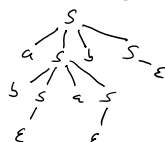
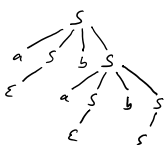
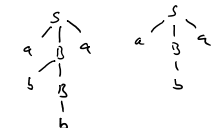
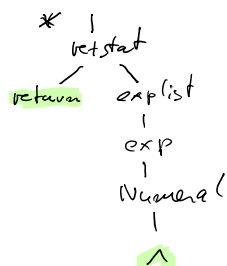
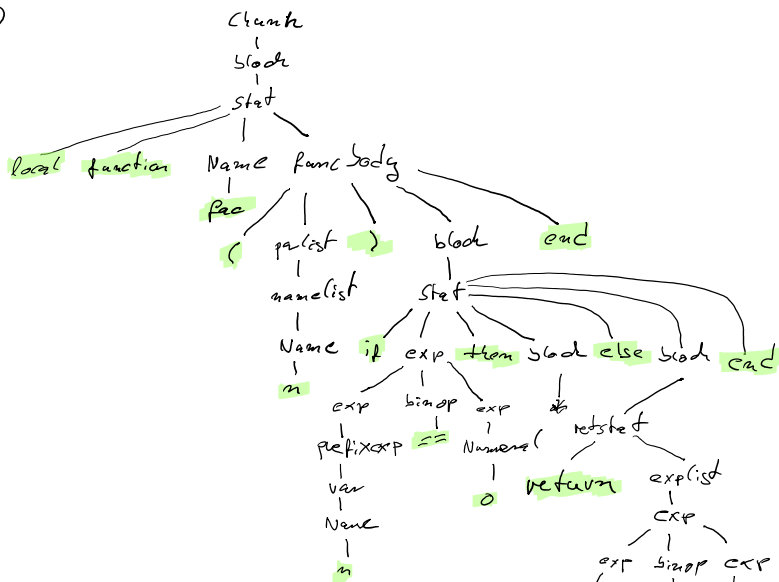


2.2  $S \rightarrow aSbS \mid bSaS \mid \epsilon$

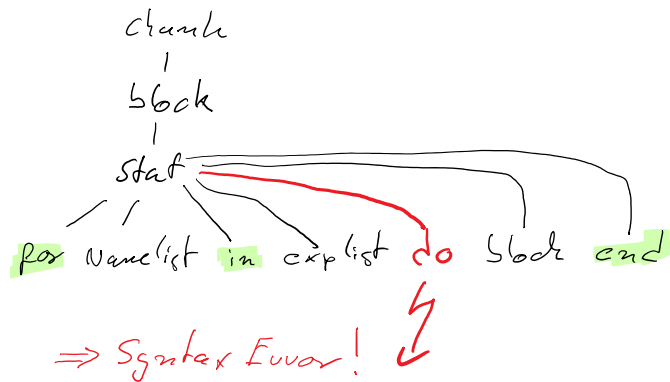
$$\begin{aligned} -S &\Rightarrow a \underline{S} S \\ &\Rightarrow a \underline{S} \\ &\Rightarrow a \underline{S} S \\ &\Rightarrow a \underline{S} S \\ &\Rightarrow a \underline{S} \end{aligned}$$
$$\begin{aligned} - S &\Rightarrow a \underline{S} b S \\ &\Rightarrow a b S a S b S \\ &\Rightarrow a b a \underline{S} b S \\ &\Rightarrow a b a b \underline{S} \\ &\Rightarrow a b a b \end{aligned}$$
$$\begin{aligned} - S &\Rightarrow a S \underline{b S} \\ &\Rightarrow a S b a S \underline{b S} \\ &\Rightarrow a S b a \underline{S b} \\ &\Rightarrow a \underline{S b} a b \\ &\Rightarrow a b a b \end{aligned}$$

$$\begin{array}{l} -aa \downarrow \\ -abab \downarrow \end{array}$$

2.3

1)



2)



3 & 4 analog!