• Movement, part 1: The Inversion rule

**Background reading:**

- *CL* Ch 5, §3, “Move”
- *CL* Ch 5, Appendix section on “Using Move”
1. Review and context for this discussion

• Syntax is **creative**: humans can produce and understand sentences never seen before

• Linguists want to know: How does this work?

• Goal is to build a syntax **model** that can:
  - Produce only sentences that native speakers find **grammatical**
  - Make the right predictions about which words in a sentence form **constituents** (units, subgroups)

• Building an effective model helps us understand the properties of the actual human mental grammar
1. Review and context for this discussion

• What do we do when we find sentences for which our model is making the **wrong prediction**?
  - Add or change some aspect of our model in order to make the predictions better

• So far, our syntax model (for English) contains:
  - the **X' schema** (how to combine words into phrases)
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  > What do we do when there are ‘extra’ phrases?
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• So far, our syntax model (for English) contains:
  - **the X' schema** (how to combine words into phrases)
  - **the modifier structure** (for ‘extra’ phrases)

> How do we rule out sentences like
  *Grover slept the baby or *Susan devoured or
  *Oscar put the book?
1. Review and context for this discussion

• What do we do when we find sentences for which our model is making the wrong prediction?
  - Add or change some aspect of our model in order to make the predictions better

• So far, our syntax model (for English) contains:
  - the X' schema (how to combine words into phrases)
  - the modifier structure (for ‘extra’ phrases)
  - complement options (chosen by specific heads), including the double-complement structure when needed (for cases like the verb put)
2. Extending our model of syntax again

• Is it surprising that this sentence is grammatical?

(1) What might the puppy devour?
2. Extending our model of syntax again

- Is it surprising that this sentence is **grammatical**?

(1) *What might the puppy devour?*

  - Why is the auxiliary *might* on the **left** side of the subject NP?
  - Why is there **no** NP complement in the VP as required by *devour*?
  - What is the **position** of *what*?

- An approach that addresses all these factors: the syntactic **transformation** known as **Move**
3. Yes-no questions

• Consider these examples:
  
  (2a) Students will study the lessons.
  
  (2b) The students will study the lessons.
  
  (2c) The dedicated students in this class will study the lessons.

• What does it look like when those sentences are made into yes-no questions?
  
  → Yes-no questions are questions to which the answer would be “yes” or “no”
3. *Yes-no* questions

- What does it look like when those sentences are made into *yes-no* questions?
  
  (2a) *Will* [ students ] __ study the lessons?
  
  (2b) *Will* [ the students ] __ study the lessons?
  
  (2c) *Will* [ the dedicated students in this class ] __ study the lessons?

- The auxiliary *will* moves to a position to the left of the subject
  
  → What position is it moving to?
(2a) **Will** [ *students* ] _ study the lessons?_

- Proposal: *Every* TP is inside a CP (not just embedded TPs)
  - This is independently supported by various facts about languages other than English

- The C of a **matrix clause** (main clause) contains information about whether or not the sentence is a question
  - In a question, the matrix C contains a **+Q** symbol
  - In a non-question, the matrix C does not contain this symbol
3. Yes-no questions

(2a) **Will** [ students ] __ study the lessons?

- Proposal: The mental grammar for syntax includes **movement rules**
  - Movement rules take words or phrases in an X' tree and move them to some other position

- **How movement rules work** in our model
  - A moved element leaves a **trace** (t) in its original position
  - A moved element retains its original category label (under the one it moves into)
  - Any part of the structure of the sentence not affected by the movement rule does not change
3. Yes-no questions

(2a) **Will** [ students ] _ study the lessons?

- **Inversion** — a movement rule that exists in English (and in some, but not all, other languages):

  *When the matrix C is +Q, move T to the C position and attach it next to +Q* (see *CL*, p 185)

  → We can use the Inversion rule to explain why the auxiliary verb (like *will* above) in a yes-no question appears to the left of the subject
3. Yes-no questions

(2a) **Will** [ students ] __ study the lessons?

- Step 1: Construct a tree for the **deep structure** of the sentence, using the X' schema as usual

  +Q students will study the lessons

  - **Deep structure** refers to the structure built according to the X' schema, **before** any other syntactic rules (such as movement rules) have applied

  - What a speaker actually says, after all the syntactic rules have applied, is the **surface structure**

- +Q **is present** (in the C position) here, because this sentence has the meaning of a question — this **triggers Inversion**
3. Yes-no questions

(2a) **Will** [ students ] ___ study the lessons?

- Step 1: Construct the **deep structure** (+Q is in C)

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(2a) students will study the lessons
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3. Yes-no questions

(2a) **Will** [ students ] __ study the lessons?

- Step 2: **Inversion** applies: *will* moves to C, leaving *t*
3. Yes-no questions

- Can we find evidence to support the proposal that the fronted auxiliary has moved to C?

- Consider: Does this proposal explain why it is only the matrix auxiliary that moves?

→ Compare an embedded question:

(3) *We asked whether Pat will succeed.*

- What is the structure of the embedded CP?
- Can we explain why the auxiliary doesn’t move into the embedded C position?
3. Yes-no questions

If the C position is where the fronted auxiliary moves to, we can explain why the auxiliary doesn’t move in an embedded question: **C is already occupied**
3. Yes-no questions

• Does this imply that every matrix (main-clause) TP is inside a CP, even if it’s not a question?
  - Actually, yes!
  - But we sometimes take a shortcut by omitting the topmost CP from our tree diagram, in a sentence where this CP contains no overt C head and no overt specifier.
4. Progress report

• Is it surprising that this sentence is grammatical?

(1) *What might the puppy devour?*

- Why is the auxiliary *might* on the *left* side of the subject NP? | Inversion has applied
- Why is there no NP complement in the VP as required by *devour*?
- What is the *position* of *what*?

→ The last two questions are the topic of the next slide set