Ling 566
Nov 26, 2013

Catch-up/review

Overview

- Ch 14 reading questions

- Big picture

- Untangle this...

- Course evals

Reading Questions

- How do you know, on the word level, whether an argument should be on the GAP list or the COMPS list?

- Between pages 432 and 433, we have for different lexical sequences for *hand*. Why that many? Is that supposed to be an exhaustive list of possible lexical sequences?

Reading Questions

- Can a GAP list have optional elements? For example, you can build a topicalized sentence with a verb that takes an optional complement, e.g. *eats* in *That cake, Sandy eats frequently*.

- Since the GAP list is filled out by the ARP and that the ARP is encoded in the word type, does that mean we are not allowed to specify in individual lexical entries what complements can go missing and what cannot? Is there even need this kind of per-word specialization?

Reading Questions

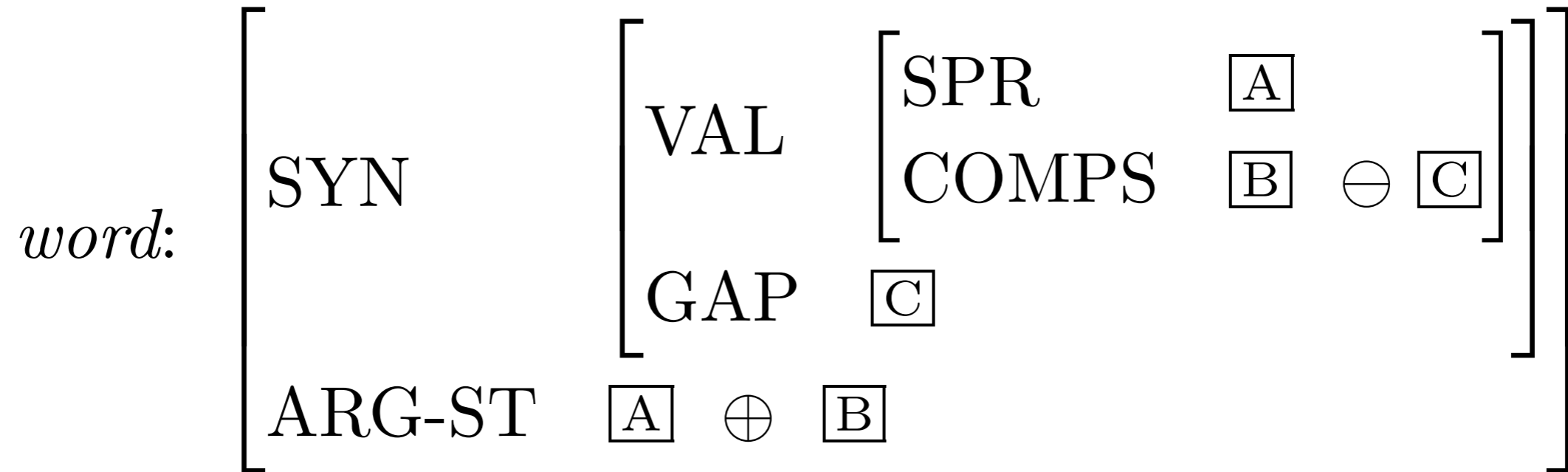- Why:

  ARG-ST: A+B

  COMPS: B-C

  GAP: C

- instead of:

  ARG-ST: A+B+C

  COMPS: B

  GAP: C

- It makes sense to me conceptually, but what are the actual implications in the grammar?

Reading Questions

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

Reading Questions

- According to the ARP defined in p.432, does that imply that English not allow the gap in specifier ?

- What's the difference between a non-empty GAP list and a trace?

Reading Questions

- In (36) we see that STOP-GAP<> is declared in the lexeme type. Since this is defeasible (and the default is <>) this should ensure that when we are not dealing with LDDs we can basically ignore STOP-GAP<> in our trees. However, where is GAP<> introduced in our type hierarchy? I can't seem to figure it out- and the Summary section further confuses me since it says GAP<> and STOP-GAP<> are appropriate for type *syn-cat*?

- Is GAP<> then empty by default and defeasible like STOP-GAP<>?

Reading Questions

- Unless I missed something, all of our feature values so far come from somewhere - either they're specified in a lexical entry or inherited up the tree through the phrase structure rules, or introduced by a lexical rule. Here, though, we seem to be arbitrarily declaring STOP-GAP features to be non-empty in non-leaf nodes to fill gaps. Maybe that doesn't explicitly violate anything in our formalism, but doesn't that take away from the heavy lexical basis of HPSG thus far?

Reading Questions

- STOP-GAP: It's supposed to signify what sub tree includes our gapped element? Isn't that what the GAP feature says?

- How does STOP-GAP help make sure that the missing NP in (39) is fully resolved?

  (39) Pat is easy to continue to follow ___.

A Tree for *easy to talk to___*

$$\begin{bmatrix} \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \boxed{2}\text{NP}_i\ \rangle \end{bmatrix} \\ \text{GAP} & \langle\ \rangle \end{bmatrix}$$

A

$$\begin{bmatrix} \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \boxed{2}\ \rangle \\ \text{COMPS} & \langle\ \boxed{3}\ \rangle \end{bmatrix} \\ \text{GAP} & \langle\ \rangle \\ \text{STOP-GAP} & \langle\ \boxed{1}\ \rangle \end{bmatrix}$$

|
easy

$\boxed{3}$VP

$$\begin{bmatrix} \text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \text{NP}\ \rangle \end{bmatrix} \\ \text{GAP} & \langle\ \boxed{1}\text{NP}_i\ \rangle \end{bmatrix}$$

