Properties of X-bar

Complements, Adjuncts (& Specifiers.)
X-bar theory
X-bar theory

- Specifier Rule: $XP \rightarrow (YP) \ X'$
X-bar theory

- Specifier Rule: $XP \rightarrow (YP) \ X'$

- Adjunct Rule: $X' \rightarrow (ZP) \ X'$ or $X' \rightarrow X' (ZP)$
X-bar theory

- Specifier Rule: $XP \rightarrow (YP) \ X'$
- Adjunct Rule: $X' \rightarrow (ZP) \ X'$ or $X' \rightarrow X' \ (ZP)$
- Complement Rule: $X' \rightarrow X \ (WP)$
Predictions?
Predictions?

- Propose three different kinds of modifiers:
  - specifiers
  - complements
  - adjuncts
Predictions?

- Propose three different kinds of modifiers:
  - specifiers
  - complements
  - adjuncts

- Is this valid? Are there really three different kinds? Do they have different properties
Formal Definitions
Formal Definitions

Specifier: Daughter of XP, sister to X'

XP \rightarrow (YP) \ X'

XP
   \_\
  YP  X'
Formal Definitions

Specifier: Daughter of XP, sister to X'

XP \rightarrow (YP) X'

Adjunct: Daughter of X', sister to X'

X' \rightarrow (ZP) X' or X' \rightarrow X' (ZP)
Formal Definitions

Specifier: Daughter of XP, sister to X’

Adjunct: Daughter of X’, sister to X’

Complement: Daughter of X’, sister to X
Formal Definitions

Specifier: Daughter of XP, sister to X’

\[ XP \rightarrow (YP) X' \]

Adjunct: Daughter of X’, sister to X’

\[ X' \rightarrow (ZP) X' \quad \text{or} \quad X' \rightarrow X' (ZP) \]

Complement: Daughter of X’, sister to X

\[ X' \rightarrow X (WP) \]
the young student of linguistics with red hair from Phoenix
the young student of linguistics with red hair from Phoenix of linguistics
the young student with red hair from Phoenix of linguistics
the young student of linguistics with red hair from Phoenix of linguistics

specifier

D

AdjP

young

N'

N'

N'

PP

from Phoenix

with red hair

complement
the young student of linguistics with red hair from Phoenix
the young student of linguistics with red hair from Phoenix

specifier

maximal projection

 adjuncts

 N' head

 N specifier

 N' head

 AdjP specifier

 PP complement

 PP specifier

 PP specifier

 PP specifier

 PP specifier

 PP specifier
The young student of linguistics with red hair from Phoenix is called the projections of N.
Revised Principle of Modification

- If an XP modifies some head Y, then it must be dominated by some projection of Y (i.e., it must be dominated by Y, Y’, ..., Y’, YP)
The student of linguistics
The student of linguistics

NP

D
the

N'
student

PP
of linguistics

The student from Phoenix

NP

D
the

N'

N
student

PP
from Phoenix
Quick way to distinguish complements and adjuncts in NPs (doesn’t work for other categories). Complements of N are marked with the preposition ‘of’. All other prepositions mark adjuncts. (This is not fool proof!)
Complements always closest to head
Complements always closest to head

The student [of linguistics] [from Phoenix]
Complements always closest to head

The student [of linguistics] [from Phoenix]

head complement  adjunct
Complements always closest to head

The student [of linguistics] [from Phoenix]

head complement adjunct

*The student [from Phoenix] [of linguistics]
Complements always closest to head

The student [of linguistics] [from Phoenix]

head complement adjunct

*The student [from Phoenix] [of linguistics]

head adjunct complement
Complements always closest to head

The student [of linguistics] [from Phoenix]

head complement adjunct

*The student [from Phoenix] [of linguistics]

head adjunct complement

The diagram shows a syntactic tree with:
- **NP** (Noun Phrase) at the top
- **D** (Determiner) below **NP**
- **the** (Determiner) below **D**
- **N’** (Noun Phrase) below **the**
- **N** (Noun) below **N’**
- **PP** (Prepositional Phrase) below **N’**
- **from Phoenix** (PP) as a complement to **N’**
- **of linguistics** (PP) as a complement to **N’**
Complements always closest to head

The student [of linguistics] [from Phoenix]

head complement adjunct

*The student [from Phoenix] [of linguistics]

head adjunct complement

since complements are sister to head

©Andrew Carnie, 2006
Only one complement, multiple adjuncts

- $X' \rightarrow (ZP) X'$ or $X' \rightarrow X' (ZP)$ iterative
- $X' \rightarrow X (WP)$ not iterative
Only one complement, multiple adjuncts

- $X' \rightarrow (ZP) X'$ or $X' \rightarrow X' (ZP)$  Iterative
- $X' \rightarrow X (WP)$  not iterative

the student of linguistics with the red hair from Phoenix in the bath
Only one complement, multiple adjuncts

