

**24.900: Introduction to Linguistics**  
**2/28/05**

- **Quiz #1: March 9 in class**
- **Squib proposal due 3/18/05. Note the date change**

I. For some humorous examples, see <http://www.ling.upenn.edu/~beatrice/humor/index.html>, "Ambiguous Recommendations".

## II. Movement in Natural Languages

- a. Kinds of transformations
  - i. Movement rules/Inversion rules
  - ii. Insertion rules
  
- b. Traditionally, we say that D-structure and S-structure are related by a set of *movement rules*. We have now generalized over these rules or transformations and call the operation:

### **Move $\alpha$**

- a. c. *wanna* construction
- b. gap that cannot be refilled
- c. passive construction and NP movement
- d. idiom chunks
- e. verb movement in questions
- f. West Ulster English dialect evidence

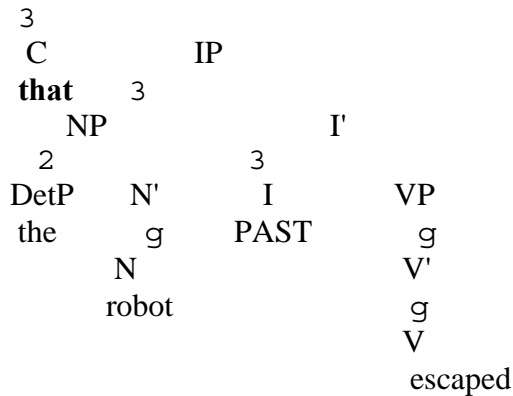
III. How do we represent sentences with moved constituents?

**a. Complementizers (handout on the MIT server)**

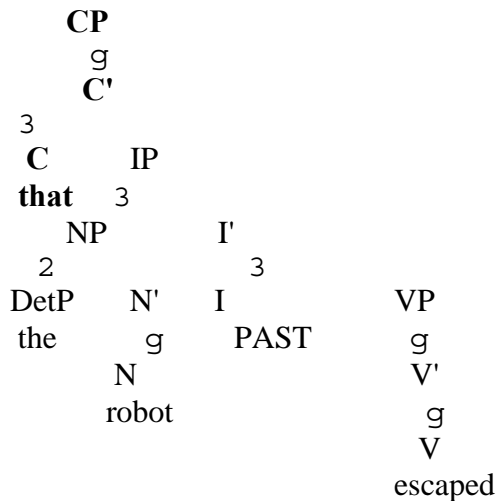
- The word *that* is a complementizer when it introduces an embedded sentence

Trudy saw **that** the robot escaped

- and it appears in the C head that takes IP as its complement



- In simple declarative sentences the complementizer position is not filled. However, it is assumed to be present, along with the usual X'-projection of the C(omplementizer) head – that is, C' and CP.



- Is C ever filled in simple sentences?
- ♦ The auxiliaries (can, will, must, be, and have) can precede the subject in yes-no questions, and never co-occur with *that*

1. The robot can add two plus two.

**Can** the robot add two plus two?

**\*Can that** the robot add two plus two?

2. The king will defeat the military millipedes.

**Will** the king defeat the  
military millipedes?

**\*That will** the king defeat the military  
millipedes?

3. The robot is blocking the cave entrance.

**Is** the robot blocking the cave  
entrance?

**\*That is** the robot blocking the cave  
entrance?

- By the same kind of reasoning as given above for I(nflection), we can assume that this is because in questions auxiliaries are in the same position as the complementizer *that*.

Auxiliaries can appear in the same position as complementizers if they have been *moved* there.

◆ In embedded yes-no questions the complementizer is not *that*, but *if*.

Notice that the complementizer *if* and the moved auxiliary cannot cooccur – as is predicted if they would have to appear in the same position

Trudy asks **if** the king will defeat the military millipedes.