to talk to __
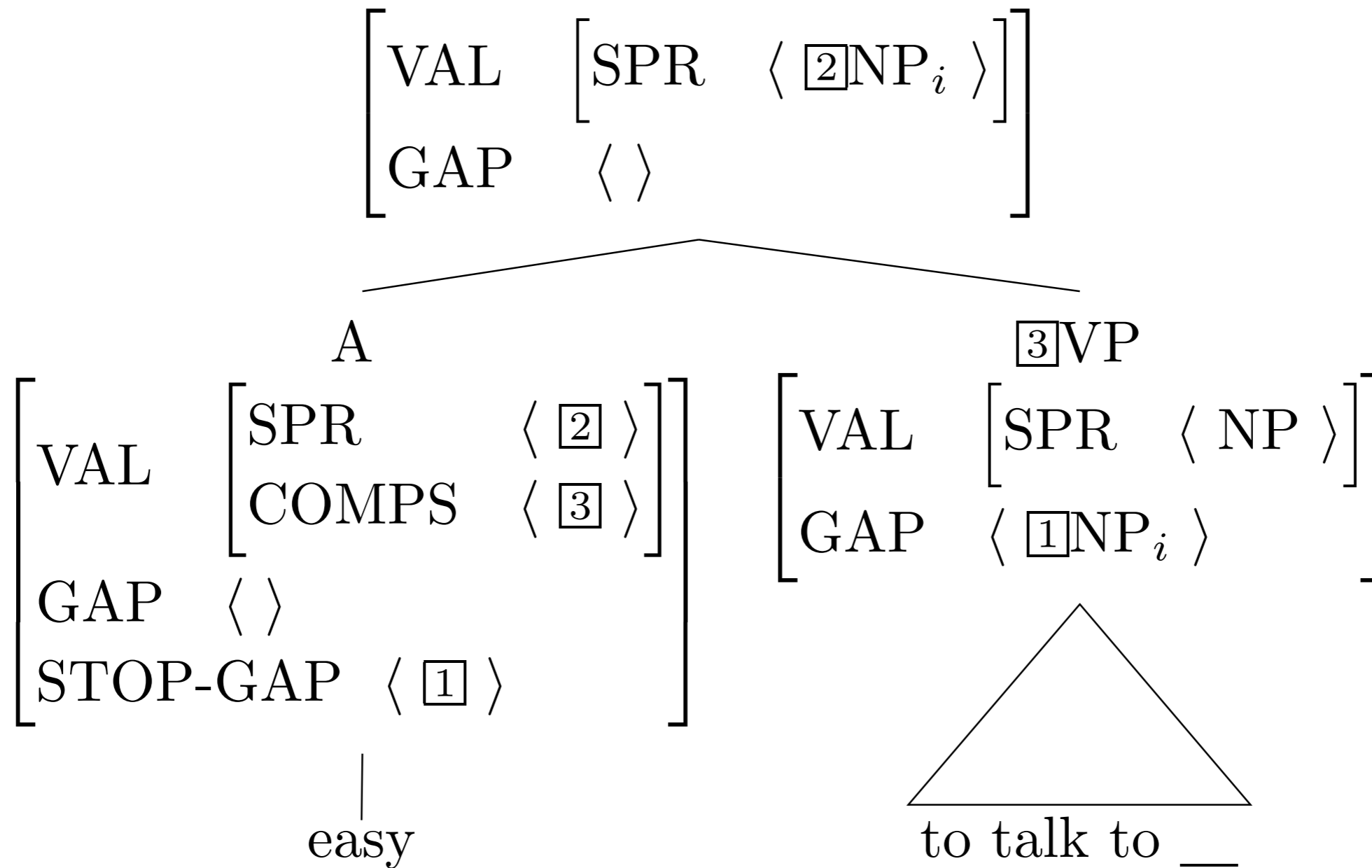
Reading Questions

- We did just fine without STOP-SPR or STOP-COMPS. What is it about GAP that necessitates STOP-GAP? Is it because we want to limit constructions that can give rise to LDD?

- Why doesn't the Head-Filler Rule put the STOP-GAP on the preceding phrase instead of the headed phrase? It seems to be more logical.
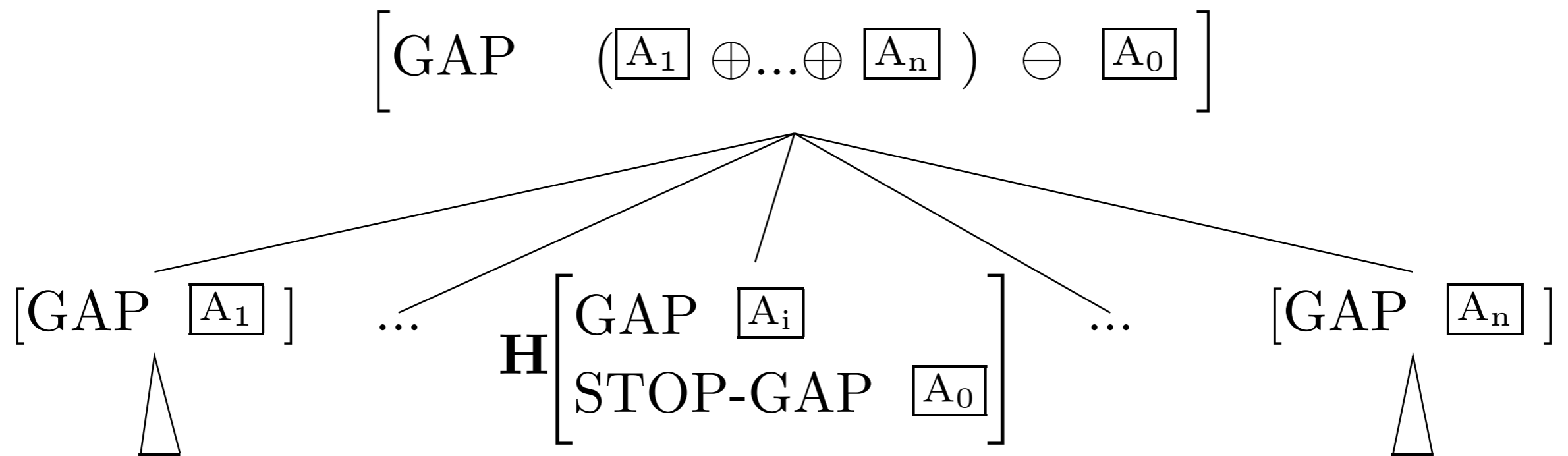
Reading Questions

- The Head-Filler Rule allows the root S node in (35) to be Gap < > because the STOP-GAP and GAP values of its daughter match the specifier, but is there some independent reason why a non-empty STOP-GAP list appears on the head daughter S node in the first place?

