Ling 566
Oct 21, 2010
Review
Overview

• Homework tips
• SPR and COMPS
• Common mistakes
• Analogies to other systems you might know
• Your questions
• Problems 4.7, 4.9
Homework tips/requests

• Type whenever possible
• Answer each part of each question separately
• Be sure to answer each part of each question, and follow the directions!
• Look over the problems early and ask questions
• Check your work
• Monitor GoPost
• WORK TOGETHER
SPR value on AP/PP?

• Kim grew fond of baseball.
• Kim and Sandy ate lunch in the park.
• Kim and Sandy are in the park.
Which grammar does this tree go with?

```
NP
  D  NOM
  /  /
the N
  /  
  cat
```
What’s wrong with this?

⟨out, [word
HEAD prep
VAL SPR [COMPS ⟨(VP)⟩
| COMPS ⟨(PP | NP)⟩]⟩]⟩
What’s wrong with this?

\[
\langle \text{out}, \begin{bmatrix}
\text{word} \\
\text{HEAD} \\
\text{VAL} \\
\end{bmatrix}
\begin{array}{c}
\text{prep} \\
\text{SPR} \\
\text{COMPS} \\
\end{array}
\langle \langle \rangle \langle (\text{NP}) (\text{PP}) \rangle \rangle
\rangle
\]
What’s wrong with this?

\[
\langle \text{out,} \quad \begin{bmatrix}
\text{word} \\
\text{HEAD} \\
\text{prep} \\
\text{VAL} \\
\text{SPR} \quad \langle \rangle \\
\text{COMPS} \quad (\text{NP} \mid \text{PP})
\end{bmatrix} \rangle
\]
What’s wrong with this?

\[
\left\langle \text{grew,} \right\rangle
\left[ \begin{array}{c}
\text{word} \\
\text{HEAD} \\
\text{VAL}
\end{array} \right]
\left[ \begin{array}{c}
\text{verb} \\
\text{AGR 3sing} \\
\text{SPR} \\
\text{COMPS} \left[ \langle \text{NP} \rangle \right] \\
\text{COMPS} \left[ \langle \text{AP} \rangle \right]
\end{array} \right]
\]
What’s wrong with this?

\[
\left( \text{out,} \begin{bmatrix}
\text{word} \\
\text{HEAD} \\
\text{preposition} \\
\text{VAL} \\
\text{SPR} \\
\text{COMPS} \\
\end{bmatrix}
\right)
\]
What’s wrong with this?

\[ \langle \text{there,} \begin{array}{c}
\text{phrase} \\text{HEAD} \\text{prep} \\
\text{VAL} \\text{SPR} \\
\text{COMPS} \end{array} \rangle \]
Tags & lists

• What’s the difference between these two?

\[
\begin{align*}
\text{SPR} & \quad \left[ \begin{array}{c}
1 \\
\text{NP}
\end{array} \right] \\
\text{SPR} & \quad \left( \begin{array}{c}
1 \\
\text{NP}
\end{array} \right)
\end{align*}
\]

• When does it matter?
What’s wrong with this tree?

NP

D

the

N

COMPS (1PP)

1PP

photos

of the suspect
What’s wrong with this tree?

I rely on this tree.

Kim
What’s wrong with this tree?

[HEAD verb
SPR ⟨⟩
COMPS ⟨⟩]

[HEAD pronoun
1
SPR ⟨⟩
COMPS ⟨⟩]

I

[HEAD verb
SPR ⟨1⟩
COMPS ⟨2⟩]

rely

[HEAD prep
SPR ⟨1⟩
COMPS ⟨2⟩]

on

[HEAD prep
SPR ⟨⟩
COMPS ⟨⟩]

[HEAD noun
3
SPR ⟨⟩
COMPS ⟨⟩]

Kim
What’s wrong with this tree?

What’s wrong with this tree?
What’s wrong with this tree?

What’s wrong with this tree?
What’s wrong with this tree?

I rely on Kim.

