

Quiz 3

Is the following grammar suitable for predictive parsing? If not transform it to be.

$$\begin{array}{l} E \rightarrow E + E \\ \quad | \quad E * E \\ \quad | \quad D \end{array}$$

$$D \rightarrow 1 \mid 2 \mid 3$$

No, the grammar is left recursion and non-factored

First, we left factor to get:

$$E \rightarrow E E' \mid D$$

$$E' \rightarrow + E \mid * E \mid \text{epsilon}$$

$$D \rightarrow 1 \mid 2 \mid 3$$

Second, we eliminate left recursion to get:

$$E \rightarrow D R$$

$$R \rightarrow E' R \mid \text{epsilon}$$

$$E' \rightarrow + E \mid * E \mid \text{epsilon}$$

$$D \rightarrow 1 \mid 2 \mid 3$$