Reading Questions

- I'm wondering why the STOP-GAP middle node of the GAP principle diagram in (33) is labeled as the head. Is the STOP-GAP element always the head? I didn't think that was the case, but maybe I missed something?

The GAP Principle

A local subtree Φ satisfies the GAP Principle with respect to a headed rule ρ if and only if Φ satisfies:

$$\left[\text{GAP} \quad (\boxed{A_1} \oplus \ldots \oplus \boxed{A_n}) \ominus \boxed{A_0} \right]$$

$$[\text{GAP} \ \boxed{A_1}] \quad \ldots \quad \mathbf{H}\left[\begin{array}{l} \text{GAP} \quad \boxed{A_i} \\ \text{STOP-GAP} \quad \boxed{A_0} \end{array} \right] \quad \ldots \quad [\text{GAP} \ \boxed{A_n}]$$

Reading Questions

- The GAP principle as formulated in (33) on pg 437 seems to indicate that any number of daughter elements can come prior to the headed daughter that contains STOP-GAP. However the only rule that seems to license a construction like (33) is the Head-Filler rule on the next page, which only has a single GAP<> element to the left of the head. Are there any constructions where we actually need the leftmost "..." in the GAP principle?

- Also, where does the GAP principle live in our grammar? Is it a constraint on the rules themselves?

Reading Questions

- (33) seems to indicate that GAP and GAP STOP have different values in the head daughter (Ai and A0) but in (35) they are the same. What am I missing here?

Reading Questions

- Why does STOP-GAP appear in non-leaf nodes when there are no gap-stoppers? There doesn't seem to be a lexical rule licensing it.

- For cases where we are not dealing with gap stoppers like easy and hard, how does the feature STOP-GAP end up on a node like an S? The feature doesn't get passed up apparently so how does it magically appear?

Reading Questions

- The text seems to be suggesting that the *easy/tough* method of gap-filling is different than the kind described by the Head-Filler Rule. Is this the case, and if so, what else is going on to license the gapless AP in (38)?

A Tree for *easy to talk to___*

$$
\begin{bmatrix}
\text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \boxed{2}\text{NP}_i\ \rangle \end{bmatrix} \\
\text{GAP} & \langle\ \rangle
\end{bmatrix}
$$

A

$$
\begin{bmatrix}
\text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \boxed{2}\ \rangle \\ \text{COMPS} & \langle\ \boxed{3}\ \rangle \end{bmatrix} \\
\text{GAP} & \langle\ \rangle \\
\text{STOP-GAP} & \langle\ \boxed{1}\ \rangle
\end{bmatrix}
$$

|
easy

$\boxed{3}$VP

$$
\begin{bmatrix}
\text{VAL} & \begin{bmatrix} \text{SPR} & \langle\ \text{NP}\ \rangle \end{bmatrix} \\
\text{GAP} & \langle\ \boxed{1}\text{NP}_i\ \rangle
\end{bmatrix}
$$

to talk to __
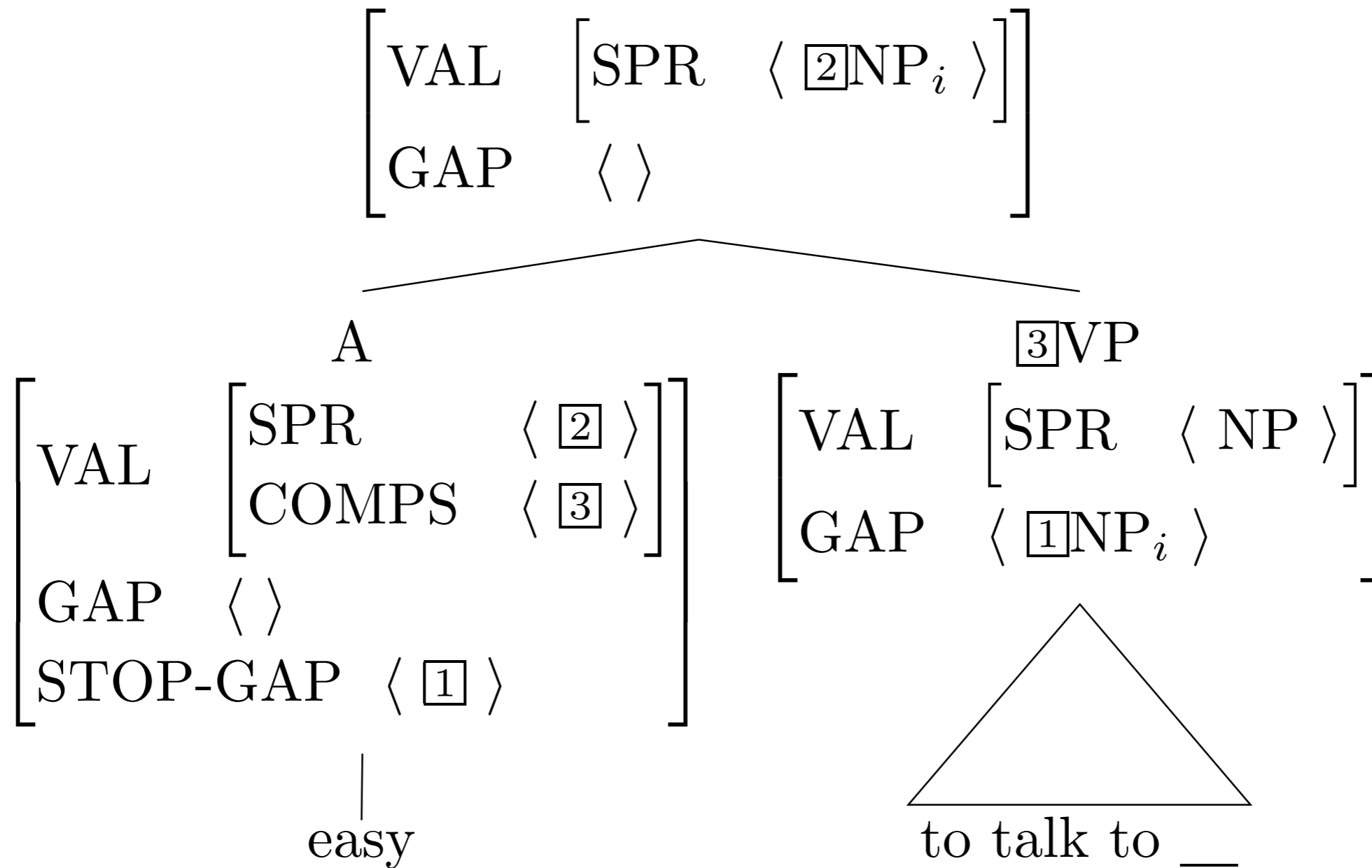
Reading Questions

- Why identify the GAP value of mother and daughter in imperatives?

