Chapter 5: More on Subjects and Complements

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Grammar Rules: X-bar rules

(1)  
a. $XP \rightarrow \text{Specifier, Head}$  
b. $XP \rightarrow \text{Head, Complement(s)}$  
c. $XP \rightarrow \text{Head, Modifier}$
Grammar Rules with Features

(2) a. Head-Specifier Rule:
\[ \text{XP[POS 1]} \rightarrow \text{Specifier, X'[POS 1]} \]
b. Head-Complement Rule:
\[ \text{XP[POS 1]} \rightarrow \text{X[POS 1], Complement(s)} \]
c. Head-Modifier Rule:
\[ \text{XP[POS 1]} \rightarrow \text{Modifier, XP[POS 1]} \]
Head Feature and Head Feature Principle

(3) \[ \text{VP[POS \textbf{1}verb ]} \]
\[ \text{V[POS \textbf{1}verb ] PP} \]

(4) The Head Feature Principle (HFP):
A phrase’s head feature (e.g., POS, VFORM, etc.) is identical with that of its head.

(5) \[ *\text{VP[POS verb]} \]
\[ \text{A[POS adj] PP} \]
Discharging COMPS and SPR (SUBJ) value

(6) a. Kim put the book in the box.
    c. *Kim put in the box.

(7) \[
\begin{array}{c|c|c}
\text{HEAD} & \text{POS} & \text{verb} \\
\hline
\text{SPR} & \langle \text{NP} \rangle & \\
\text{COMPS} & \langle \text{NP, PP} \rangle \\
\end{array}
\]

(8) a. *Is putting the book in the box.
    b. *Talked with Bill about the exam.
Revised Grammar Rules

(9) a. Head-Specifier Rule:
\[ \text{XP}[\text{SPR }\langle \text{1} \rangle] \rightarrow \text{1}, \text{H}[\text{SPR }\langle \text{1} \rangle] \]

b. Head-Complement Rule:
\[ \text{XP}[\text{COMPS }\langle \text{1}, \ldots, n \rangle] \rightarrow \text{H}[\text{COMPS }\langle \text{1}, \ldots, n \rangle], \text{1}, \ldots, n \]

c. Head-Modifier Rule:
\[ \text{XP} \rightarrow [\text{MOD }\langle \text{1} \rangle], \text{1H} \]

(10) The Valence Principle (VALP):
The mother’s SPR and COMPS value is identical with its head daughters minus the discharged value(s).
Grammar Rules and HFP

\[(11)\]

\[S \quad \text{HEAD} \quad 4 \quad | \quad \text{POS} \quad \text{verb} \]

\[\text{SPR} \quad \langle \quad \rangle \]

\[\text{COMPS} \quad \langle \quad \rangle \]

\[\text{H} \quad \text{Subj} \]

\[\text{VP} \quad \text{HEAD} \quad 4 \quad | \quad \text{POS} \quad \text{verb} \]

\[\text{SPR} \quad \langle 1 \rangle \]

\[\text{COMPS} \quad \langle \quad \rangle \]

\[\text{H} \quad \text{V} \]

\[\text{C} \quad \text{C} \]

\[\text{NP} \quad \text{Kim} \]

\[\text{PP} \]

\[\text{deposits some money in the bank} \]

\[\text{1NP} \]

\[\text{2NP} \]

\[\text{3PP} \]
### Types of English Verb Forms:

<table>
<thead>
<tr>
<th>Finiteness</th>
<th>Verb forms</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{fin} )</td>
<td>( \text{pres} )</td>
<td>He <em>drives</em> a car.</td>
</tr>
<tr>
<td></td>
<td>( \text{past} )</td>
<td>He <em>drove</em> a car.</td>
</tr>
<tr>
<td></td>
<td>( \text{plain} )</td>
<td>They drive a car.</td>
</tr>
<tr>
<td>( \text{nonfin} )</td>
<td>( \text{bse} )</td>
<td>He wants to <em>drive</em> a car.</td>
</tr>
<tr>
<td></td>
<td>( \text{prp} )</td>
<td><em>Driving</em> a car, he sang a song.</td>
</tr>
<tr>
<td></td>
<td>( \text{psp} )</td>
<td>He was <em>driving</em>.</td>
</tr>
<tr>
<td></td>
<td>( \text{inf} )</td>
<td><em>Driven</em> by the mentor, he worked.</td>
</tr>
</tbody>
</table>

He has *driven* the car.

