



# Compilers

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## Recognizing Viable Prefixes

1. Add a dummy production  $S' \rightarrow S$  to  $G$
2. The NFA states are the items of  $G$ 
  - Including the extra production
3. For item  $E \rightarrow \alpha.X\beta$  add transition
$$E \rightarrow \alpha.X\beta \xrightarrow{X} E \rightarrow \alpha X.\beta$$
4. For item  $E \rightarrow \alpha.X\beta$  and production  $X \rightarrow \gamma$  add
$$E \rightarrow \alpha.X\beta \xrightarrow{\epsilon} X \rightarrow .\gamma$$

5. Every state is an accepting state

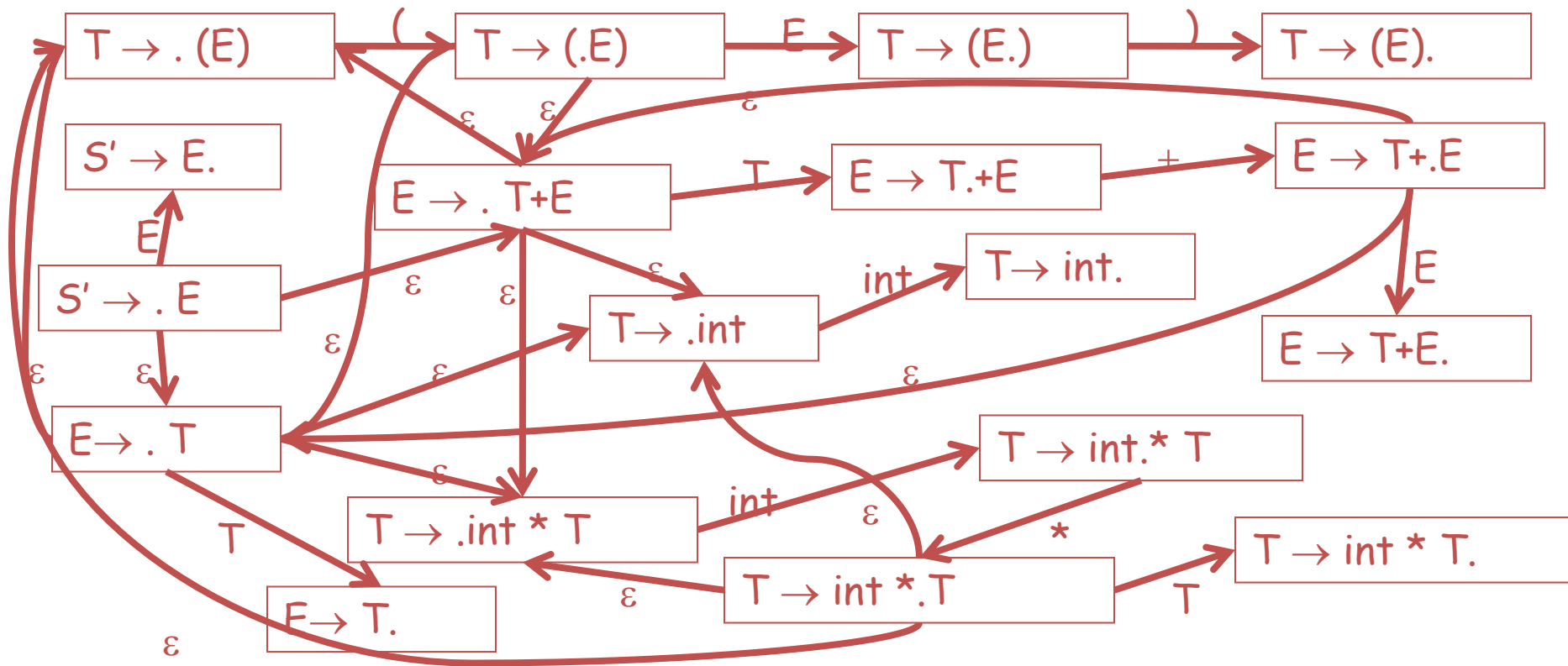
6. Start state is  $S' \rightarrow .S$

$S' \rightarrow E$

$E \rightarrow T + E \mid T$

