

Ambiguous Grammar

$$E \rightarrow E + E \mid E * E \mid id$$

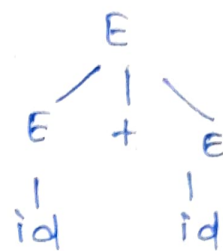
① $w = id + id$

LMD

$$\begin{aligned} E &\rightarrow E + E \\ &\rightarrow id + E \\ &\rightarrow id + id \end{aligned}$$

RMD

$$\begin{aligned} E &\rightarrow E + E \\ &\rightarrow E + id \\ &\rightarrow id + id \end{aligned}$$



② $w = id + id + id$

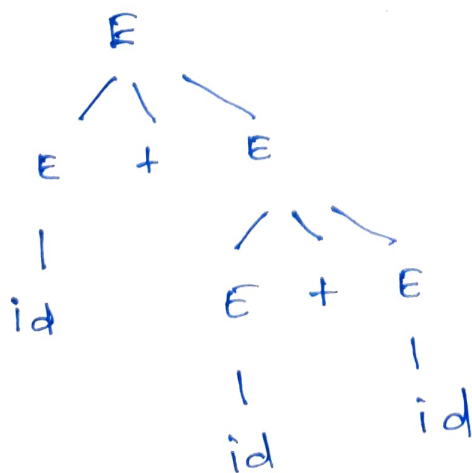
LMD1

$$\begin{aligned} E &\rightarrow E + E \\ &\rightarrow id + E \\ &\rightarrow id + E + E \\ &\rightarrow id + id + E \\ &\rightarrow id + id + id \end{aligned}$$

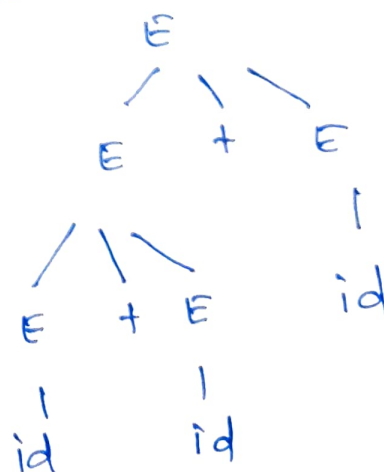
LMD 2:

$$\begin{aligned} E &\rightarrow E + E \\ &\rightarrow E + id \\ &\rightarrow E + E + id \\ &\rightarrow id + id + id \end{aligned}$$

Tree:



Tree:



Two LMD (or) two parse tree of same
two representation of LMD for $id + id + id$

Unambiguous Grammar:

$$E \rightarrow E + T$$

$$E \rightarrow T$$

$$T \rightarrow T * F$$

$$F \rightarrow id$$

Now $w = id + id + id$

$$\begin{aligned} E &\rightarrow \underline{E} + T \\ &\rightarrow \underline{E} + T + T \\ &\rightarrow \underline{T} + T + T \\ &\rightarrow \underline{F} + T + T \\ &\rightarrow id + \underline{T} + T \\ &\rightarrow id + \underline{F} + T \\ &\rightarrow id + id + \underline{T} \\ &\rightarrow id + id + id \end{aligned}$$