He has *to drive*. 
Form sharing and finitie vs. nonfinite

(13) a. They write/wrote to her.
   b. They are/*be kind to her.

(14) a. They want to write/*wrote to her.
   b. They want to be/*are kind to her.
verb form hierarchy

\[(15)\]

\[
\begin{array}{c}
\text{vform} \\
\text{fin} & \text{nonfin} \\
\text{pres} & \text{past} & \text{plain} & \text{bse} & \text{prp} & \text{psp} & \text{inf}
\end{array}
\]
referring to a VFORM value

(16) a. [VFORM fin]
b. [VFORM prp]

(17) a. The student [knows the answers].
b. The student [knew the answers].
c. The students [know the answers].

(18) a. *The student [knowing the answers].
b. *The student [known the answers].
Basic constraint

(19) English Declarative Sentence Rule: For an English declarative sentence to be well-formed, its verb form value (VFORM) must be finite.

(20) \[
\begin{array}{c}
S[ VFORM \downarrow\text{pres} ] \\
\downarrow \\
NP \quad VP[ VFORM \downarrow\text{pres} ]
\end{array}
\]
Participle forms

(21) Usages of the Present Participle:
   a. He is writing another long book about beavers.
      (part of the progressive aspect construction)
   b. Broadly speaking, the project was successful.
      (used as a sentence modifier)
   c. He is proud of his son’s passing the bar exam.
      (used in a gerundive construction)

(22) Usages of the Past Participle:
   a. The chicken has eaten.
      (part of the perfect aspect construction)
   b. The chicken was eaten.
      (part of the passive voice construction)
   c. Seen from this perspective, there is no easy solution.
      (used as a sentence modifier)
Lexical entry for the verb

(23) \[
\langle \text{knows} \rangle \\
\text{HEAD} \left[ \begin{array}{l} \\
\text{POS verb} \\
\text{VFORM pres} \\
\text{SPR} \left[ \begin{array}{l} \\
\text{COMPS} \left[ \begin{array}{l} \\
\text{ARG-ST} \left[ \begin{array}{l} \\
1, 2 \end{array} \right] \\
\right] \\
\right] \\
\right] \\
\end{array} \right]
\]
VFORM and HFP

(24) 

\[ S \]

\[ VFORM \text{ pres} \]

\[ NP \]

\[ V \]

\[ VFORM \text{ pres} \]

\[ VP \]

\[ NP \]

\[ VFORM \text{ pres} \]

\[ \text{The student} \]

\[ \text{knows} \]

\[ \text{the answer} \]
various constructions in English where we need to refer to VFORM values

(25) a. The monkeys kept [forgetting/*forgot/*forgotten their lines]. (prp)
    b. We caught them [eating/*ate/*eat/*eaten the bananas]. (prp)
    c. John made Mary [cook/*to cook/*cooking Korean food]. (bse)
VFORM specification

(26) a. 
\[
\begin{array}{c}
\langle \text{keep} \rangle \\
\text{HEAD} | \text{POS} & \text{verb} \\
\text{COMPS} & \langle \text{VP[prp]} \rangle
\end{array}
\]

b. 
\[
\begin{array}{c}
\langle \text{make} \rangle \\
\text{HEAD} | \text{POS} & \text{verb} \\
\text{COMPS} & \langle \text{NP, VP[bse]} \rangle
\end{array}
\]
two types of adjectives and complement types

(28) a. The monkey seems despondent (that it is in a cage).
    b. He seems intelligent (*to study medicine).

