Other types of Movement

So far we seen Wh-movement, which moves certain types of (XP) constituents to the specifier of a CP. Wh-movement is also called “A-bar movement”. We will look at two more types of movement. The first of these is a type of head-movement. That is, an $X^0$ moves, not an XP. Specifically a $V^0$. In effect, we have already seen this movement when we looked at matrix questions:

46a. What has he eaten?
   b. Why should she leave?
   c. Where can I go?
   d. Who must she interview?
   e. When is he leaving?
How do we get the word order in these sentences? In English (and other languages) matrix questions require a verb in $C^0$. Never mind *why* they do. Just take it as a given that they do.

How does the verb get there?

Certain verbs are already in $I^0$, among them auxiliaries *be* and *have*, the modals *can*, *could*, *may*, *might*, *should*, *must*.

For those, it is very easy to satisfy the requirement to have a verb in $C^0$:

Head-movement!

When the verb cannot appear in $I^0$, as with all the lexical verbs in English, we get *do*-insertion.

Is *do* inserted straight into $C^0$ to satisfy its need for a verb?

No! It carries tense and agreement. So it is first inserted in $I^0$ and then moves to $C^0$. 
46d.

Did you notice that again, movement is to a c-commanding position?
• $I^0$-to-$C^0$ movement causes “subject-verb inversion”. Do you see why it would be called that?

Here are some other environments with $I^0$-to-$C^0$ movement in English (in addition to Wh-questions):

Yes/no questions:
47. Must he leave?

“Negative-inversion”:
48. [Never before in my life] have I seen such a mess
49. [Only if you give me $10K$] will I give you my piano
48’. *[Never before in my life] I have seen such a mess
49’. *[Only if you give me $10K$] I will give you my piano
50a. [If you give me $10K$] I will give you my piano
   b. *If you give me $10K$] will I give you my piano
• $I^0$-to-$C^0$ movement also causes a phenomenon called “Verb Second”. Can you see why it would be called that?

51. [Where] has she gone?

52. [Which of the books I gave her] has she read?

53. [Never before in my life] have I seen such a mess

54. [Only if you give me $10K] will I give you my piano

V2: the verb comes directly after the first constituent and it doesn’t matter how long the first constituent is:

55. [Which of the books that your uncle who studied at Stanford thinks were written by Tolstoy but were actually written by Dostoyevsky and were published by an obscure press] has she read?
• English used to be what is called a “generalized” V2 language. That is, it had V2 everywhere. Now it is a “residual” V2 language. That is, it has V2 in certain restricted environments, as we saw, but not everywhere:

56. Yesterday, John **left**
57. If it rains, she **stays** inside

However, there are plenty of languages that are generalized V2 today:
- The Germanic languages German, Dutch, Swedish and others
- The Kru language Vata (in Africa)
- The Indo-Aryan language Kashmiri (Indian subcontinent)
- The Arikem language Karitiana (Brazil)
Topicalization in a non-V2 L or Topicalization in a non-V2 L

[Yesterday] she read a book
[If you give me $10K] I will give you my piano
[Susan] I really like
Topicalization in a V2 Language

Exactly like wh-questions in English
Here is some German. Notice how the verb comes immediately after the first constituent

    yesterday is the Hans left
    “Yesterday Hans left”

59. [Weil er krank ist] ist er zuhause geblieben.
    [because he sick is] is he at-home stayed
    “Because he is sick, he stayed home”

60. [Wenn es regnet] bleibt Katharina zuhause
    if it rains stays Katharina at-home
    “If it rains, Katharina stays home”

61. [Den Hans] liebt die Maria
    the Hans loves the Maria
    “Hans, Maria loves”
Now look at these:

62. die Katharina liebt den Hans
    the Katharina loves the Hans
    S V O
    “Katharina loves Hans”

63. Ich glaube dass die Katharina den Hans liebt.
    I believe that the Katharina the Hans loves
    S O V
    “I believe that Katharina loves Hans”

64. * die Katharina den Hans liebt
    the Katharina the Hans loves
    S O V

65. * Ich glaube dass die Katharina liebt den Hans.
    I believe that the Katharina loves the Hans
    S V O

