

Covert movement

- Remember the next few slides from when we were discussing movement?

Enter Chinese (data from Huang 1982 MIT PhD)

Look at the following:

42. Zhangsan yiwei Lisi mai-le shenme
Zhangsan thnks Lisi bought what
“What does Zhangsan think Lisi bought?”

What could you say about Wh-questions in Chinese?

Chinese is what is called a “Wh in situ” language. The wh-constituent can stay in its base-generated position (it can also move).

Given what we have said so far, what is a question that would be natural to ask about Chinese?

If there is no movement, what about islands? Does Chinese have islands?

43. *ni zui xihuan [weishenme mai shu de ren]
you most like why buy book C⁰ person
*”Why_k do you like the man who bought the books t_k”

44. *ta [zai Lisi weishenme mai shu yihou]shengqi le?
he at Lisi why buy book after] angry Prt
*”Why_k did he get angry [after Lisi bought the books t_k]

45. *[wo weishenme mai shu] zui hao?
I why buy book most good?
*”Why_k is [that I buy the books t_k] best?”

What we see is that Wh-words in Chinese cannot appear in environments out of which English cannot form questions. Why would this be?

- The T model
- There is one hypothesis that has many arguments for it (in addition to these facts, that is):

D-structure (syntactic representation)

← English Wh-movement

← movement ends up being pronounced (overt movement)

S-structure (syntactic representation)

← Chinese Wh-movement

← movement does not end up being pronounced (covert movement)

Sent to be
pronounced

LF (syntactic representation)

(Logical Form feeds interpretive component)

In these terms the difference between Chinese and English lies in the order of operations:

In English, Wh-movement happens before that part of the derivation/representation is sent to the pronunciation component.

In Chinese, Wh-movement happens after the derivation is sent to the pronunciation component.

The position that covert movement exists has gathered a great many arguments over the years.

Covert movement also plays a large role in our understanding of how syntax interfaces with semantics.

One of the places where covert movement is used is in the interpretation of quantifiers.

What are quantifiers?

The next 5 slides are from my 24.900 lectures.

- So what *does* (23) mean?

23. Nobody ate

‘No student’, ‘No dog’, ‘No professor’, ‘Nobody’/ ‘Noone’ (=No one) contain nouns, preceded by the *determiner* ‘no’.

24. No student ate

25. $STUDENT \cap ATE = \emptyset$

Can there be students who eat? no!

Can there be individuals who ate who are not students? yes!

Determiners are relations between sets.

Other determiners: *every, some, most, the, 5, more than 5* etc.

26. Some student ate

27. $\text{STUDENT} \cap \text{ATE} \neq \emptyset$

Can there be students who did not eat? Yes

Can there be individuals who ate who are not students? Yes

2: . Exactly five students ate

2; . $|\text{STUDENT} \cap \text{ATE}| = 5$

Can there be students who did not eat? Yes

Can there be individuals who ate who are not students? Yes

52. Most students ate

31. $|\text{STUDENT} \cap \text{ATE}| > \frac{1}{2} |\text{STUDENT}|$

Can there be students who did not eat? Yes

Can there be individuals who ate who are not students? Yes

32. Every student ate

33. $\text{STUDENT} \subseteq \text{ATE}$

Can there be students who did not eat? No

Can there be individuals who ate who are not students? Yes

Recap

Det(A)(B)

A= Restrictor or Left Argument or First Argument

B= Scope or Right Argument or Second Argument

***Some*(STUDENT)(ATE) \Leftrightarrow STUDENT \cap ATE $\neq \emptyset$**

***Exactly Five*(STUDENT)(ATE) \Leftrightarrow |STUDENT \cap ATE| = 5**

***Most*(STUDENT)(ATE) \Leftrightarrow |STUDENT \cap ATE| $>$ $\frac{1}{2}$ |STUDENT|**

***No*(STUDENT)(ATE) \Leftrightarrow STUDENT \cap ATE = \emptyset**

***Every*(STUDENT)(ATE) \Leftrightarrow STUDENT \subseteq ATE**

More on determiners

Look at the sentences below. Imagine there are 10 students in your model (a-j). What is it that you do to determine if they are T or F? That is, describe your intuition.

34. No student ate

35. Some student ate

38. Five students ate

39. Exactly five students ate

38. Every student ate

39. x ate

Assignment of (how many of) a-j to the variable x ?

