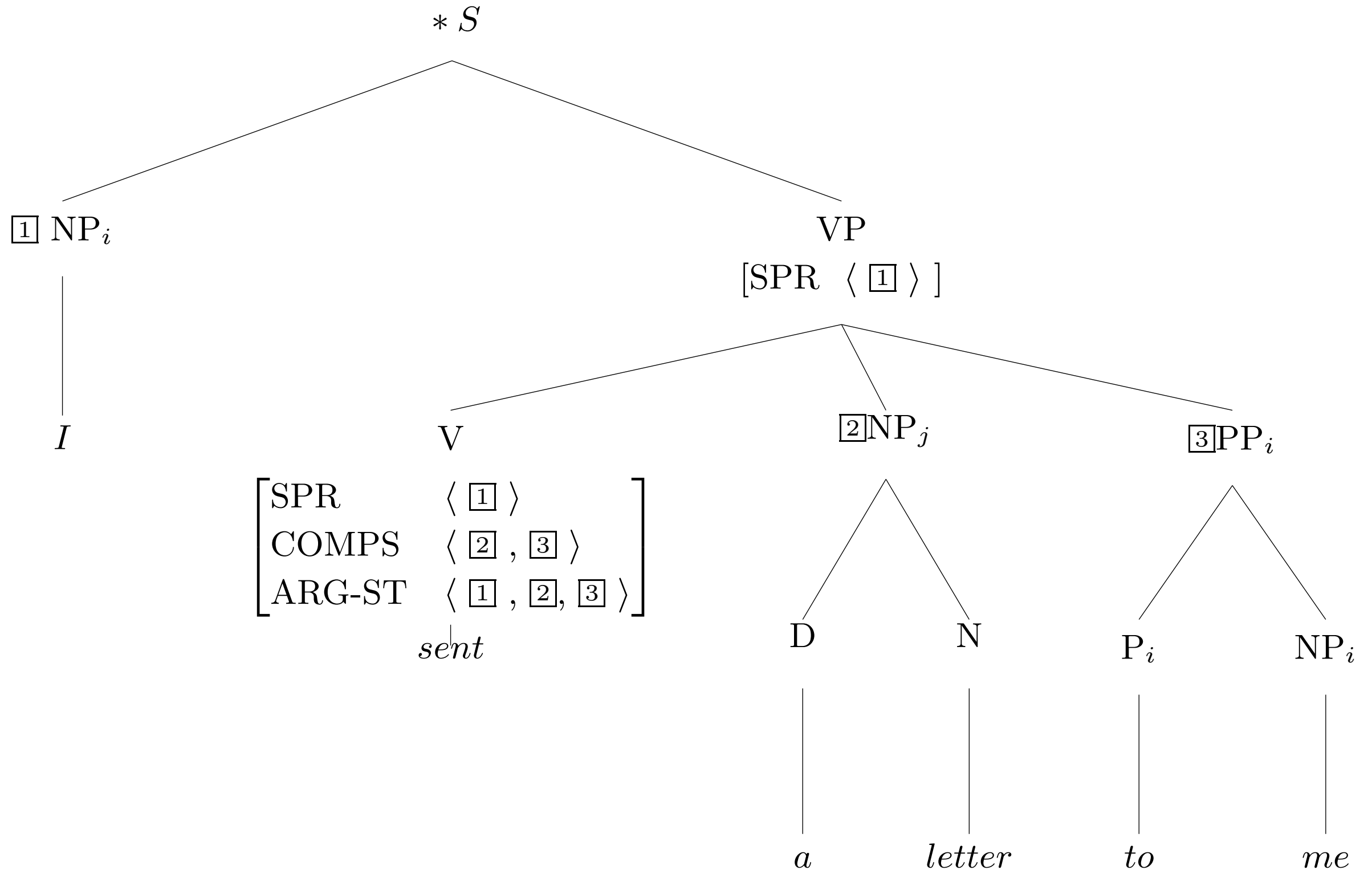


# The ARG-ST

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

- 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*

