

Unification Exercises

Ex. 1

$$\left(\begin{array}{l} \text{cat: N} \\ \text{num: pl} \end{array} \right) \sqcup \left(\begin{array}{l} \text{cat: N} \end{array} \right) = ?$$

Ex. 2

$$\begin{pmatrix} \text{cat: N} \\ \text{num: pl} \end{pmatrix} \sqcup \begin{pmatrix} \text{cat: N} \\ \text{num: sg} \end{pmatrix} = ?$$

Ex. 3

$$\left(\begin{array}{l} \text{cat: } V \\ \text{num: pl} \end{array} \right) \sqcup \left(\begin{array}{l} \text{per: } 3 \end{array} \right) = ?$$

Ex. 4

$$\begin{pmatrix} \text{cat: } V \\ \text{num: pl} \end{pmatrix} \sqcup \begin{pmatrix} \text{per: } 3 \\ \text{num: sg} \end{pmatrix} = ?$$

Ex. 5

$$\left(\begin{array}{l} \text{cat: } S \\ \text{subj: } \left(\begin{array}{l} \text{cat: } N \\ \text{num: } sg \end{array} \right) \end{array} \right)$$

$$\sqcup \left(\begin{array}{l} \text{cat: } N \end{array} \right) = ?$$

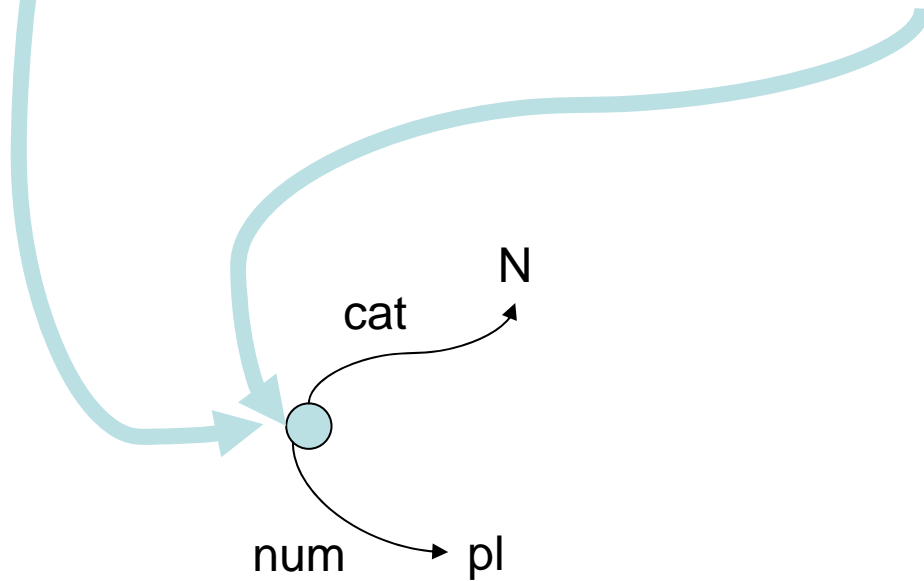
Ex. 6

$$\left(\begin{array}{l} \text{cat: S} \\ \text{subj: } \left(\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right) \end{array} \right)$$
$$\sqcup \left(\begin{array}{l} \text{obj: } \left(\begin{array}{l} \text{cat: N} \\ \text{num: pl} \end{array} \right) \end{array} \right)$$

= ?

Feature Structures as Graphs

$$\left[\begin{array}{l} \text{cat: N} \\ \text{num: pl} \end{array} \right] \sqcup \left[\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right] = ?$$



Ex. 7

$$\left(\begin{array}{l} \text{cat: S} \\ \text{subj: } \left(\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right) \end{array} \right)$$
$$\sqcup \left(\begin{array}{l} \text{verb: } \left(\begin{array}{l} \text{cat: V} \\ \text{num: pl} \end{array} \right) \end{array} \right)$$

= ?

Ex. 8a

$$\left[\begin{array}{l} \text{cat: S} \\ \text{subj: } \left[\begin{array}{l} \text{cat: N} \end{array} \right] \\ \\ \text{verb: } \left[\begin{array}{l} \text{cat: V} \end{array} \right] \end{array} \right]$$

⊃

$$\left[\begin{array}{l} \text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: pl} \end{array} \right] \end{array} \right]$$

= ?

Ex. 8b

$$\left[\begin{array}{l} \text{cat: S} \\ \text{subj: } \left[\begin{array}{l} \text{cat: N} \\ \text{num: \#1} \end{array} \right] \\ \text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: \#1} \end{array} \right] \end{array} \right]$$

⊃

$$\left[\text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: pl} \end{array} \right] \right]$$

= ?

Ex. 9

$$\left[\begin{array}{l} \text{cat: S} \\ \text{subj: } \left[\begin{array}{l} \text{cat: N} \\ \text{num: \#1} \end{array} \right] \\ \\ \text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: \#1} \end{array} \right] \end{array} \right]$$

⊆

$$\left[\text{subj: } \left[\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right] \right]$$

= ?

Ex. 10

$$\left[\begin{array}{l} \text{cat: S} \\ \text{subj: } \left[\begin{array}{l} \text{cat: N} \\ \text{num: \#1} \end{array} \right] \\ \text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: \#1} \end{array} \right] \end{array} \right]$$
 \sqcup
$$\left[\text{subj: } \left[\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right] \right]$$
 \sqcup
$$\left[\text{verb: } \left[\begin{array}{l} \text{cat: V} \\ \text{num: pl} \end{array} \right] \right]$$

= ?