So the QP cannot remain in the position to which a theta-role is assigned. This has made researchers believe that in the syntax, after that part of the tree is sent to pronunciation, QPs undergo some movement. This would be “covert movement” since it does not feed the pronunciation component. That is, the QP is pronounced wherever it is by the time (that part of) the tree is sent off to be pronounced.

Where to? Adjunction to IP:

[_{IP} QP_k [_{IP}t_k.....]

And there are additional reasons to suspect that there is covert movement of QPs:

1. Some TA graded every homework.

This sentence is ambiguous. What are the two readings?

2a. There is a particular TA, Fred, who graded every homework.

b. Every homework as graded by some TA or other

What sort of ambiguity is this?

-lexical or structural?

Structural in a way, in the sense that it corresponds to two structures, created by covert movement:

3a. [_{IP} every homework_y [_{IP} some TA_x [_{IP} t_x graded t_y]]]

b. [_{IP} some TA_x [_{IP} every homework_y [_{IP} t_x graded t_y]]]

Can you tell which of (3) corresponds to which of (2):

2a. There is a particular TA, Fred, who graded every homework.

b. Every homework as graded by some TA or other

So there is plenty to achieve for covert movement of quantifiers.

Basically, it alleviates some of the work of the semantics: The ambiguity of (1) would be achieved in the syntax, by known mechanisms.

But as syntacticians, what would we consider evidence that such covert movement occurs?

That known constraints on overt movement also constrain covert movement. That is, that certain interpretations are excluded because of syntactic constraints on covert movement.

(Remember Chinese? What was the argument that there was covert movement there?)

We will look at two such examples.

A. CSC

Remember the Coordinate Structure Constraint?

4. Mary likes Fred

5. Mary likes Fred and hates the dean

6. Which professor does Mary like?

7. *Which professor does Mary like and hates the dean?

CSC!

(Remember, ATB extraction is needed. Remember what that is?)

8. Some student likes every professor

What is the ambiguity in (8)?

How is this ambiguity created?

9a. $[_{IP} \text{ every professor}_y [_{IP} \text{ some student}_x [_{IP} t_x \text{ likes } t_y]]]$

b. $[_{IP} \text{ some student}_x [_{IP} \text{ every professor}_y [_{IP} t_x \text{ likes } t_y]]]$

(9a is called the “inverse scope” reading)

Now look at (10). Is the every>some reading still there?

10. Some student likes every professor and hates the dean

Why not?

CSC!

11. Which professor_k does Mary [[like t_k] and [hate the dean]]



*

12. Some student [[likes every professor] and [hates the dean]]



*

B. Bound variables/covariance:

13. Every boy thinks that he will win

14. Every boy_k thinks that he_m will win

15a. Every boy_k thinks that he_k will win =BV

b. [_{IP} Every boy_k [t_k thinks that he_k will win]

c. Every boy x is such that x thinks that x will win

For pronouns to behave like bound variables, they need to be c-commanded by the quantifier.

No c-command \rightarrow No BV:

16. The woman who danced with **every man** thinks that **he** is wonderful.

What does 16 mean? Can *he* be a variable bound by *every man*?

No!

Because *every man* does not c-command *he*.

But this c-command can be achieved by covert movement. That is, it does not need to hold in the overt syntax. It can be achieved by the QP adjoining to IP by covert movement:

17. Every boy's mother thinks that he is smart

18. [_{IP} every boy_x [_{t_x} mother] thinks that x is smart.

But, if covert movement of the QP to adjoin to IP can license a BV, we should also expect it in (19). Do we get it there?

The question is whether the QP in a sentence like (19) can undergo covert movement to yield the representation in (20):

19. His mother scolded every boy

20. $[_{IP} \text{ every boy}_x [_{IP} \text{ his mother scolded } t_x]]$



And if you can do (20), you should be able to have (21), as the interpretation of (19), since c-command obtains in (20):

21. $[_{IP} \text{ every boy}_x [_{IP} \text{ x's mother scolded } t_x]]$

But you cannot. (19) does not permit the BV reading.

19. His mother scolded every boy

But why not? What is wrong with (20)

20. [_{IP} every boy_x [_{IP} his_x mother scolded t_x]

WCO!

21. Who_x did his_x mother scold t_x?

So WCO constrains overt movement and covert movement.

So we have found that covert movement is constrained by two (though there are more) restrictions that constrain overt movement as well: CSC and WCO.

Such discoveries put support behind the idea of covert movement.

But there is an additional point to emphasize here:

We can explain the absent readings by existing syntactic constraints. We do not need to put a burden on the semantics to explain the absence of inverse scope in (10) and the absence of the BV reading in (19).

References

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

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