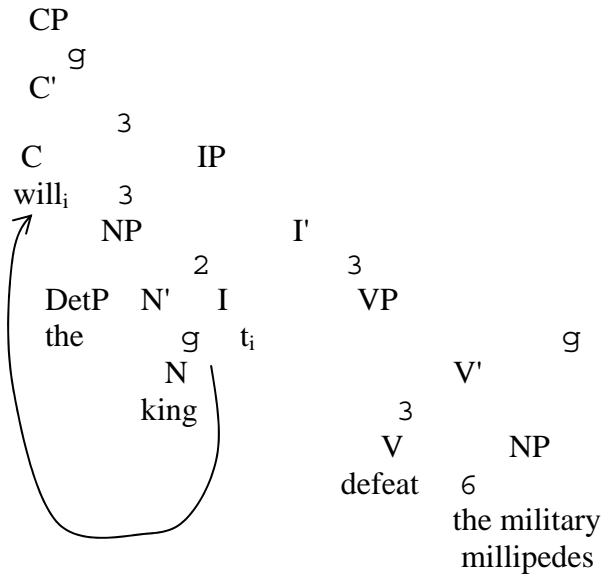
\*Trudy asks **if will** the king defeat the military millipedes.

Klapaucius wonders **if** the robot can add two plus two.

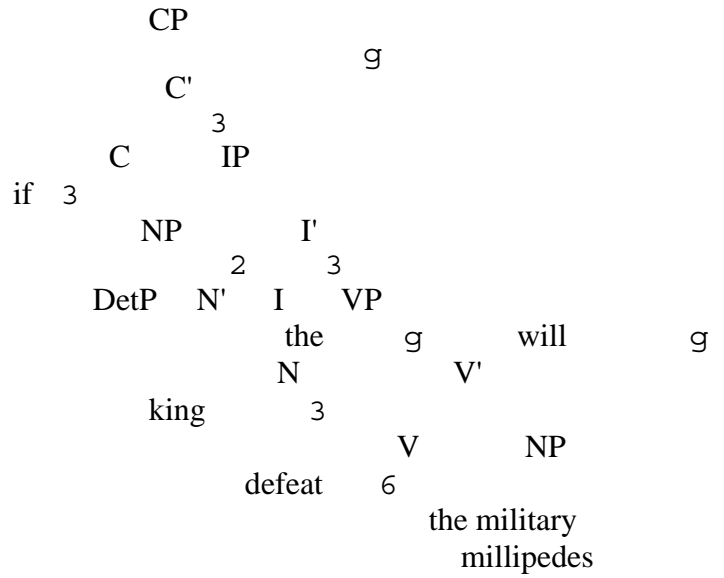
\*Klapaucius wonders **can if** the robot add two plus two.

◆ So we have the following structures:

Simple questions



Embedded questions



- Movement is indicated by
- ♦ an arrow that points from the place where the element moved from to the place where it moved to
- ♦ a *t* in the place where movement originates from (*t* stands for *trace* of the movement)
- ♦ coindexing the trace *t* and the element that moved by subscripts (usual subscript indices are *i, j, k*, etc)

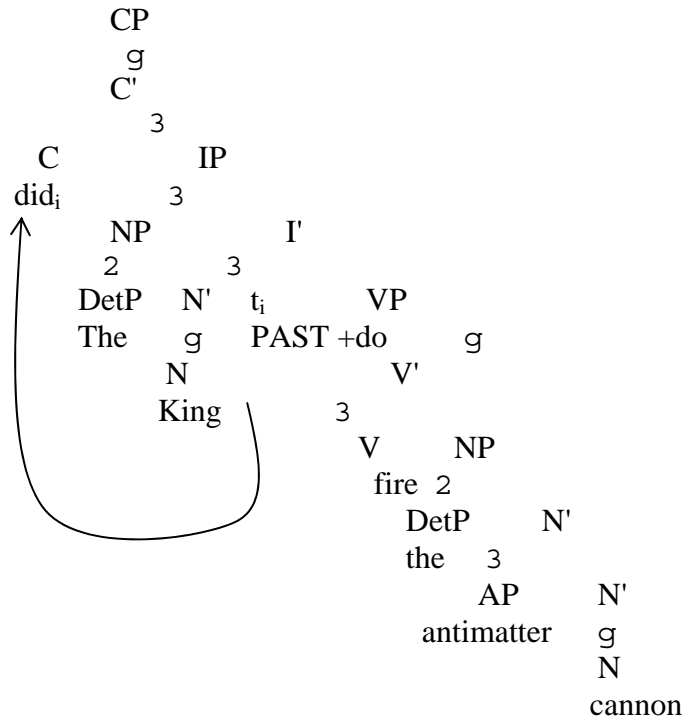
- What happens when a simple sentence has no auxiliary?

