Grammar 6

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The phrase structure rules of Grammar 5

For sentences:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad sentence \end{bmatrix} \rightarrow \begin{bmatrix} word \\ \text{SYNTAX} \quad noun \end{bmatrix} \begin{bmatrix} word \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \rangle \end{bmatrix} \end{bmatrix}
$$

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad sentence \end{bmatrix} \rightarrow \begin{bmatrix} word \\ \text{SYNTAX} \quad noun \end{bmatrix} \begin{bmatrix} phrase \\ \text{SYNTAX} \quad verb \end{bmatrix}
$$

For verb phrases:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad verb \end{bmatrix} \rightarrow \begin{bmatrix} word \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \boxed{1} \rangle \end{bmatrix} \end{bmatrix} \begin{bmatrix} word \\ \text{SYNTAX} \quad \boxed{1} \end{bmatrix}
$$

The last rule says: a verb phrase consists of a verb word that wants the category C after it + a word of that same category C.

Two tiny changes (in red) to rule 1 and rule 3

For sentences:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad sentence \end{bmatrix}
\rightarrow
\begin{bmatrix} word \\ \text{SYNTAX} \quad noun \end{bmatrix}
\begin{bmatrix} \sout{word} \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \rangle \end{bmatrix} \end{bmatrix}
$$

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad sentence \end{bmatrix}
\rightarrow
\begin{bmatrix} word \\ \text{SYNTAX} \quad noun \end{bmatrix}
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad verb \end{bmatrix}
$$

For verb phrases:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \rangle \end{bmatrix} \end{bmatrix}
\rightarrow
\begin{bmatrix} word \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \boxed{1} \rangle \end{bmatrix} \end{bmatrix}
\begin{bmatrix} word \\ \text{SYNTAX} \quad \boxed{1} \end{bmatrix}
$$

The last rule says: a verb phrase consists of a verb word that wants the category C after it + a word of that same category C.

But, once we do that, we no longer need rule 2

Phrase structure rule for sentences:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad sentence \end{bmatrix} \;\rightarrow\; \begin{bmatrix} word \\ \text{SYNTAX} \quad noun \end{bmatrix} \begin{bmatrix} \sout{word} \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \rangle \end{bmatrix} \end{bmatrix}
$$

Phrase structure rule for verb phrases:

$$
\begin{bmatrix} phrase \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \rangle \end{bmatrix} \end{bmatrix} \;\rightarrow\; \begin{bmatrix} word \\ \text{SYNTAX} \quad \begin{bmatrix} verb \\ \text{RIGHT} \langle \boxed{1} \rangle \end{bmatrix} \end{bmatrix} \begin{bmatrix} word \\ \text{SYNTAX} \quad \boxed{1} \end{bmatrix}
$$

The last rule says: a verb phrase consists of a verb word that wants the category C after it + a word of that same category C.

Excercises

1. Parse all the test items of Grammar 6!
2. Explain how the grammar can license all the grammatical test sentences with just two rules!