$T \rightarrow \text{int} * T \mid \text{int} \mid (E)$

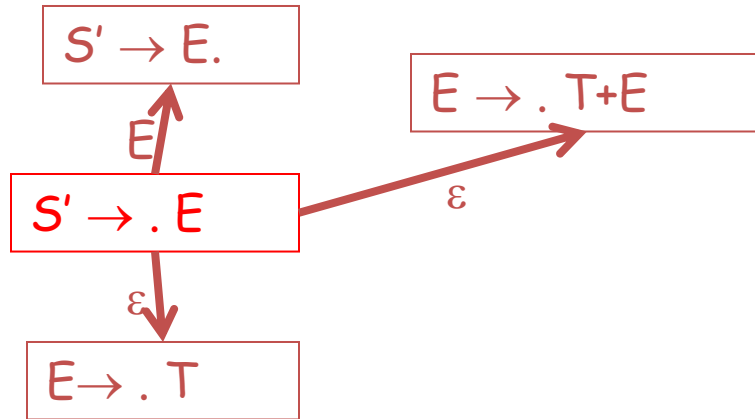
# Recognizing VP



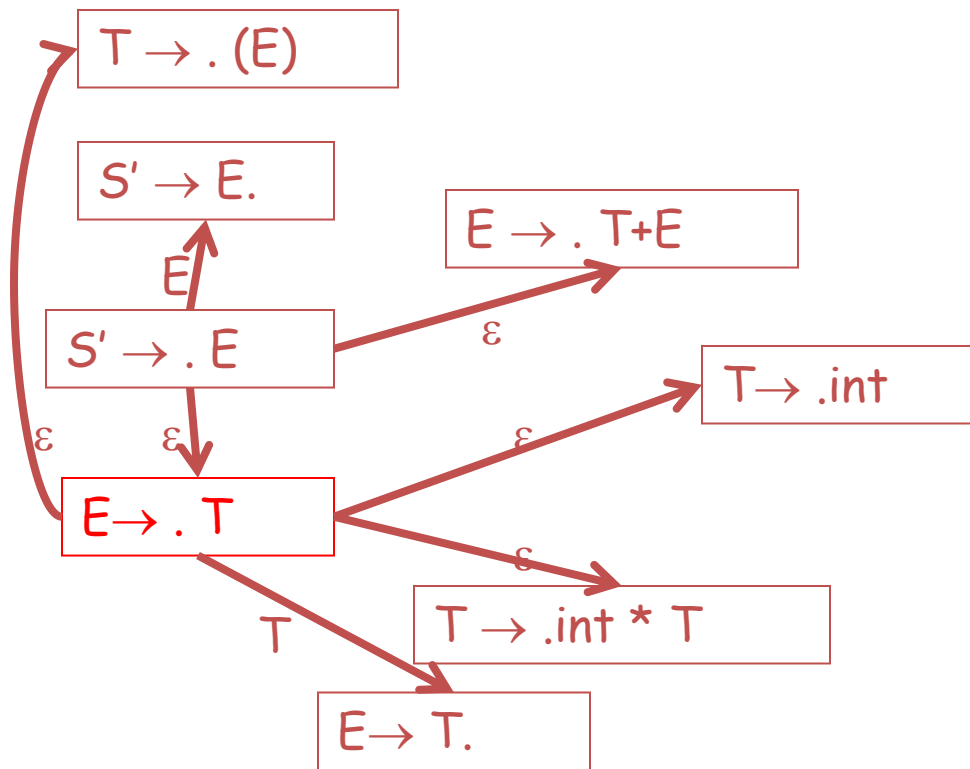