    *Me, hand the toy!

    (?)To me, hand the toy!

    This book, put on the top shelf!

Big picture: Our model

- Describes a set of strings

- Associates semantic representations (and trees) with well-formed strings

- Is stated in terms of declarative constraints

- ... which are order-independent

- Locates most constraints 'in the lexicon'

- Is stated in a precise fashion

Parts of our model

- Type hierarchy (lexical types, other types)

- Phrase structure rules

- Lexical rules

- Lexical entries

- Grammatical principles

- Initial symbol

Complicated example #1

- What phenomena are illustrated by this sentence?

- What rules or interesting lexical types are involved in our analysis of it?

- What tree structure does our grammar assign?

It was explained to me that Kim left.
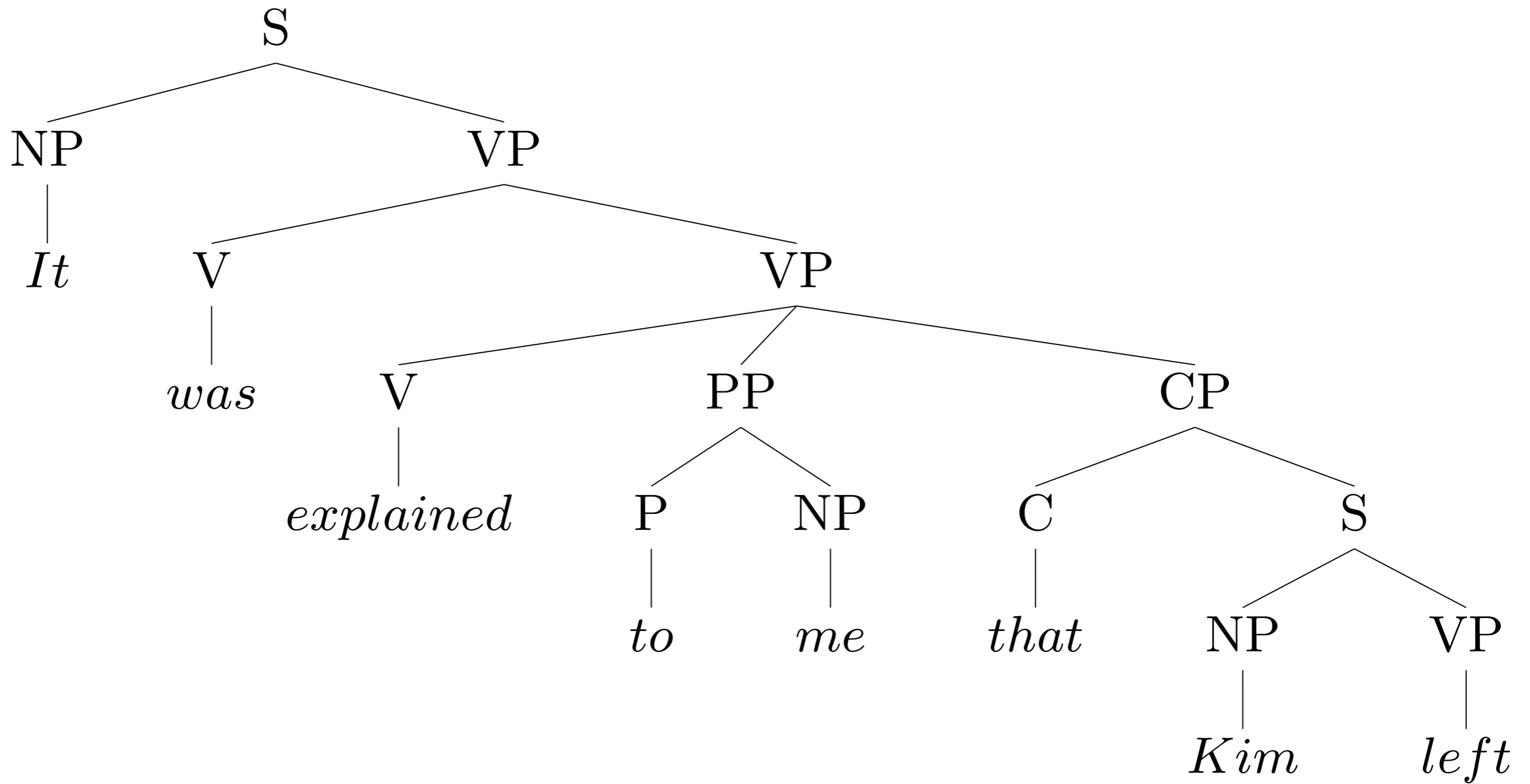
Complicated examples #2