• German is SOV.
• SVO is the result of V2!
• V2 is I0-to-C0 movement
• The presence of the complementizer blocks I0-to-C0 movement
• It’s not a matter of matrix versus embedded clauses because matrix clauses with a complementizer can’t have V2 and embedded clauses without a complementizer can:

66. Dass er mir so was antun kann!
   that he to-me such something on-do can
   "That he can do such a thing to me"

67. Ich glaube die Katharina liebt den Hans.
   I believe the Katharina loves the Hans
   “I believe that Katharina loves Hans”
Imagine that you find SVO sentences in the language you are investigating.

Can you conclude that the language is V2?
No! It could be that this is a genuine SVO language.

In order to conclude that it is V2, the verb would have to be in 2\textsuperscript{nd} place no matter what the first constituent is:

Adv V SO
O V S
• “Verb second” is just a descriptive term for a phenomenon.
• The result is produced by $I^0$-to-$C^0$ movement.
• V2 is an example of a parameter.
• UG makes head-movement available for all languages. Some employ it in $I^0$-to-$C^0$ movement, which produces the strings that can receive the descriptive label “verb second”.

Alright. So this is $I^0$-to-$C^0$ movement. But how does the verb get to $I^0$ to begin with?

- via head movement from within the VP: $V^0$-to-$I^0$ movement
How do we know that it is the $V^0+I^0$ complex that moves up to $C^0$ and not just $I^0$ or $V^0$ by itself?

Because the verb appears in $C^0$ completely inflected.
• To see $V^0$ -to- $I^0$ movement in simple action, one should really not look at English, because English has the added complication of *do*-insertion.
• So best to leave the question of English $V^0$ -to- $I^0$ for a more advanced class.
• A straightforward language to study $V^0$ -to- $I^0$ in is French.
• We saw that $I^0$ -to- $C^0$ movement was triggered by among others, the need to form questions in English.

What might trigger $V^0$ -to- $I^0$? The need to get Tense and Agreement on the verb. This predicts that a verb with tense and agreement will be in a different position in the tree than an infinitival verb.
• So can how we tell whether $V^0$ -to- $I^0$ has taken place?
• Well, how could we tell if $I^0$ -to- $C^0$ movement took place?
• It affects the word order! The verb appears before the subject.
46d.

Who must she interview?
Maybe we should look for similar effects on word order with $V^0 \text{-to- } I^0$ movement: Let’s assume that there is an element $\alpha$, of which we are certain that it is generated under $I^0$ but above the VP. If, in a tensed sentence, the finite verb appears to the left of $\alpha$, we can conclude that it has moved to $I^0$. If the finite verb appears to the right of $\alpha$, we can conclude that it did not move to $I^0$. The infinitival verb would be predicted to appear after $\alpha$. 

$$\text{NP}_S \quad I^0 \quad \alpha \quad V^0 \quad \text{NP}_O$$

$$\text{NP}_S \quad V \quad \alpha \quad \text{NP}_O \quad \rightarrow \quad V^0 \text{-to- } I^0$$

$$\text{NP}_S \quad \alpha \quad V \quad \text{NP}_O \quad \rightarrow \quad \text{no } V^0 \text{-to- } I^0$$
• What are possible candidates for $\alpha$?
  - Negation
  - (certain) adverbs

• Prediction, just looking at negation:
  verb+T+A: $NP_s \ V \ Neg \ NP_0$
  infinitival verb: $NP_s \ Neg \ V \ NP_0$

(Emonds, Pollock)
The verb moving to pick up Tense and Agreement
The prediction is verified:

68a. Pierre (ne) voit pas Marie
   Peter sees not Marie
   “Peter does not see Marie”

b.*Pierre (ne) pas voit Marie
   Peter not sees Marie

69a. Ne pas voir Marie est stupide
    neg see Marie is stupid
    “To not see Marie is stupid”

b.*Ne voir pas Marie est stupide
   see neg Marie is stupid
References

• Huang, Cheng-Teh James  “Logical Relations in Chinese and the Theory of Grammar (PDF).”