(29) a. Monkeys are eager [to leave/*leaving the compound].
    b. The chickens seem fond [of/*with the farmer].
    c. The foxes seem compatible [with/*for the chickens].
    d. These are similar [to/* with the bottles].
    e. The teacher is proud [of/*with his students].
    f. The contract is subject [to/*for approval by my committee].
(30) a. \[
\begin{array}{l}
\langle \text{eager} \rangle \\
\text{HEAD} \mid \text{POS} & \text{adj} \\
\text{SPR} & \langle \text{NP} \rangle \\
\text{COMPS} & \langle \text{VP[VFORM inf]} \rangle
\end{array}
\]

b. \[
\begin{array}{l}
\langle \text{fond} \rangle \\
\text{HEAD} \mid \text{POS} & \text{adj} \\
\text{SPR} & \langle \text{NP} \rangle \\
\text{COMPS} & \langle \text{PP[PFORM of]} \rangle
\end{array}
\]
Feature Specifications on the Complement Values

Complements of Adjectives

(31) S
  |   VFORM pres
  |   V
  |   NP
  |     Monkeys
  |     VFORM pres
  |     V
  |     COMPS ⟨2⟩
  |     V
  |     A
  |     are
  |     COMPS ⟨1⟩
  |     V
  |     eager
  |     VFORM inf
  |     to
  |     leave the meeting
  |     VFORM inf
  |     VP
  |     1 VP
  |     2 AP

JB Kim & P. Sells (Kyung Hee U. and Stanford U.)
English Syntax
noun complements

(32) a. their proximity to their neighbors/*for their neighbors
   b. Bill’s faith in/*for Fred’s sister
   c. the king of/*in English
   d. the desire to become famous/*for success
   e. the bottom of/*in the barrel
(33) a. 
\[
\begin{align*}
\langle \text{proximity} \rangle \\
\text{HEAD} \mid \text{POS} & \quad \textit{noun} \\
\text{SPR} & \quad \langle 1\text{DP} \rangle \\
\text{COMPS} & \quad \langle 2\text{PP}[\text{PFORM } \textit{to}] \rangle
\end{align*}
\]

b. 
\[
\begin{align*}
\langle \text{faith} \rangle \\
\text{HEAD} \mid \text{POS} & \quad \textit{noun} \\
\text{SPR} & \quad \langle 1\text{DP} \rangle \\
\text{COMPS} & \quad \langle 2\text{PP}[\text{PFORM } \textit{in}] \rangle
\end{align*}
\]
restrictions on the subject

(34) a. John/Some books/The spy disappeared.
   b. The teacher/The monkey/He fooled the students.

(35) a. It/*John/*There rains.
   b. There/*The spy lies a man in the park.
lexical entries

(36) a. \[
\begin{array}{c}
\langle \text{rained} \rangle \\
\text{SPR} \quad \langle \text{NP[NFORM it]} \rangle \\
\text{COMPS} \quad \langle \quad \rangle \\
\end{array}
\]

b. \[
\begin{array}{c}
\langle \text{fooled} \rangle \\
\text{SPR} \quad \langle \text{NP[NFORM norm]} \rangle \\
\text{COMPS} \quad \langle \text{NP} \rangle \\
\end{array}
\]

(37) \[
\begin{array}{c}
\langle \text{rain} \rangle \\
\text{SPR} \quad \langle \text{NP[NFORM it]} \rangle \\
\text{COMPS} \quad \langle \quad \rangle \\
\text{ARG-ST} \quad \langle \quad \rangle \\
\end{array}
\]
(38) a. There exists only one truly amphibian mammal.
b. There arose a great storm.

(39) a. There exist few solutions which are cost-effective.
b. There is a riot in the park.
c. There remained just a few problems to be solved.