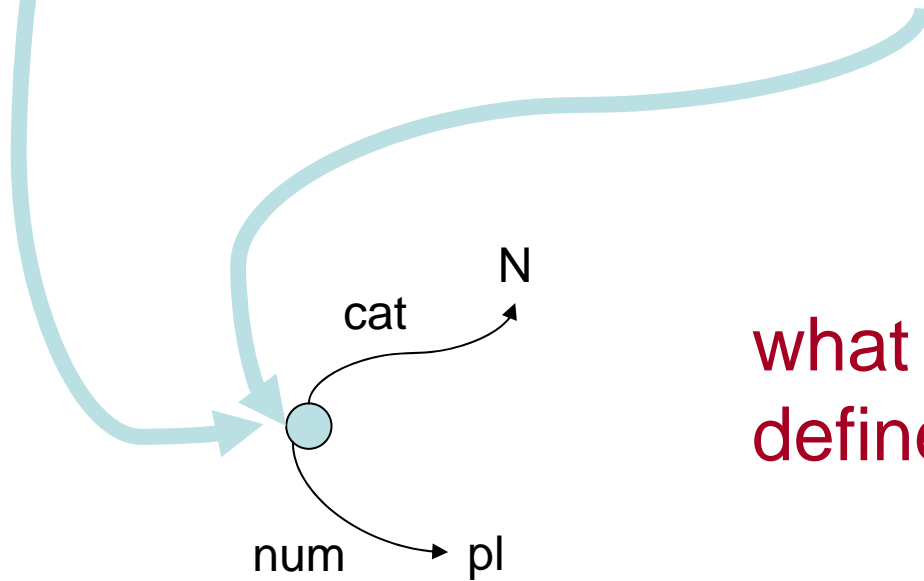
Unification Algorithm

- An algorithm is a series of clear steps or instructions that carry out the job at hand

$$\left[\begin{array}{l} \text{cat: N} \\ \text{num: pl} \end{array} \right] \sqcup \left[\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right] = ?$$

Feature Structures as Graphs

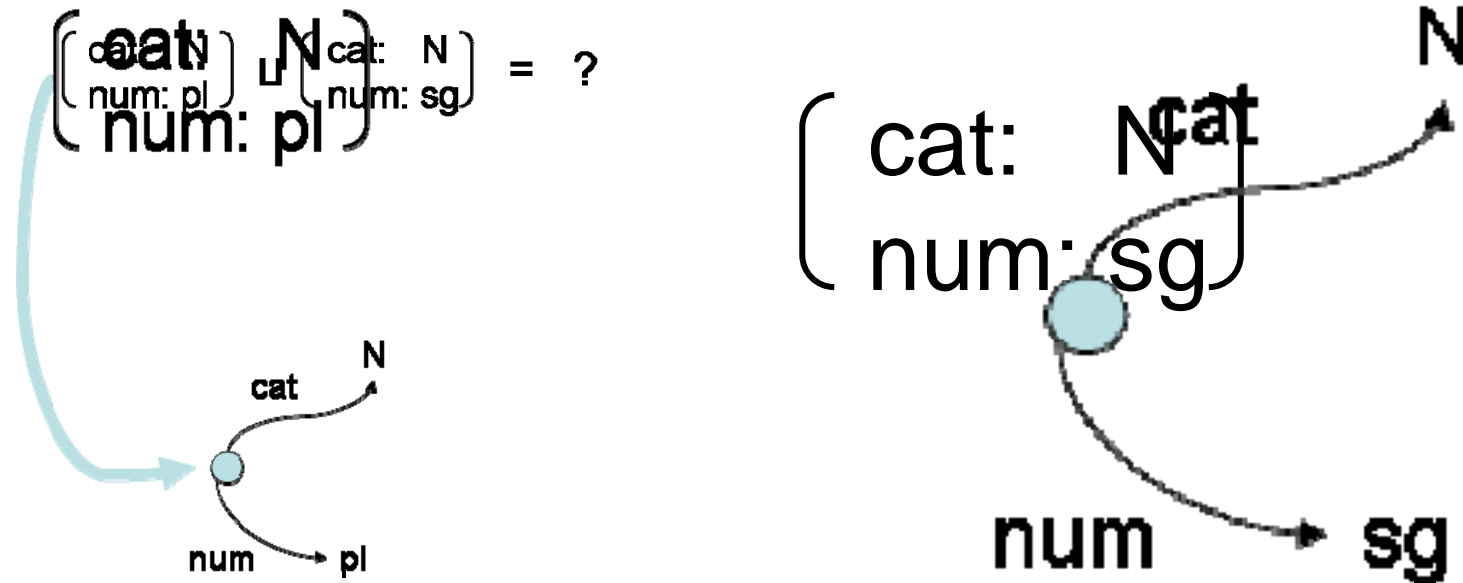
$$\left[\begin{array}{l} \text{cat: N} \\ \text{num: pl} \end{array} \right] \sqcup \left[\begin{array}{l} \text{cat: N} \\ \text{num: sg} \end{array} \right] = ?$$



what steps could we define to make this work?

Unification Algorithm

- An algorithm is a series of clear steps or instructions that carry out the job at hand



Ex. 8a : does the algorithm work here?

$$\left(\begin{array}{l} \text{cat: S} \\ \text{subj: } \left(\begin{array}{l} \text{cat: N} \end{array} \right) \\ \\ \text{verb: } \left(\begin{array}{l} \text{cat: V} \end{array} \right) \end{array} \right) \sqcup \left(\begin{array}{l} \text{verb: } \left(\begin{array}{l} \text{cat: V} \\ \text{num: pl} \end{array} \right) \end{array} \right)$$

= ?