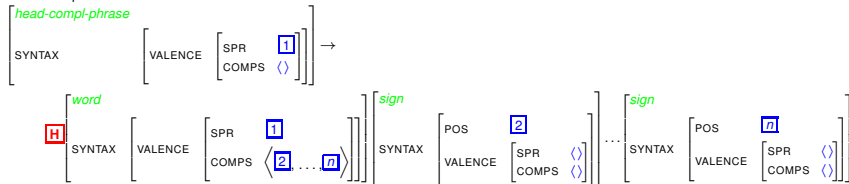# Grammar 23: Modifiers

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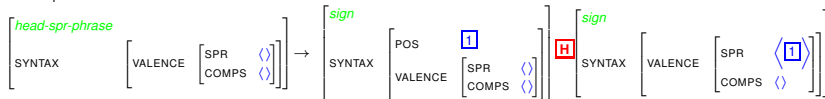
The grammar so far

There are only two grammar rules:

Head-Complement Rule:

Head-Specifier Rule:

The Head Feature Principle (HFP)

The value of HEAD of a phrase is also the value of HEAD of the phrase's head-daughter.
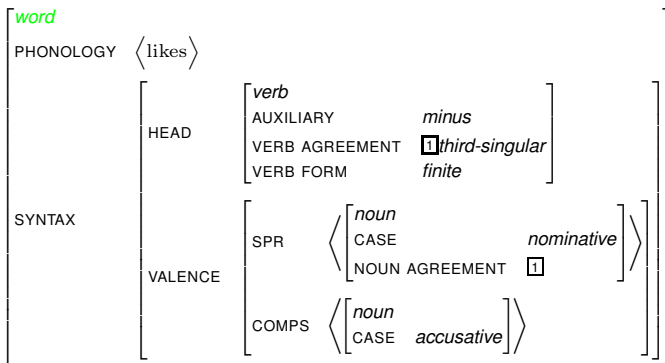
A typical word

$$
\begin{bmatrix}
\textit{word} \\
\text{PHONOLOGY} \quad \langle \text{likes} \rangle \\
\text{SYNTAX} \quad
\begin{bmatrix}
\text{HEAD} \quad
\begin{bmatrix}
\textit{verb} \\
\text{AUXILIARY} \quad \textit{minus} \\
\text{VERB AGREEMENT} \quad \boxed{1}\,\textit{third-singular} \\
\text{VERB FORM} \quad \textit{finite}
\end{bmatrix} \\
\text{VALENCE} \quad
\begin{bmatrix}
\text{SPR} \quad \left\langle
\begin{bmatrix}
\textit{noun} \\
\text{CASE} \quad \textit{nominative} \\
\text{NOUN AGREEMENT} \quad \boxed{1}
\end{bmatrix}
\right\rangle \\
\text{COMPS} \quad \left\langle
\begin{bmatrix}
\textit{noun} \\
\text{CASE} \quad \textit{accusative}
\end{bmatrix}
\right\rangle
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

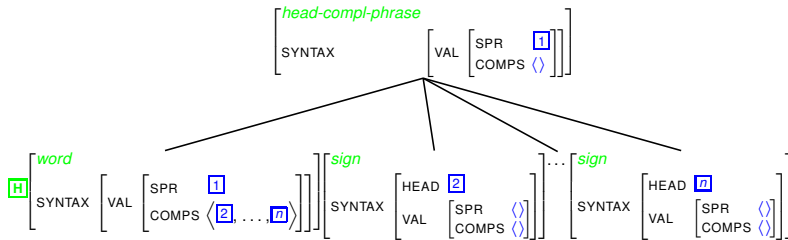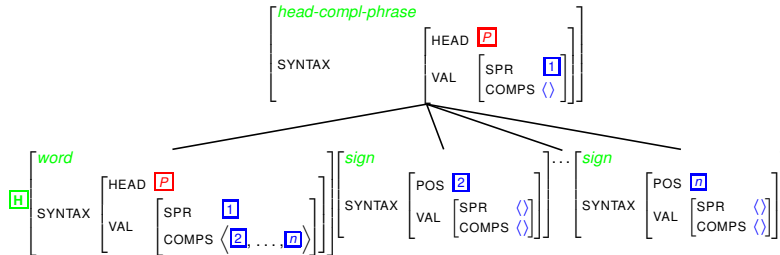# Illustration: the Head-Complement Rule

- The information in blue and green is a consequence of the Head-Complement Rule.
- The information in red is a consequence of the Head Feature Principle.