I expect it to continue to surprise Kim that Sandy laughed.
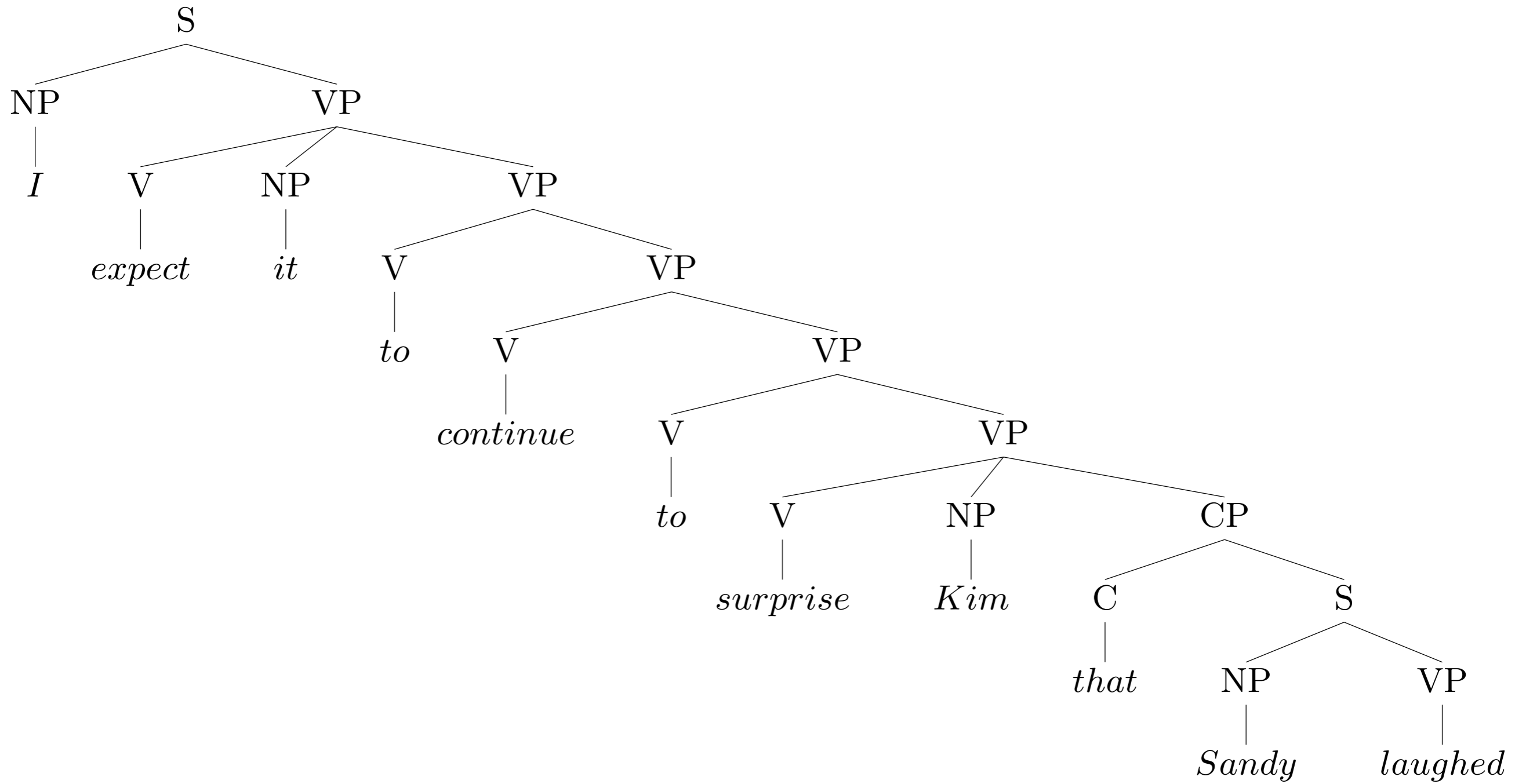
Why not these?

*I expect it to continue to surprise Kim Sandy laughed.

*I expect there to continue to surprise Kim that Sandy laughed.

*I expect that Sandy laughed to Kim be surprised.

Complicated example #4

You all laughed, did you not?

*You all laughed, did not you?