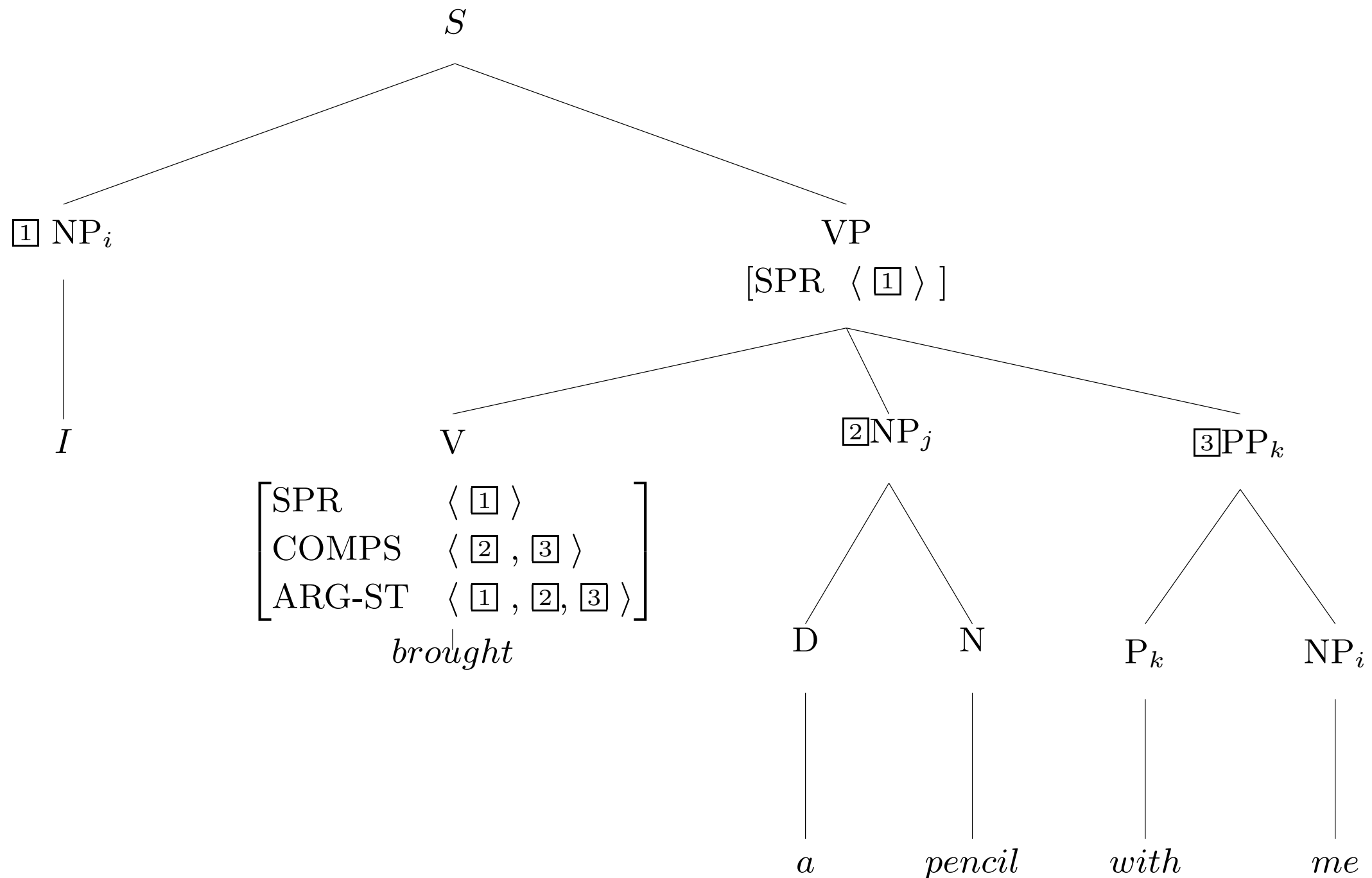


# The ARG-ST

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

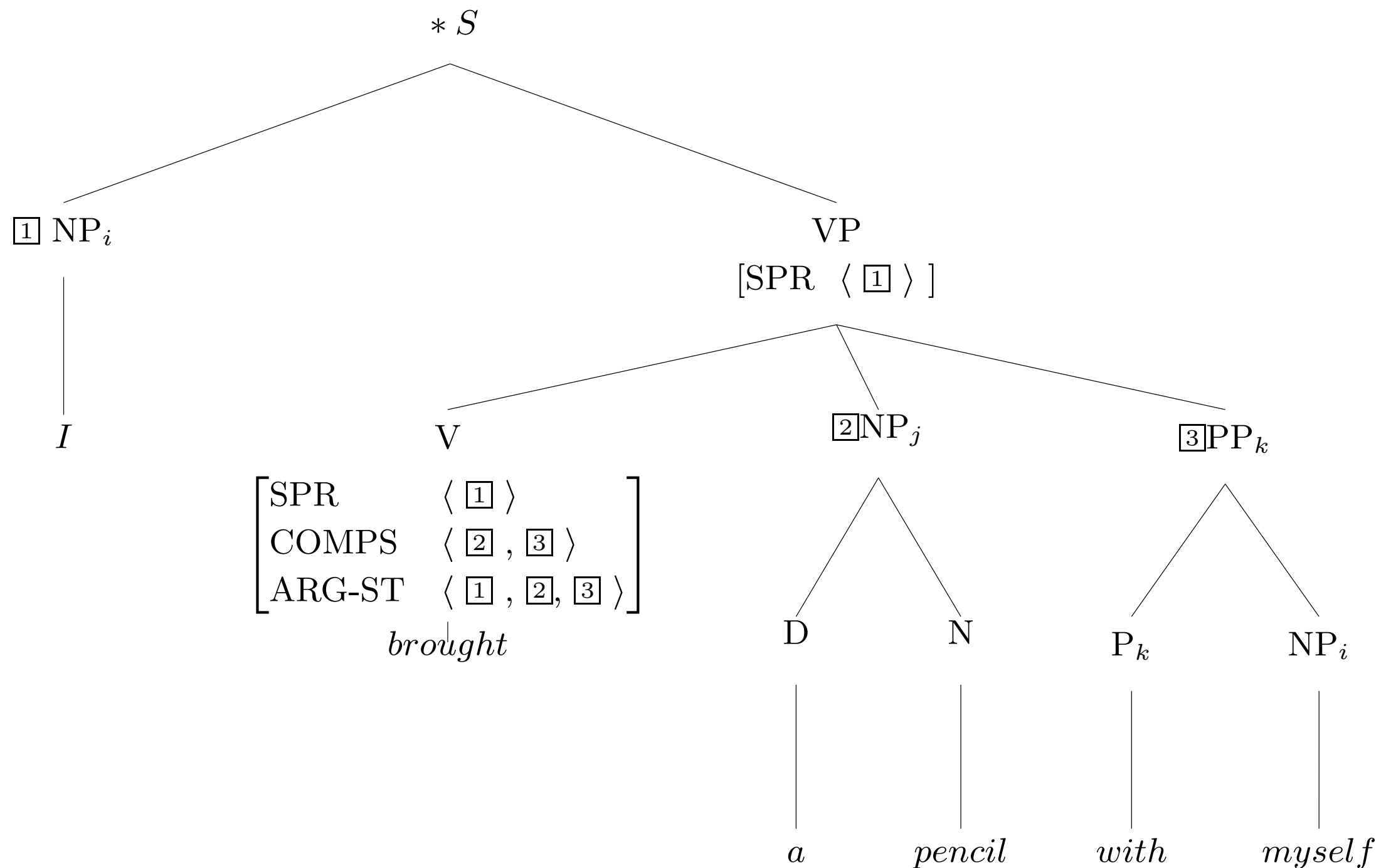
- The PP is outranked by the first NP.
- *me* has the same rank as the PP.
- So, *me* is outranked by the first NP.
- Therefore, Principle B is violated.