Premodification of Nouns:

(1) a.   red apple
    b.   sweet red apple
    c.   juicy sweet red apple

Postmodification of Nouns:

(2)   student fond of Kim

Nouns and verbs can be modified

Premodification of Verbs:

(3) a. nearly fell
    b. recently died
    c. recently almost died

Postmodification of Verbs:

(4) called Kim early

(5) called Kim with an IPhone

(6) called Kim early with an IPhone

Restrictions on modification

Modifiers differ as to what part of speech they can modify:

(7) a.   run quickly
    b. * run quick
    c.   a quick run
    d. * a quickly run

Modifiers differ as to the side of the head they can appear on:

(8)   a red apple

(9) * an apple red

(10)   Robin called Kim early.

(11) * Robin early called Kim

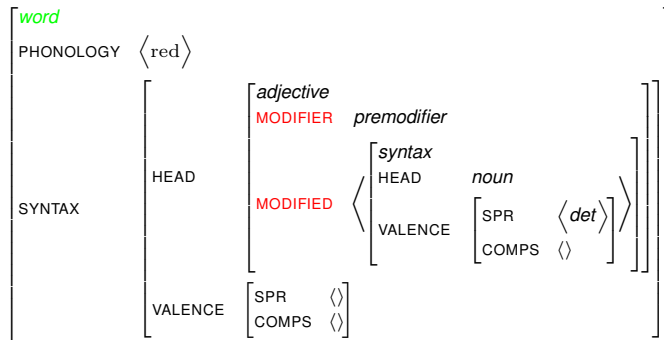(12)   Robin called Kim repeatedly.

(13)   Robin repeatedly called Kim

Two additions to the grammar

We need two additions to the grammar to capture the behavior of modifiers:

1. Information about modification in the lexical entries of modifiers.
2. Phrase structure rules that combine a modifier with the head it modifies.

Information about modification in lexical entries

Since the head word of a constituent determines the constituent's modification behavior, we add information about modification to the head features:

$$
\begin{bmatrix}
word \\
\text{PHONOLOGY} & \left\langle \text{red} \right\rangle \\
\text{SYNTAX} &
\begin{bmatrix}
\text{HEAD} &
\begin{bmatrix}
adjective \\
\text{MODIFIER} & premodifier \\
\text{MODIFIED} &
\left\langle
\begin{bmatrix}
syntax \\
\text{HEAD} & noun \\
\text{VALENCE} &
\begin{bmatrix}
\text{SPR} & \left\langle det \right\rangle \\
\text{COMPS} & \langle\rangle
\end{bmatrix}
\end{bmatrix}
\right\rangle
\end{bmatrix} \\
\text{VALENCE} &
\begin{bmatrix}
\text{SPR} & \langle\rangle \\
\text{COMPS} & \langle\rangle
\end{bmatrix}
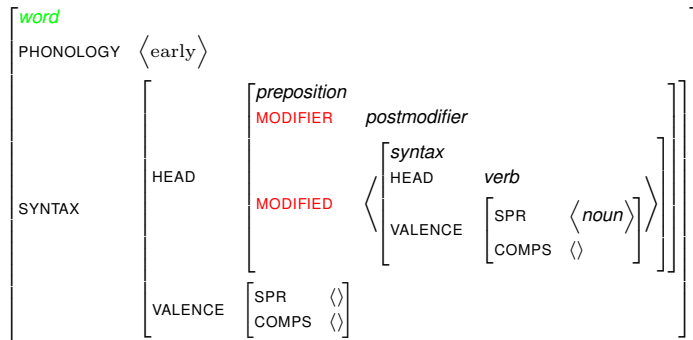\end{bmatrix}
\end{bmatrix}
$$