# Recognizing VP

$$S' \rightarrow .E$$

# Recognizing VP

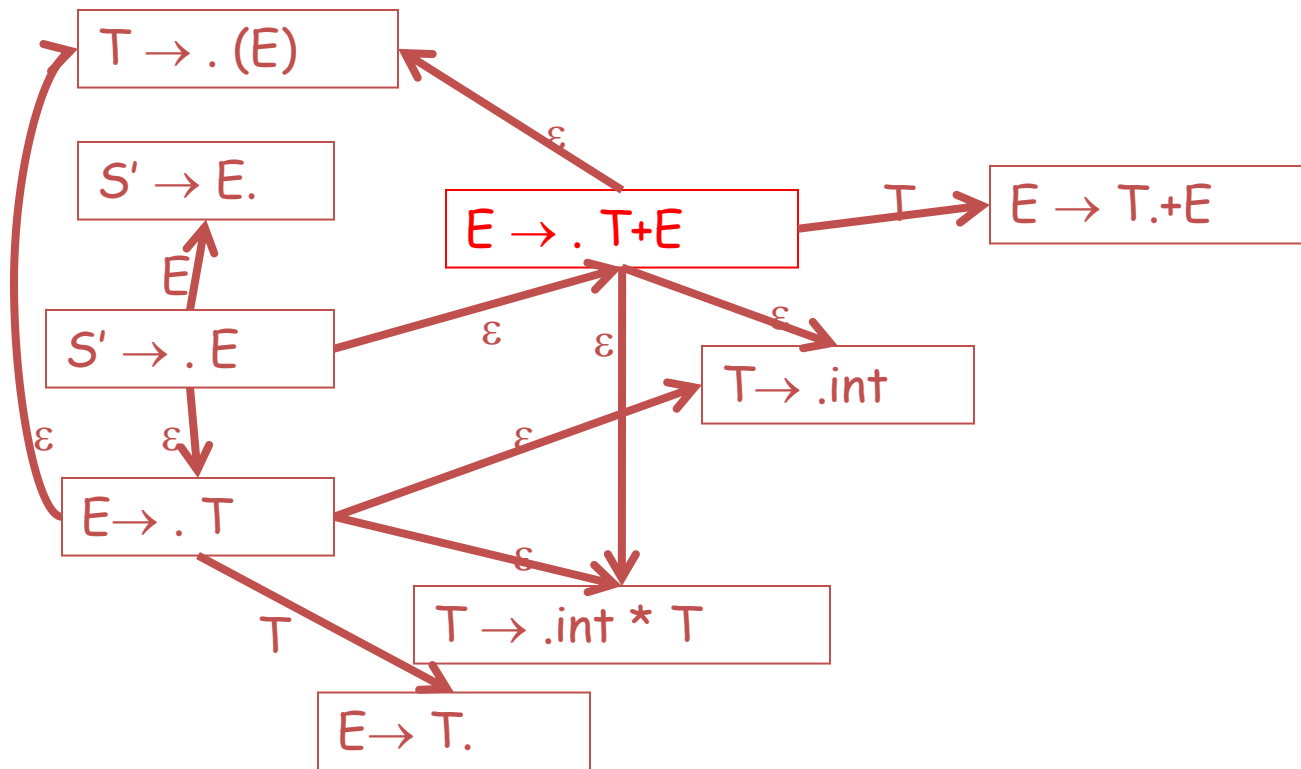


# Recognizing VP

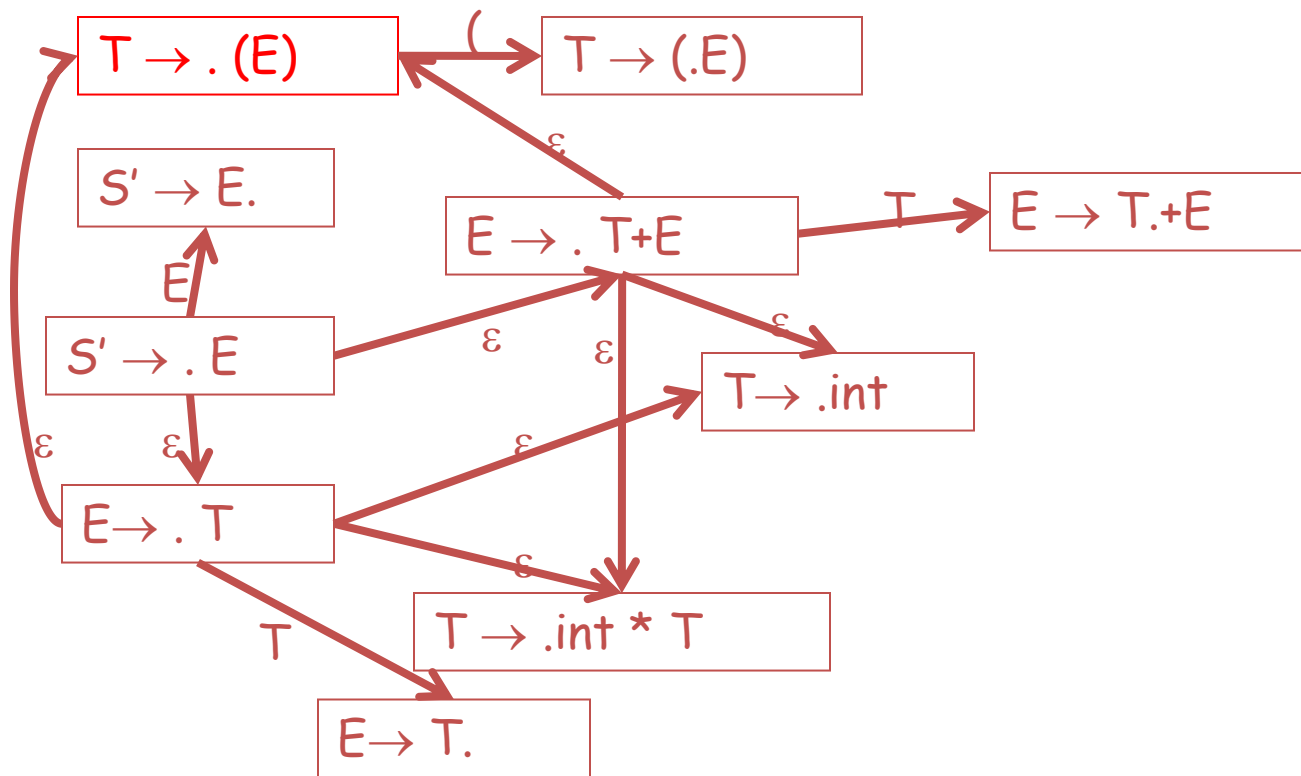




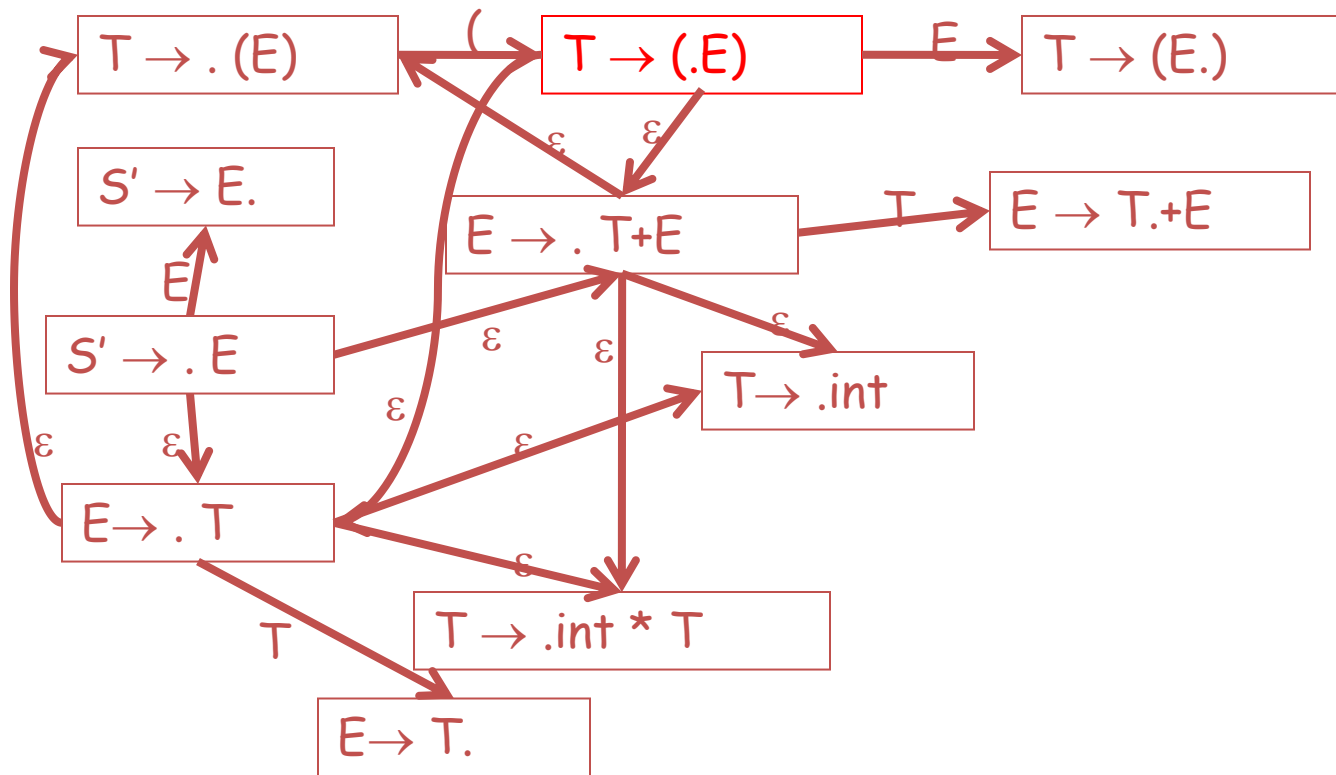