You all laughed, didn't you?
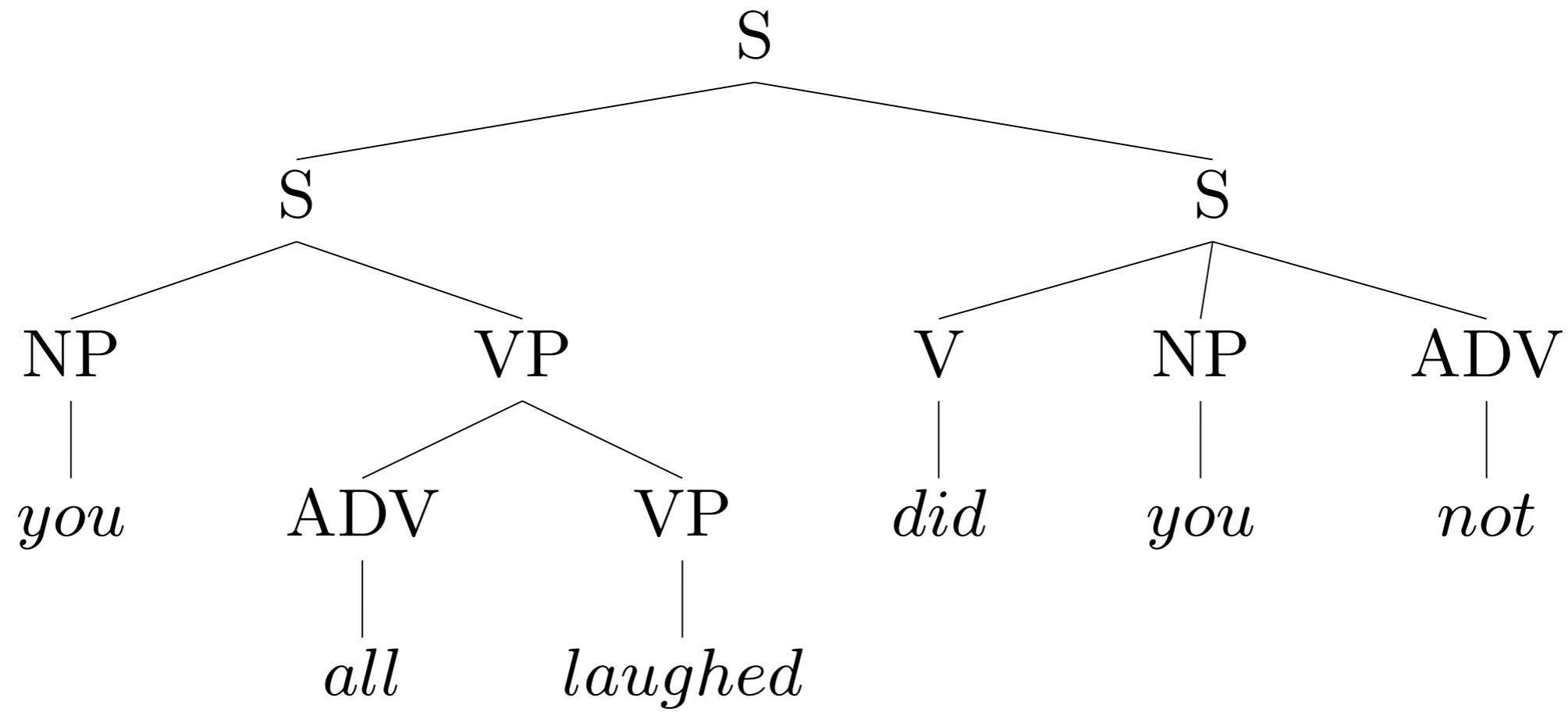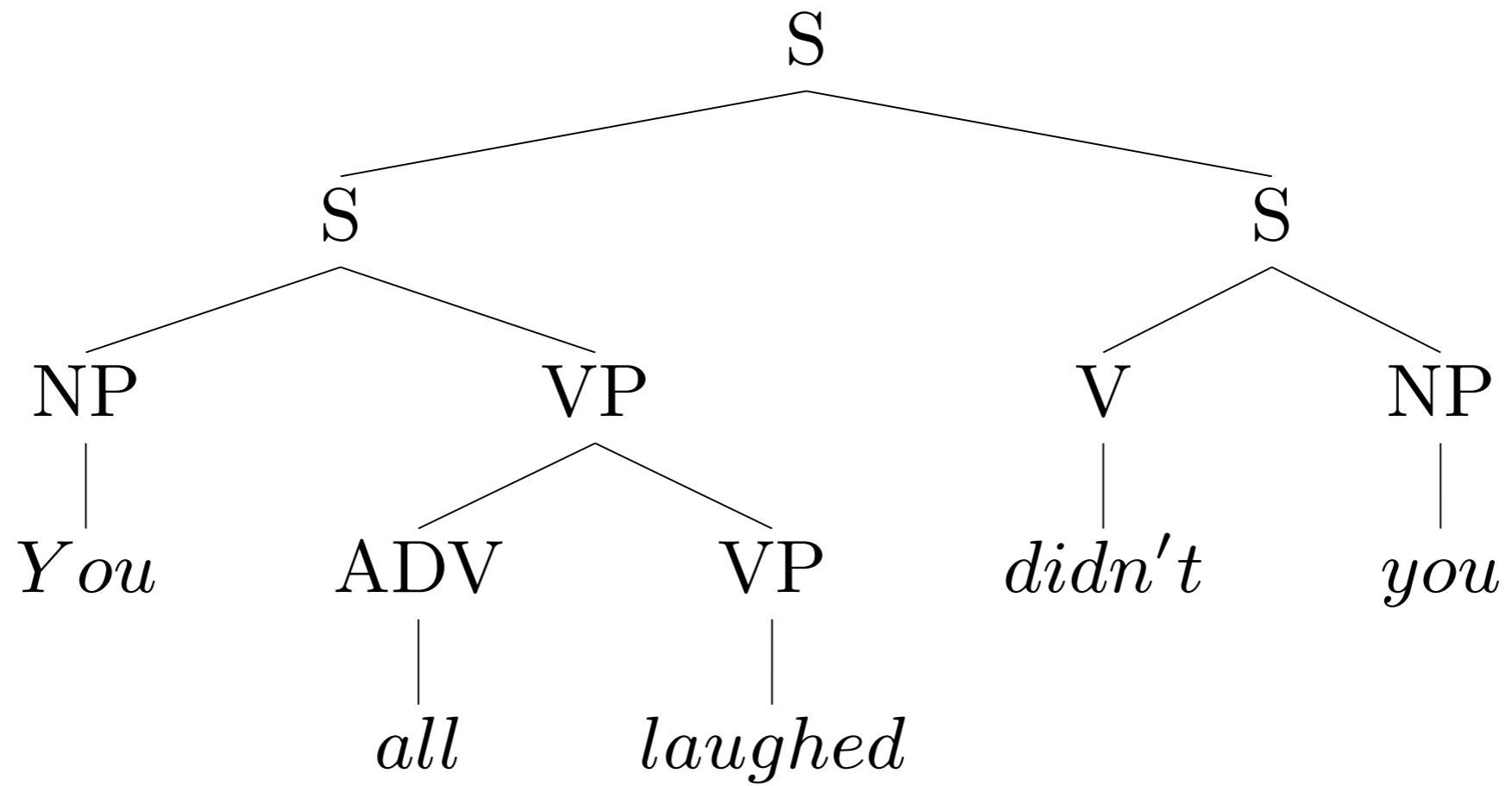
Complicated example #5

That Sandy could laugh so hard, Kim did not realize.

*That Sandy could laugh so hard, Kim realized not.

*Sandy could laugh so hard, Kim did not realize.