Information about modification in lexical entries, 2

Since the head word of a constituent determines the constituent's modification behavior, we add information about modification to the head features:

$$
\begin{bmatrix}
\textit{word} \\
\text{PHONOLOGY} \quad \left\langle \text{early} \right\rangle \\
\text{SYNTAX} \quad
\begin{bmatrix}
\text{HEAD} \quad
\begin{bmatrix}
\textit{preposition} \\
\text{MODIFIER} \quad \textit{postmodifier} \\
\text{MODIFIED} \quad
\left\langle
\begin{bmatrix}
\textit{syntax} \\
\text{HEAD} \quad \textit{verb} \\
\text{VALENCE} \quad
\begin{bmatrix}
\text{SPR} \quad \left\langle \textit{noun} \right\rangle \\
\text{COMPS} \quad \langle \rangle
\end{bmatrix}
\end{bmatrix}
\right\rangle
\end{bmatrix} \\
\text{VALENCE} \quad
\begin{bmatrix}
\text{SPR} \quad \langle \rangle \\
\text{COMPS} \quad \langle \rangle
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

Two Modifier Rules

Prehead-Modifier Rule:

$$
\begin{bmatrix} \textit{prehead-mod-phrase} \\ \text{SYNTAX} \quad [\text{VALENCE} \; \boxed{2}] \end{bmatrix} \rightarrow
\begin{bmatrix} \textit{sign} \\ \text{SYNTAX} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{MODIFIER} \quad \textit{prehead} \\ \text{MODIFIED} \quad \langle \boxed{1} \rangle \end{bmatrix} \\ \text{VALENCE} \begin{bmatrix} \text{SPR} \quad \langle \rangle \\ \text{COMPS} \quad \langle \rangle \end{bmatrix} \end{bmatrix} \end{bmatrix}
\boxed{\text{H}} \begin{bmatrix} \textit{sign} \\ \text{SYNTAX} \; \boxed{1} [\text{VALENCE} \; \boxed{2} [\text{COMPLEMENTS} \; \langle \rangle]] \end{bmatrix}
$$

Posthead-Modifier Rule:

$$
\begin{bmatrix} \textit{posthead-mod-phrase} \\ \text{SYNTAX} \quad [\text{VALENCE} \; \boxed{2}] \end{bmatrix} \rightarrow
\boxed{\text{H}} \begin{bmatrix} \textit{sign} \\ \text{SYNTAX} \; \boxed{1} [\text{VALENCE} \; \boxed{2} [\text{COMPLEMENTS} \; \langle \rangle]] \end{bmatrix}
\begin{bmatrix} \textit{sign} \\ \text{SYNTAX} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{MODIFIER} \quad \textit{posthead} \\ \text{MODIFIED} \quad \langle \boxed{1} \rangle \end{bmatrix} \\ \text{VALENCE} \begin{bmatrix} \text{SPR} \quad \langle \rangle \\ \text{COMPS} \quad \langle \rangle \end{bmatrix} \end{bmatrix} \end{bmatrix}
$$

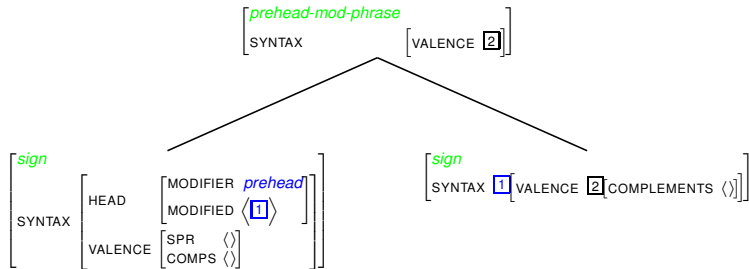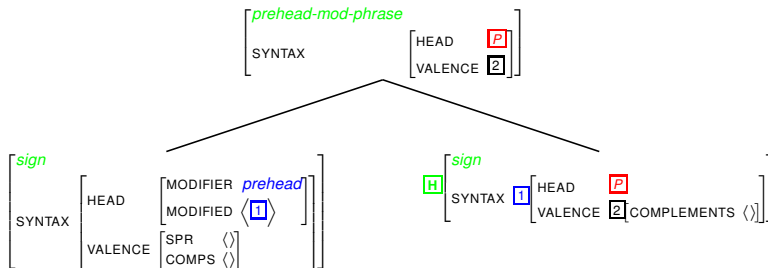## Illustration: the Prehead-Modifier Rule

Illustration: the Prehead-Modifier Rule + HFP

- The information in red is a consequence of the Head Feature Principle.
- The remaining information is a consequence of the Prehead-Modifier Rule.

1. Parse the following words and carefully study the information about modification their head features contain: *red, fond, with, early*!
2. For each of the test items (257)-(274) do the following: a. Predict in each case how many solutions the grammar will return. b. Only then parse the item and check that you made the correct prediction!