(40) a. *There runs a man in the park.
b. *There sings a man loudly.
The verb 'exist'

\[(41)\] a. \[
\begin{array}{l}
\langle \text{exists} \rangle \\
\text{SPR} \quad \langle 1 \text{NP} \rangle \\
\text{COMPS} \quad \langle \quad \rangle \\
\text{ARG-ST} \quad \langle 1 \rangle \\
\end{array}
\]

b. \[
\begin{array}{l}
\langle \text{exists} \rangle \\
\text{SPR} \quad \langle \text{NP[NFORM there]} \rangle \\
\text{COMPS} \quad \langle 1 \text{NP} \rangle \\
\text{ARG-ST} \quad \langle 1 \rangle \\
\end{array}
\]
clausal complement

(42) a. I think (that) the press has a check-and-balance function.
    b. They believe (that) Charles Darwin’s theory of evolution is just a scientific theory.

(43) a. \[ \text{COMPS} \quad \langle S[VFORM \ fin] \rangle \]
    b. \[ \text{COMPS} \quad \langle CP[VFORM \ fin] \rangle \]
Clausal Complement or Subject  

Verbs Selecting a Clausal Complement

clausal complement

(44) \[
\begin{array}{c}
\langle \text{believe} \rangle \\
\text{HEAD} \mid \text{POS} \quad \text{verb} \\
\text{COMPS} \quad \langle [\text{VFORM } fin] \rangle
\end{array}
\]

(45) a. John demanded [that she stop phoning him].
    b. The rules require [that the executives be polite].
The rules require that the executives be polite.

(46) S
    ↖   ↖
   NP   VP
     ↖   ↖
    VP  CP
      ↖   ↖
     C   S
       ↖   ↖
      S   S
        ↖   ↖
       VFORM bse    VFORM bse
         ↖   ↖
        that the executives be polite
          ↖   ↖
         COMPS ⟨2⟩    COMPS ⟨⟩
Clausal Complement or Subject

Verbs Selecting a Clausal Complement

that

\[(47) \begin{bmatrix}
\langle \text{that} \rangle \\
\text{HEAD} \\
\text{SPR} \\
\text{COMPS}
\end{bmatrix} = \begin{bmatrix}
\operatorname{POS} \text{ comp} \\
\operatorname{VFORM} \ 1 \\
\langle \ \rangle \\
\langle \text{S[VFORM} \ 1] \rangle
\end{bmatrix}\]
warn type

(48) a. Joe warned the class that the exam would be difficult.
b. We told Tom that he should consult an accountant.
c. Mary convinced me that the argument was sound.

(49) \[
\text{COMPS} \left< \text{NP, CP[VFORM } fi\{n}\right> \]

intend type

(50) a. Tom intends for Sam to review that book.
    b. John would prefer for the children to finish the oatmeal.
Clausal Complement or Subject

Verbs Selecting a Clausal Complement

(51)

```
S
   |   |
  NP  VP
   |   |
  Tom  [COMPS ⟨ ⟩]
   |   |
   V   [COMPS ⟨2⟩]
   |   |
  intends  2CP
   |   |
   |   |
   C   [VFORM inf]
   |   |
   |   |
   |   |
   S   [VFORM inf]
   |   |
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   [VFORM inf]
   |   |
   |   |
   |   |
   VP
   |   |
   |   |
   to review that book
```

Tom intends for Sam to review that book.
lexical entries

(52) \[
\langle \text{intends} \rangle \\
\text{HEAD} \left[ \begin{array}{c}
\text{POS} \\
\text{VFORM}
\end{array} \right] \left. \begin{array}{c}
\text{verb} \\
pres
\end{array} \right]
\text{COMPS} \left[ \langle \text{CP[VFORM inf]} \rangle \right]
\]

(53) a. \[
\langle \text{for} \rangle \\
\text{HEAD} \left[ \begin{array}{c}
\text{POS} \\
\text{VFORM}
\end{array} \right] \left. \begin{array}{c}
\text{comp} \\
inf
\end{array} \right]
\text{COMPS} \left[ \langle \text{S[VFORM inf]} \rangle \right]
\]

b. \[
\langle \text{to} \rangle \\
\text{HEAD} \left[ \begin{array}{c}
\text{POS} \\
\text{VFORM}
\end{array} \right] \left. \begin{array}{c}
\text{verb} \\
inf
\end{array} \right]
\text{COMPS} \left[ \langle \text{VP[VFORM bse]} \rangle \right]
\]
(54)  a. For John to either [make up such a story] or [repeat it] is outrageous.
    (coordination of \textit{bse} VPs)
b. For John either [to make up such a story] or [to repeat it] is outrageous.
    (coordination of \textit{inf} VPs)
c. For [John to tell Bill such a lie] and [Bill to believe it] is outrageous.
    (coordination of \textit{inf} Ss)
more on 'intend'

