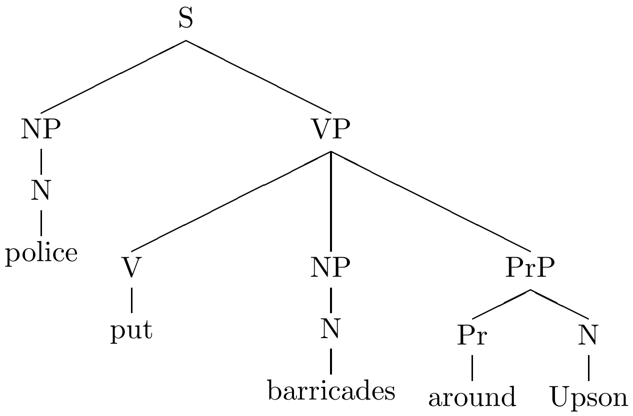
CS674, Spring 2002
Lecture Examples, 1/23/02

1. Constituent structure.

1(**a**)



S = sentence
NP = noun phrase
VP = verb phrase
PrP = prepositional phrase
N = noun
V = verb
Pr = preposition

1(**b**) [Police [[put]$_V$ [barricades]$_{NP}$ [around Upson]$_{PrP}$]$_{VP}$

1(**c**) [What] will police [[put] [around Upson]]

1(**d**) [Where] will police [[put] [barricades]]

1(**e**) [What] [where] will police [[put]] / [What] will police [[put]]

1(**f**) What will police put barricades around Upson

2. Granularity of categories.

2(**a**) Police [[informed]$_V$ [the president]$_{NP}$ [that students had hired lawyers]$_{S'}$]$_{VP}$.

2(**b**) Police [informs]$_V$ the president that students had hired lawyers

2(**c**) Police informed [she]$_{NP}$ that students had hired lawyers

2(**d**) Police [informed]$_V$ [rocks]$_{NP}$ that students had hired lawyers

3. Lexicon entry for "inform".

$$\begin{bmatrix} CAT: & V \\ ROOT: & inform \\ SUBCAT: & \begin{bmatrix} 1: & \begin{bmatrix} CAT: & NP \\ ANIMATE: & + \\ CASE: & \{-, ACC\} \end{bmatrix} \\ 2: & [CAT: \ S'] \end{bmatrix} \end{bmatrix}$$

4. Filler-gap manipulation (assuming default values, head-feature propagation, etc.). "Who did police inform that students had hired lawyers?"

4(**a**)

$$\begin{bmatrix} CAT: & NP \\ CASE: & ?c \\ GAP: & \begin{bmatrix} CAT: & NP \\ CASE: & ?c \end{bmatrix} \end{bmatrix} \longrightarrow \quad \varepsilon$$

4**(b)**

$$S \quad \longrightarrow ?g \quad \begin{bmatrix} CAT: & S \\ INV: & + \\ GAP: & ?g \end{bmatrix}$$

4**(c)**

$$\begin{bmatrix} CAT: & S \\ INV: & + \\ GAP: & ?g \end{bmatrix} \longrightarrow \begin{bmatrix} CAT: & AUX \\ AGR: & ?a \end{bmatrix} \begin{bmatrix} CAT: & NP \\ AGR: & ?a \\ GAP: & - \end{bmatrix} \begin{bmatrix} CAT: & VP \\ VFORM: & base \\ GAP: & ?g \end{bmatrix}$$

4**(d)** (abusing notation in last two nonterminals)

$$\begin{bmatrix} CAT: & VP \\ GAP: & ?g \end{bmatrix} \longrightarrow \begin{bmatrix} CAT: & V \\ \\ SUBCAT: & \begin{bmatrix} 1: & ?y \\ 2: & ?z \end{bmatrix} \end{bmatrix} \quad \begin{bmatrix} ?y \\ GAP: & ?g \end{bmatrix} \quad \begin{bmatrix} ?z \\ GAP: & - \end{bmatrix}$$