What’s wrong with this tree?
What's wrong with this?

\[
\langle \text{hundred} ,
\begin{bmatrix}
\text{HEAD} & \text{number} \\
\text{SPR} & \langle \begin{bmatrix}
\text{HEAD} & \text{number} \\
\text{INDEX} & j \\
\text{COMPS} & \langle \begin{bmatrix}
\text{HEAD} & \text{number} \\
\text{INDEX} & k \\
\text{INDEX} & m \\
\text{MODE} & \text{ref} \\
\text{RESTR} & \langle \begin{bmatrix}
\text{RELN} & \text{hund-number} \\
\text{MULTIPLIER} & j \\
\text{ADDEND} & k \\
\text{HUND-VALUE} & m \\
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
\rangle
\]
And this?

\[
\langle \text{hundred} , \text{,} \rangle
\]

\[
\left[ \begin{array}{c}
\text{SYN} \\
\text{VAL} \\
\text{INDEX} \\
\text{MODE} \\
\text{SEM} \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
\text{HEAD} \\
\text{SPR} \\
\text{COMPS} \\
\text{RELN} \\
\text{RELN} \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
\text{number} \\
\langle [\text{HEAD} \text{ number}] \rangle \\
\langle [\text{HEAD} \text{ number}] \rangle \\
\text{times} \\
\text{plus} \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
\text{RESULT} \\
\text{FACTOR1} \\
\text{FACTOR2} \\
\text{RESULT} \\
\text{TERM1} \\
\text{TERM2} \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
k \\
l \\
m \\
i \\
j \\
k \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
\text{INST} \\
\text{VALUE} \\
\end{array} \right]
\]

\[
\left[ \begin{array}{c}
m \\
100 \\
\end{array} \right]
\]
How about this?

\[ \langle \text{hundred} \, , \, \rangle \]

\[ \begin{align*}
\text{SYN} & \left[ \begin{array}{c}
\text{HEAD} \, \text{number} \\
\text{SPR} \langle [\text{HEAD} \, \text{number}] \rangle \\
\text{VAL} \langle [\text{INDEX} \, l] \rangle \\
\text{COMPS} \langle [\text{HEAD} \, \text{number}] \rangle
\end{array} \right] \\
\text{SEM} & \left[ \begin{array}{c}
\text{INDEX} \, m \\
\text{MODE} \, \text{ref} \\
\text{RESTR} \langle [\text{RELN} \, \text{times} \, k] \rangle \\
\text{RESULT} \, i \\
\text{FACTOR1} \, l \\
\text{FACTOR2} \, m \\
\text{RELN} \, \text{plus} \\
\text{RESULT} \, i \\
\text{TERM1} \, j \\
\text{TERM2} \, k
\end{array} \right] \\
& \begin{array}{c}
\text{RELN} \, \text{constant} \\
\text{INST} \, m \\
\text{VALUE} \, 100
\end{array}
\right) \]
Better version

\[
\begin{align*}
\langle \text{hundred}, \quad & \\
\text{SYN} & \\
\text{VAL} & \langle \text{HEAD} number \rangle \\
\text{COMPS} & \langle \text{HEAD} number \rangle \\
\text{INDEX} & i \\
\text{MODE} & \text{ref} \\
\text{SEM} & \\
\text{RESTR} & \langle \text{RELN times} \rangle, \langle \text{RELN constant} \rangle \\
\text{RESULT} & k \\
\text{FACTOR1} & l \\
\text{FACTOR2} & m \\
\text{RESULT} & i \\
\text{TERM1} & j \\
\text{TERM2} & k \\
\end{align*}
\]
Type hierarchy analogies

• How is this formalism like OOP?
• How is it different?

• How is the type hierarchy like an ontology?
• How is it different?

• How is this formalism like the MP’s formalism?
• How is it different?
Overview

- Information movement in trees
- Exercise in critical thinking
- Homework tips
- SPR and COMPS
- Technical details (lexical entries, trees)
- Analogies to other systems you might know
- Your questions...
Overview

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Your questions

• ?
• ?
• ?
• ?
• ?
• ?
• ?
• ?
• How do the following support the analysis of case marking as a lexical phenomenon?

(i) Drengurinn kyssti stúlkuna.
the-boy.NOM kissed the-girl.ACC
‘The boy kissed the girl.’

(ii) Drengina vantar mat.
the-boys.ACC lacks food.ACC
‘The boys lack food.’

(iii) Verkjanna gaetir ekki.
the-pains.GEN is-noticeable not
‘The pains are not noticeable.’

(iv) Barninu batnathi veikin.
the-child.DAT recovered-from the-disease.NOM
‘The child recovered from the disease.’
4.9 Agreement in NP coord

- What is the NUM value of NPs coordinated with *and*?

- How does the PER value of coordinated NPs get computed from the PER value of the coordinands? Use examples like the following:

  You and she distinguished yourselves/*themselves/*ourselves.
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