*That Sandy could laugh so hard, Kim did not realize it.

```
                              S
                   ┌──────────┴──────────┐
                  CP                      S
            ┌─────┴─────┐          ┌──────┴──────┐
            C           S          NP            VP
            │     ┌─────┴─────┐    │      ┌──────┼──────┐
          That   NP          VP   Kim     V     ADV     VP
                 │      ┌─────┴─────┐      │      │      │
               Sandy    V          VP     did    not  realize
                        │          │
                      could      laugh
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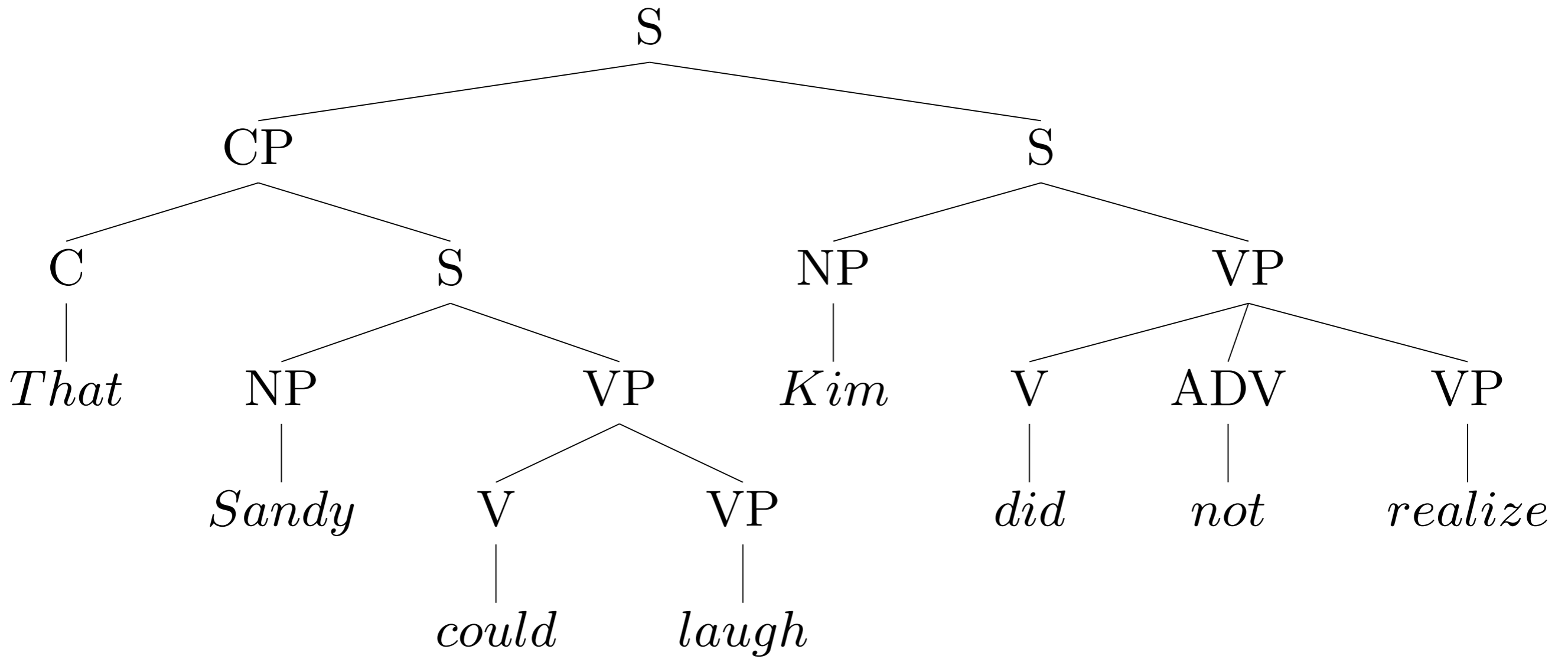
Complicated example #6

Kim continues to be likely to be easy to talk to.

*Kim continue to be likely to be easy to talk to.

*Kim continues to be likely to is easy to talk to.

*Kim continues to Kim be likely to be easy to talk to.