- $X' \rightarrow (ZP) X'$ or $X' \rightarrow X' (ZP)$ Iterative
- $X' \rightarrow X (WP)$ not iterative

the student of linguistics with the red hair from Phoenix in the bath

*the student of linguistics of chemistry from Phoenix
Adjuncts can be reordered

The student of linguistics from Phoenix with red hair on the bus. The student of linguistics with red hair from Phoenix on the bus. The student of linguistics with red hair on the bus from Phoenix. The student of linguistics on the bus with red hair from Phoenix. The student of linguistics on the bus from Phoenix with red hair. The student of linguistics from Phoenix on the bus with red hair. *The student from Phoenix of linguistics with red hair on the bus *The student from Phoenix with red hair of linguistics on the bus *The student from Phoenix with red hair on the bus of linguistics (etc.)
Conjunction
Conjunction

- The conjunction rule: $X^n \rightarrow X^n \text{ Conj } X^n$
  - The red and blue house  *The red and cat
Conjunction

- The conjunction rule: $X^n \rightarrow X^n \text{ Conj } X^n$
  - The red and blue house  *The red and cat
- Complements can be conjoined with complements:
  - The student of linguistics and of philosophy
Conjunction

- The conjunction rule: $X^n \rightarrow X^n \text{ Conj } X^n$
  - The red and blue house  *The red and cat
- Complements can be conjoined with complements:
  - The student of linguistics and of philosophy
- Adjuncts can be conjoined with adjuncts
  - The student with red hair and with a tattoo
Conjunction

- The conjunction rule: $X^n \rightarrow X^n \text{ Conj } X^n$
  - The red and blue house *The red and cat
- Complements can be conjoined with complements:
  - The student of linguistics and of philosophy
- Adjuncts can be conjoined with adjuncts
  - The student with red hair and with a tattoo
- Complements cannot be conjoined with adjuncts
  - *The student of linguistics and with red hair
One replacement

- One Replacement: replace N’ with one.

```
NP
  D
  the
  N
  Student

N'

N'

PP
  from Phoenix

PP

NP
```

the student from Phoenix of linguistics
One replacement

- One Replacement: replace N’ with one.

```
NP
  ____________
  |           |
  |           |
  |           |
D   N’
  ____________
  |           |
  |           |
  |           |
the       N’
  ____________
  |           |
  |           |
  |           |
N      PP
  ____________
  |           |
  |           |
  |           |
Student  PP
  ____________
  |           |
  |           |
  |           |
of linguistics

```

can be replaced by one

from Phoenix
One replacement

- One Replacement: replace N’ with one.

Student from Phoenix can be replaced by one

D the

N’

N’ NP

PP from Phoenix

of linguistics

can NOT be replaced by one
One replacement

- One Replacement: replace N’ with one.

The student from Phoenix can be replaced by one

Therefore an adjunct can follow ‘one’ but complements cannot!
One replacement
One replacement

- The student from Phoenix not the \([N\text{one}]\) from Tucson
One replacement

- The student from Phoenix not the $[_N\text{one}]$ from Tucson
- *The student of linguistics not the one of chemistry
One replacement

- The student from Phoenix not the $[N', one]$ from Tucson
- *The student of linguistics not the one of chemistry

For those of you who find the last sentence grammatical, your rule targets both N and N’ and this test won’t work for you to distinguish adjuncts from complements
## Telling complements from adjuncts

<table>
<thead>
<tr>
<th>Complements</th>
<th>Adjuncts</th>
</tr>
</thead>
<tbody>
<tr>
<td>only 1</td>
<td>multiple allowed</td>
</tr>
<tr>
<td>closest to head</td>
<td>may be separated from head</td>
</tr>
<tr>
<td>cannot be reordered</td>
<td>can be reordered</td>
</tr>
<tr>
<td>conjoin with complements</td>
<td>conjoin with adjuncts</td>
</tr>
<tr>
<td>*[one]+complement</td>
<td>✓ [one]+adjunct</td>
</tr>
</tbody>
</table>

You should be able to list an example or two of these on the exam.
An easy mistake to make!

- When you have only one PP modifier or AdjP modifier, be very careful to see if it is a complement or adjunct. If it is an adjunct it must be a sister to the X’ level!!!!!
An easy mistake to make!

- When you have only one PP modifier or AdjP modifier, be very careful to see if it is a complement or adjunct. If it is an adjunct it must be a sister to the X’ level!!!!!!
An easy mistake to make!

- When you have only one PP modifier or AdjP modifier, be very careful to see if it is a complement or adjunct. If it is an adjunct it must be a sister to the X’ level!!!!!!

```
NP
  D
  N’
AdjP
  N’
     big
N
  banana
```

this N’ is CRUCIAL!!
An easy mistake to make!

- When you have only one PP modifier or AdjP modifier, be very careful to see if it is a complement or adjunct. If it is an adjunct it must be a sister to the X’ level!!!!!

```
NP
  D     N'
  the  AdjP
    big  N'    N
      banana
```

this N’ is CRUCIAL!!!
An easy mistake to make!