- |  |  |
|--|--|
| 1. The king <b>fired</b> the antimatter cannon.          | <b>Did</b> the king <b>fire</b> the antimatter cannon?           |
| 2. The card in the sawdust <b>said</b> 'Just sawdust.'   | <b>Did</b> the card in the sawdust <b>say</b> 'Just sawdust'?    |
| 3. The policeman <b>handcuffs</b> the king.              | <b>Does</b> the policeman <b>handcuff</b> the king?              |
| 4. The emissary <b>brushes</b> away the mechanical flies | <b>Does</b> the emissary <b>brush</b> away the mechanical flies? |

Notice that the past tense or present tense third person singular agreement appear on the auxiliary **do** and not on the verb:

- |  |   |
|--|---|
| 5. <b>Did</b> the king fire the antimatter cannon?           | <b>Does</b> the policeman handcuff the king?    |
| 6. * <b>Do</b> the king <b>fired</b> the antimatter cannon?  | * <b>Do</b> the policeman handcuffs the king?   |
| 7. * <b>Did</b> the king <b>fired</b> the antimatter cannon? | * <b>Does</b> the policeman handcuffs the king? |

We assumed above that PAST and PRESENT appear in the I(nflection) head at deep structure. We can account for the lack of PAST and PRESENT endings on the lexical verbs (*fire* and *handcuff*) if in the sentences above I moves to C (and the verb *do* is inserted in C)



In yes-no questions,

- ◆ if I contains an auxiliary, move the auxiliary from I to C
- ◆ if I does not contain an auxiliary, then insert *do* in I (attach PAST or PRESENT suffixes to *do*), and move *do* (along with the suffix) from I to C

## 4 Wh-questions

- The wh-phrase (the phrase containing the question word) precedes the auxiliary in wh-questions

**Who will** the policeman handcuff?

**What did** the king fire?

- The subcategorization frame of *handcuff*, for example, requires an NP complement to follow the verb

handcuff [ \_\_ NP]

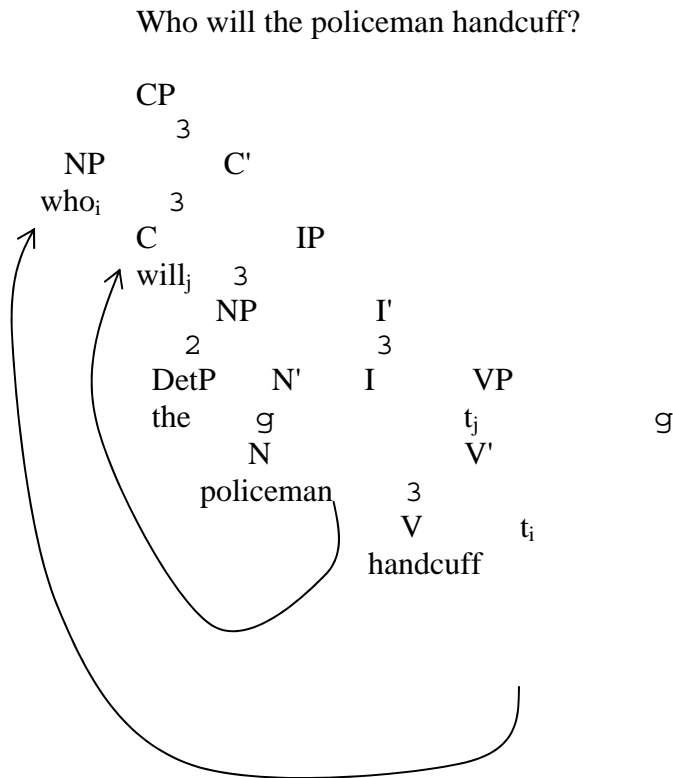
The policeman will handcuff the king.

\*The policeman will handcuff.