```
                              S
                    ┌─────────┴─────────┐
                   NP                    VP
                    │            ┌────────┴────────┐
                   Kim           V                 VP
                 continues       │           ┌─────┴─────┐
                              continues       V           VP
                                              │      ┌─────┴─────┐
                                              to      V           VP
                                                      │      ┌────┴────┐
                                                      be      V         AP
                                                              │    ┌────┴────┐
                                                              to   A         VP
                                                                likely  ┌────┴────┐
                                                                        V         VP
                                                                        │    ┌────┴────┐
                                                                        to   V         AP
                                                                             │    ┌────┴────┐
                                                                             be   A         VP
                                                                               easy   ┌────┴────┐
                                                                                      V         VP
                                                                                      │    ┌────┴────┐
                                                                                      to   V         PP
                                                                                           │         │
                                                                                          talk       to
```
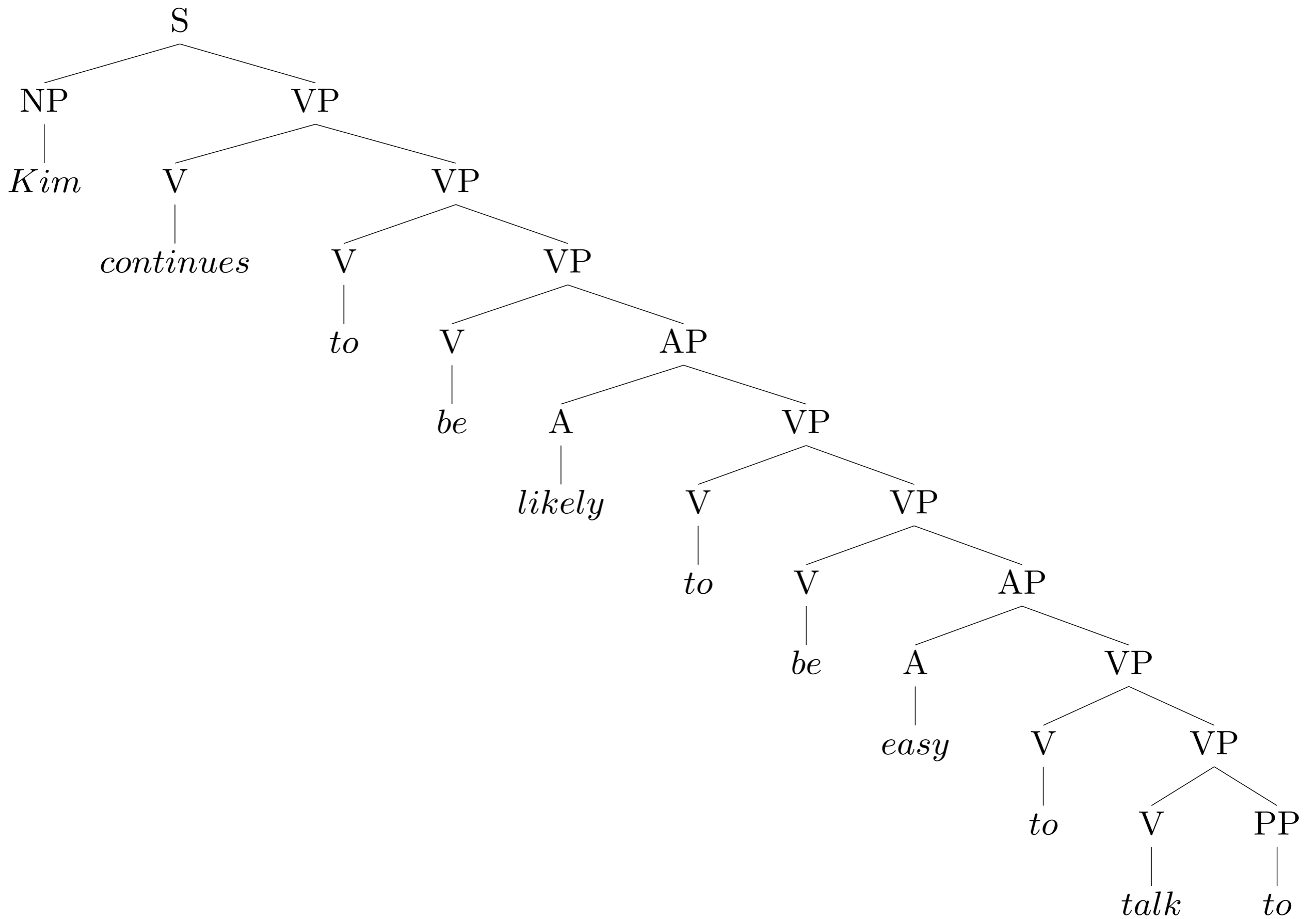

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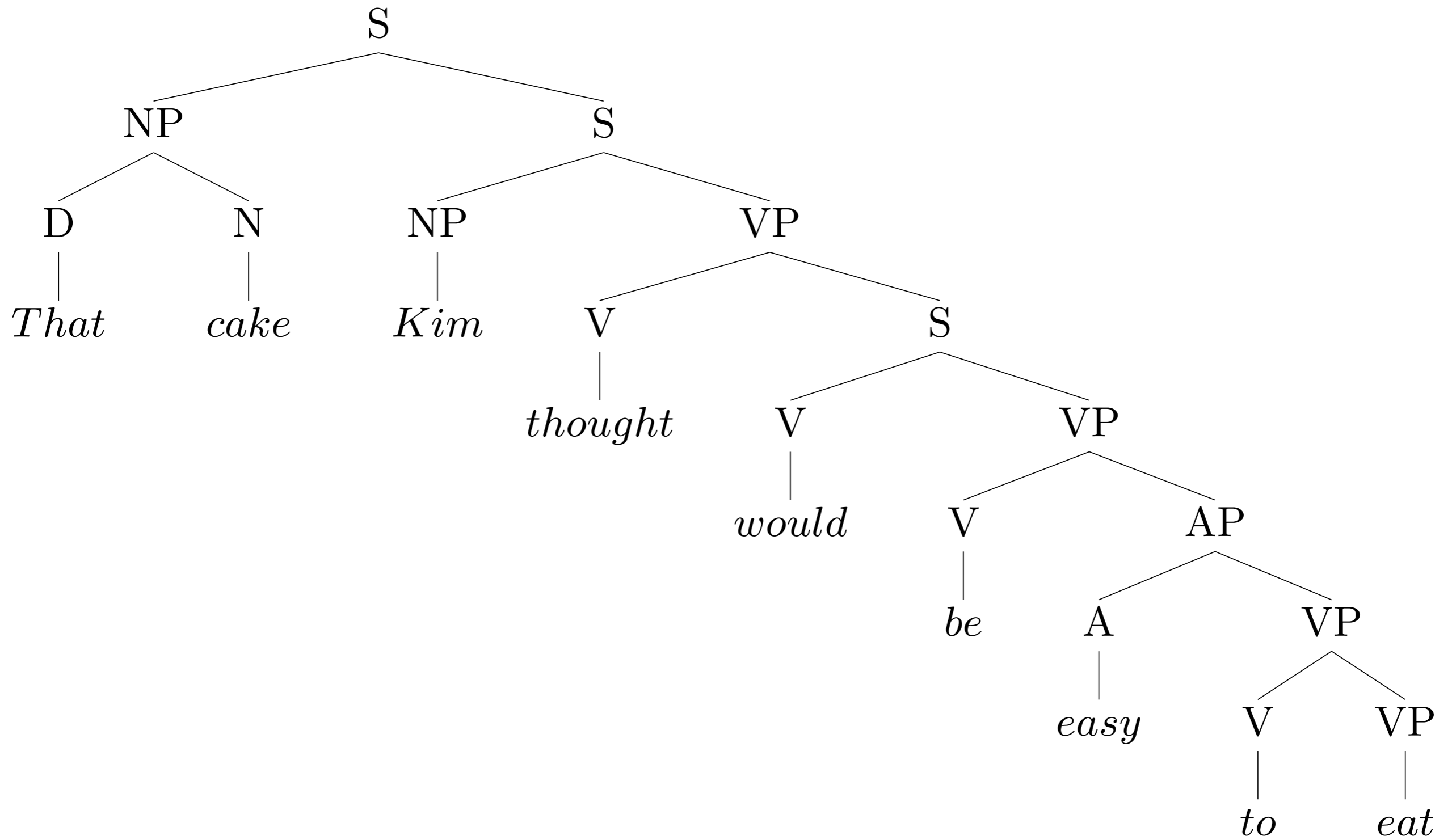
Complicated example #7

That cake, Kim thought would be easy to eat.

*That cake, Kim thought would be easy to eat pie.

*That cake, Kim thought would be easy to eaten.

*Cupcake, Kim thought would be easy to eat.

*That cake, Kim thought that would be easy to eat.

Overview

- Ch 14 Reading Questions

- Big picture

- Untangle this...

- Course evals