- When you have only one PP modifier or AdjP modifier, be very careful to see if it is a complement or adjunct. If it is an adjunct it must be a sister to the X’ level!!!!!!

NP
  D
  the
  AdjP
  big
  N
  banana

this N’ is CRUCIAL!!!
The complement/adjunct distinction in VPs
The complement/adjunct distinction in VPs

- John \[_{VP} \text{often eats apples with a fork}\]
  
  adjunct head complement adjunct
The complement/adjunct distinction in VPs

- John \([_{\text{VP}} \text{often eats apples with a fork}]\)
  
  \text{adjunct head complement adjunct}

- In VPs, the direct object is always the complement. (Almost) everything else is an adjunct.
The complement/adjunct distinction in VPs

- John \([_{VP} \text{often eats apples with a fork}]\)
  adjunct head complement adjunct

- In VPs, the direct object is always the complement. (Almost) everything else is an adjunct.

- (Exception to the rule: the verbs give and put take two complements a NP and PP.)
  
  - I gave the apple to John (both are complements)
  - I put the book on the table
I loved the policeman intensely with all my heart
I loved the policeman intensely with all my heart.
I loved the policeman intensely with all my heart
I loved the policeman intensely with all my heart
Only 1 complement

*I loved the policeman the fireman
- Only 1 complement
  - *I loved the policeman the fireman

- Reordering
  - I loved the policeman with all my heart intensely
  - I loved the policeman intensely with all my heart
  - *I loved intensely the policeman with all my heart
  - *I loved intensely with all my heart the policeman
- Only 1 complement
  - *I loved the policeman the fireman

- Reordering
  - I loved the policeman with all my heart intensely
  - I loved the policeman intensely with all my heart
  - *I loved intensely the policeman with all my heart
  - *I loved intensely with all my heart the policeman

- Conjunction
  - I loved the policeman and the fireman
  - I loved the policeman intensely and with all my heart
  - *I loved the policeman and intensely
Do so replacement

Susan loved the policemen intensely with all her heart but/and

- Mary did so with her brain!
- Mary did so mildly with her brain
- *Mary did so the fireman
AdjPs and PPs???
AdjPs and PPs???

- Evidence is much weaker.
  - very afraid of tigers
    adjunct head complement
  - very in love with himself
    adjunct head complement adjunct
AdjPs and PPs???

- Evidence is much weaker.
  - very afraid of tigers
    adjunct head complement
  - very in love with himself
    adjunct head complement adjunct

- We will assume the distinction exists here for parsimony reasons (that is, to make the theory pretty)
Specifiers
Specifiers

- The only element we have seen in specifiers so far is the determiner. In the next chapter, we’ll argue that even these aren’t real specifiers.
Specifiers

- The only element we have seen in specifiers so far is the determiner. In the next chapter, we’ll argue that even these aren’t real specifiers.
- Instead, we’ll argue the specifier is where subjects are generated. More on this later.
The only element we have seen in specifiers so far is the determiner. In the next chapter, we’ll argue that even these aren’t real specifiers.

Instead, we’ll argue the specifier is where subjects are generated. More on this later.

For now, understand the definition (sister to X’, daughter of XP), and put determiners there.
Specifiers

- The only element we have seen in specifiers so far is the determiner. In the next chapter, we’ll argue that even these aren’t real specifiers.
- Instead, we’ll argue the specifier is where subjects are generated. More on this later.
- For now, understand the definition (sister to $X'$, daughter of XP), and put determiners there.
Summary

- Specifier: sister to X’, daughter of XP
Summary

- Specifier: sister to X’, daughter of XP
- Adjunct: sister to X’, daughter of X’
Summary

- Specifier: sister to X’, daughter of XP
- Adjunct: sister to X’, daughter of X’
- Complement: sister to X, daughter of X’
Summary

- Specifier: sister to X’, daughter of XP
- Adjunct: sister to X’, daughter of X’
- Complement: sister to X, daughter of X’

X-bar theory predicts differences in behavior between complements and adjuncts:

- only one complement, multiple adjuncts
- complement must be closest to head
- adjuncts can be reordered
- conjunction
- *One/did so + complement
Summary
Summary

- Complement/Adjunct distinction hold of pre-head material too.
Summary

- Complement/Adjunct distinction hold of pre-head material too.
- The C/A distinction can capture ambiguity
Summary

- Complement/Adjunct distinction hold of pre-head material too.
- The C/A distinction can capture ambiguity.
- There is strong evidence for the C/A distinction in NPs and VPs.
Summary

- Complement/Adjunct distinction hold of pre-head material too.
- The C/A distinction can capture ambiguity.
- There is strong evidence for the C/A distinction in NPs and VPs.
- The evidence for AdjPs/AdvPs and PPs is weaker.
Summary

- Complement/Adjunct distinction hold of pre-head material too.
- The C/A distinction can capture ambiguity.
- There is strong evidence for the C/A distinction in NPs and VPs.
- The evidence for AdjPs/AdvPs and PPs is weaker.
- We are leaving specifiers aside for the moment as something to be dealt with later.