# Recognizing VP



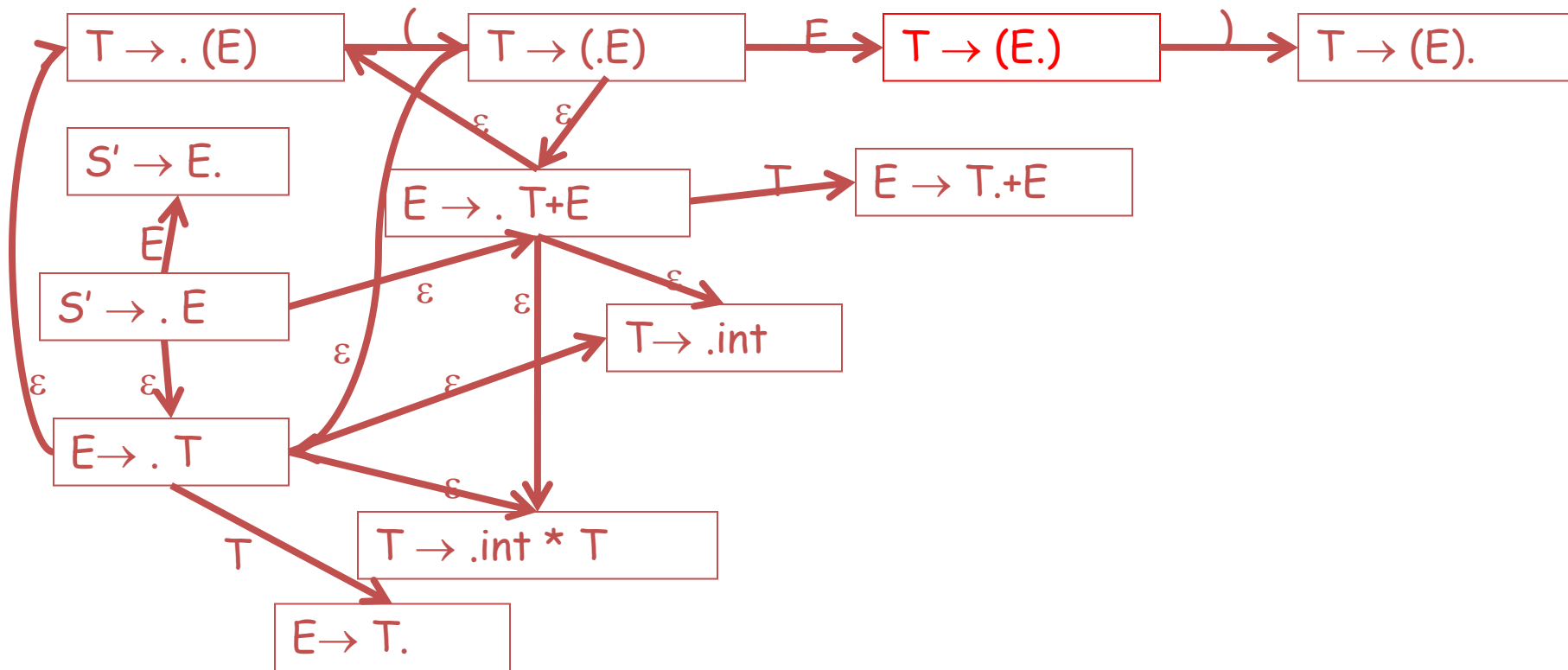
# Recognizing VP



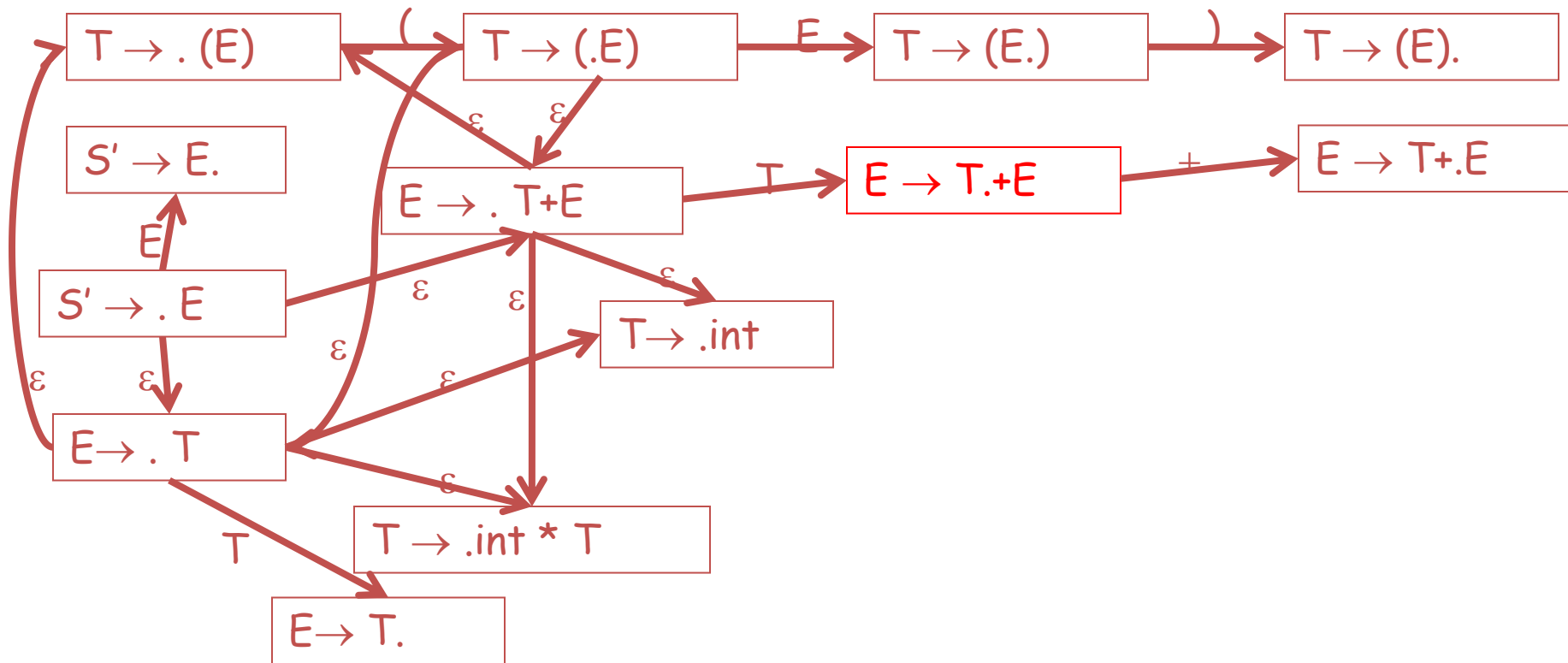
# Recognizing VP



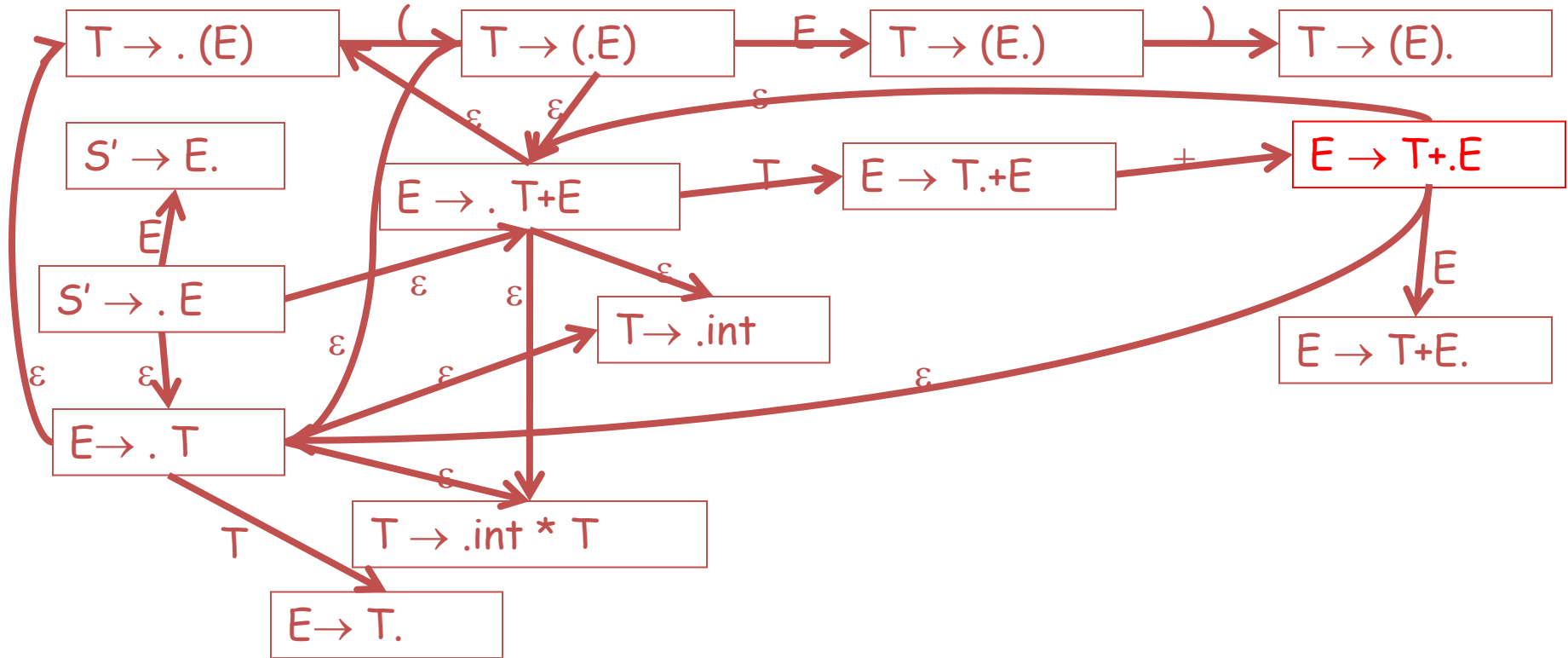