(55) a. John intends to review the book.
    b. John would prefer to finish the oatmeal.

(56) \[
\begin{array}{c}
\langle \text{intend} \rangle \\
\text{HEAD} | \text{POS} \quad \text{verb} \\
\text{COMPS} \langle [\text{VFORM} \quad \text{inf}] \rangle \\
\end{array}
\]
try-type

(57) a. Tom tried to ask a question.
   b. *Tom tried for Bill to ask a question.

(58) a. Tom tends to avoid confrontations.
   b. *Tom tends for Mary to avoid confrontations.

(59) a. Joe hoped to find a solution.
   b. *Joe hoped for Beth to find a solution.
believe-type

(60) a. John believed it/that he is honest.
   b. John mentioned the issue to me/mentioned to me that the question is an issue.

(61) part-of-speech

nominal verb adj prep ... noun comp
three different types

(62) a. She pinched [his arm] as hard as she could.
    b. *She pinched [that he feels pain].

(63) a. We hope [that such a vaccine could be available in ten years].
    b. *We hope [the availability of such a vaccine in ten years].

(64) a. Cohen proved [the independence of the continuum hypothesis].
    b. Cohen proved [that the continuum hypothesis was independent].
three different argument structure

(65) a. \[\text{ARG-ST} \langle \text{NP, NP[POS noun]}, \ldots \rangle\]  
b. \[\text{ARG-ST} \langle \text{NP, CP[POS comp]}, \ldots \rangle\]  
c. \[\text{ARG-ST} \langle \text{NP, [POS nominal]}, \ldots \rangle\]
clausal subject

(66) a. [John] bothers me.

b. [That John snores] bothers me.

(67) a. [John] loves Bill

b. *[That John snores] loves Bill.

(68) a. \[
\begin{array}{c}
\text{SPR} \quad \langle 1 \text{[POS nominal]} \rangle \\
\text{COMPS} \quad \langle 2 \text{NP} \rangle \\
\text{ARG-ST} \quad \langle 1, 2 \rangle
\end{array}
\]

b. \[
\begin{array}{c}
\text{SPR} \quad \langle 1 \text{NP} \rangle \\
\text{COMPS} \quad \langle 2 \text{NP} \rangle \\
\text{ARG-ST} \quad \langle 1, 2 \rangle
\end{array}
\]
other clausal subject types

(69) a. [That John sold the ostrich] surprised Bill.  
   (that-clause CP subject)

b. [(For John) to train his horse] would be desirable.  
   (infinitival CP or VP subject)

c. [That the king or queen be present] is a requirement on all Royal weddings.  
   (subjunctive that-clause CP subject)

d. [Which otter you should adopt first] is unclear.  
   (wh-question CP subject)
Clausal Complement or Subject

Verbs Selecting a Clausal Subject

clausal subject not possible

(70) a. *That Fred was unpopular nominated Bill.
b. *That Tom missed the lecture was enjoyable.
c. *For John to remove the mother is undeniable.
d. *How much money Gordon spent is true.