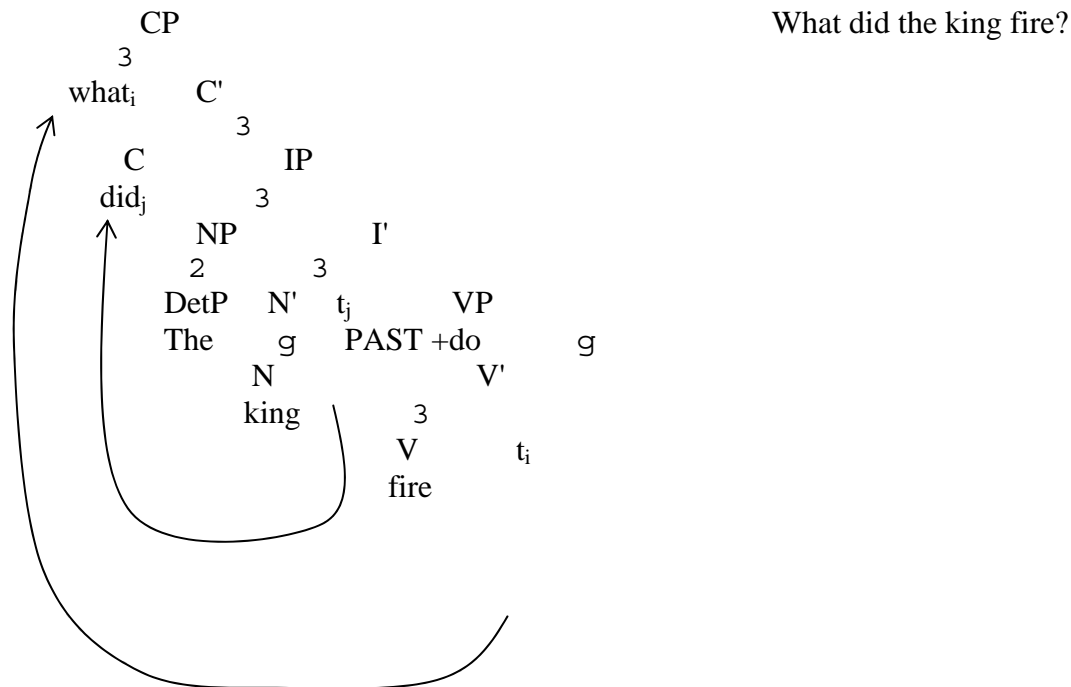
- So let us assume that at deep structure the wh-word *who* is the complement of *handcuff*, and follows the verb:

The policeman will handcuff **who**.

- ♦ Then the wh-word has to move to Spec,CP. As before, the auxiliary in I has to move to C, as well.



- ◆ If the sentence contains no auxiliary, then *do* is inserted in I, and moved on to C. The wh-phrase moves to Spec,CP as before.



The general way to form (simple) questions is

- ◆ Move the wh-phrase to Spec,CP
- ◆ Move I to C
  - if I contains an auxiliary, then move the auxiliary to C
  - if I does not contain an auxiliary, then insert *do* in I (attach PAST or PRESENT affixes), and move *do* to C

- Sometimes one can clearly see that it is a phrase that moves, and not just a single word:

1. The robot attacked [NP Klapaucius' friend]      [NP **whose friend**] did the robot attack?

\***Whose** did the robot attack **friend**?

2. Trudy wanted [NP the red castor oil]      [NP **which castor oil**] did Trurl want?

\***Which** did Trurl want **castor oil**?

If you want to know why the king fired the antimatter cannon, why the policeman handcuffed the king, and why there was a sign saying 'Just sawdust' in the sawdust, have a look at Stanislaw Lem's *Cyberiad* (The offer of King Krool)

### III. Bounded Movement

**Movement, for example of WH-words, isn't without some limitations.**

- a. There is a constraint on what categories you can move *out* of (the categories that contain the wh-word).
- b. Compare the following two sentences:
  - i. What<sub>t<sub>i</sub></sub> does Hortense believe that Herb saw t<sub>i</sub>?
  - ii. What<sub>t<sub>i</sub></sub> does Hortense believe that who saw t<sub>i</sub>?

> While *what* can move out from the embedded clause [<sub>CP</sub> *that Herb saw what*], it is trapped inside [<sub>CP</sub> *that who saw what*]. Domains that trap an element are called ***islands*** (from which there is no escape).