# Another Example



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

# Replacing *me* 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!*

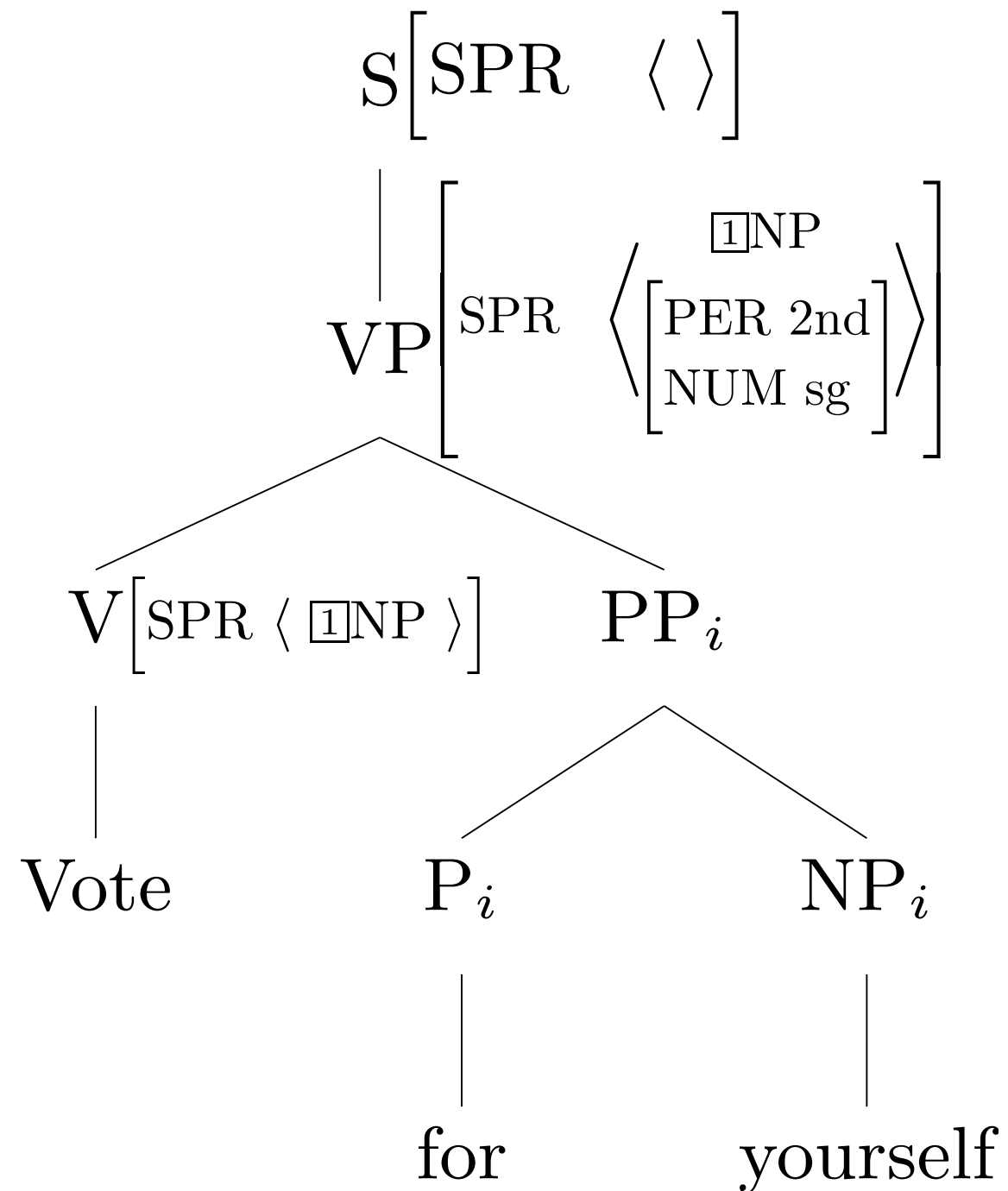


# The Imperative Rule

$$\begin{bmatrix} \textit{phrase} \\ \text{HEAD} & \textit{verb} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \langle \rangle \end{bmatrix} \\ \text{SEM} & \begin{bmatrix} \text{MODE} & \text{dir} \\ \text{INDEX} & s \end{bmatrix} \end{bmatrix} \rightarrow \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \\ \text{FORM} & \text{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SPR} & \left\langle \text{NP}[\text{PER} \quad 2\text{nd}] \right\rangle \\ \text{COMPS} & \langle \rangle \end{bmatrix} \\ \text{SEM} & \begin{bmatrix} \text{INDEX} & s \end{bmatrix} \end{bmatrix}$$

- 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)



# ARG-ST on *vote*

$$\left\langle \begin{array}{cc} \text{NP}_i & \\ \left[ \begin{array}{cc} \text{PER} & \text{2nd} \\ \text{NUM} & \text{sg} \end{array} \right] & \end{array}, \begin{array}{cc} \text{PP}_i & \\ \left[ \begin{array}{cc} \text{MODE} & \text{ana} \end{array} \right] & \end{array} \right\rangle$$

- 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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- Next time: The lexical hierarchy