(71) a.
\[
\begin{array}{c}
\langle \text{nominate} \rangle \\
\text{VAL} \left[ \begin{array}{c}
\text{SPR} \\
\text{COMPS} \\
\text{ARG-ST} \\
\end{array} \right]
\end{array}
\]
\[
\left[ \begin{array}{c}
\langle 1 \text{NP} \rangle \\
\langle 2 \text{NP} \rangle \\
\langle 1, 2 \rangle \\
\end{array} \right]
\]
b.
\[
\begin{array}{c}
\langle \text{surprise} \rangle \\
\text{VAL} \left[ \begin{array}{c}
\text{SPR} \\
\text{COMPS} \\
\text{ARG-ST} \\
\end{array} \right]
\end{array}
\]
\[
\left[ \begin{array}{c}
\langle 1[\text{POS} \text{ nominal}] \rangle \\
\langle 2 \text{NP} \rangle \\
\langle 1, 2 \rangle \\
\end{array} \right]
\]
adjectives selecting a clausal COMP

(72) a. Tom is confident [that the elephants respect him].
   b. Tom is insistent [that the witnesses be truthful].

(73) a. Tom seems eager [for her brother to catch a cold].
   b. Tom seems eager [to catch a cold].

(74) a. I am ashamed that I neglected you.
   b. I am delighted that Mary finished his thesis.
   c. We are content for the cleaners to return the drapes next week.
lexical entries

(75) a. \[
\begin{array}{|c|c|}
\hline
\langle \text{confident} \rangle & \text{HEAD} | \text{POS} \quad \text{adj} \\
\langle \text{CP[VFORM\ fin]} \rangle & \text{COMPS} \\
\hline
\end{array}
\]

b. \[
\begin{array}{|c|c|}
\hline
\langle \text{insistent} \rangle & \text{HEAD} | \text{POS} \quad \text{adj} \\
\langle \text{CP[VFORM\ bse]} \rangle & \text{COMPS} \\
\hline
\end{array}
\]

c. \[
\begin{array}{|c|c|}
\hline
\langle \text{eager} \rangle & \text{HEAD} | \text{POS} \quad \text{adj} \\
\langle [\text{VFORM\ inf}] \rangle & \text{COMPS} \\
\hline
\end{array}
\]
(76) S
  NP           VP
  ↓           ↓
  Tom         V
  ↓
  [COMPS ⟨2⟩]

  VP
  ↑
  A
  ↓
  seems
  [COMPS ⟨3⟩]

  VP
  ↑
  V
  ↓
  eager
  [VFORM inf]

  VP
  ↑
  V
  ↓
  to
  catch
  [VFORM bse]

  VP
  ↑
  V
  ↓
  a cold
  [NP]
nouns selecting a clausal complement

(77) a. (John’s) eagerness [for Harry to win the election]
    b. (John’s) eagerness [to win the election]

(78) \[
\begin{array}{l}
\langle \text{eagerness} \rangle \\
\text{HEAD | POS } \textit{noun} \\
\text{COMPS } \langle [\text{VFORM inf}] \rangle
\end{array}
\]
Clausal Complement or Subject

Nouns Selecting a Clausal Complement

(79) NP
  ↖   ↖   ↖   ↖   ↖   ↖   ↖   ↖   ↖
  ↑   ↑   ↑   ↑   ↑   ↑   ↑   ↑   ↑
  DP
  "John’s"

NP
  ↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘
  "eagerness"

N′
  ↗   ↗   ↗   ↗   ↗   ↗   ↗   ↗   ↗
  VFORM "inf"

  ↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘
  "to win the election"

[COMPS ⟨2⟩]
relation between verb and noun

(80) a. Bill alleged that Fred signed the check.
    b. We believe that the directors were present.
    c. We convinced him that the operation is safe.

(81) a. the allegation that Fred signed the check
    b. the belief that the directors were present
    c. his conviction that the operation is safe
nouns selecting no clausal complement

(82) a. *his attention that the earth is round
b. *his article that the earth is flat
c. *the ignorance that James can play the flute
d. *the expertise that she knows how to bake croissants
Clausal Complement or Subject  

Prepositions Selecting a Clausal Complement

prepositions selecting a question

(83) a.  *Alan is thinking about [that his students are eager to learn English].
        b.  *Fred is counting on [for Tom to make an announcement].

(84) a.  The outcome depends on [how many candidates participate in the election].
        b.  Fred is thinking about [whether he should stay in Seoul].