# Recognizing VP



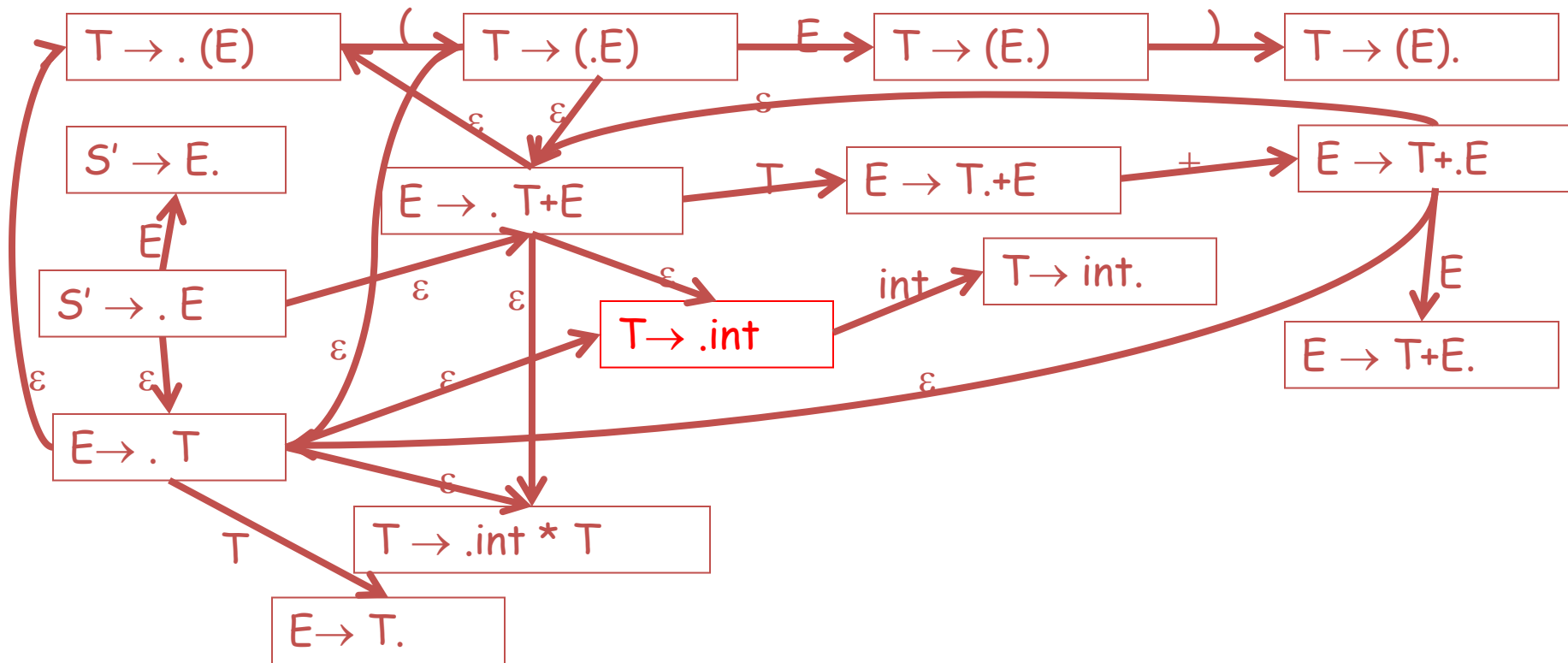
# Recognizing VP



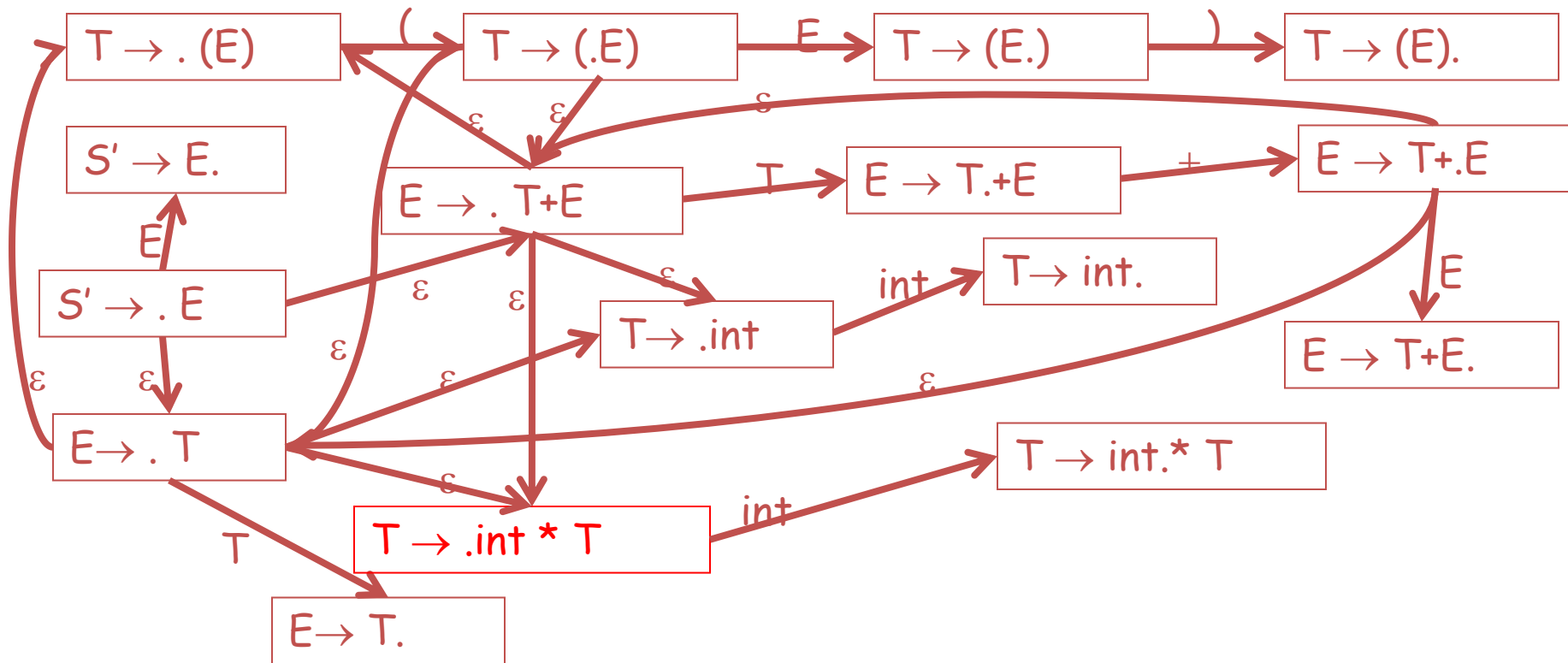
# Recognizing VP



# Recognizing VP

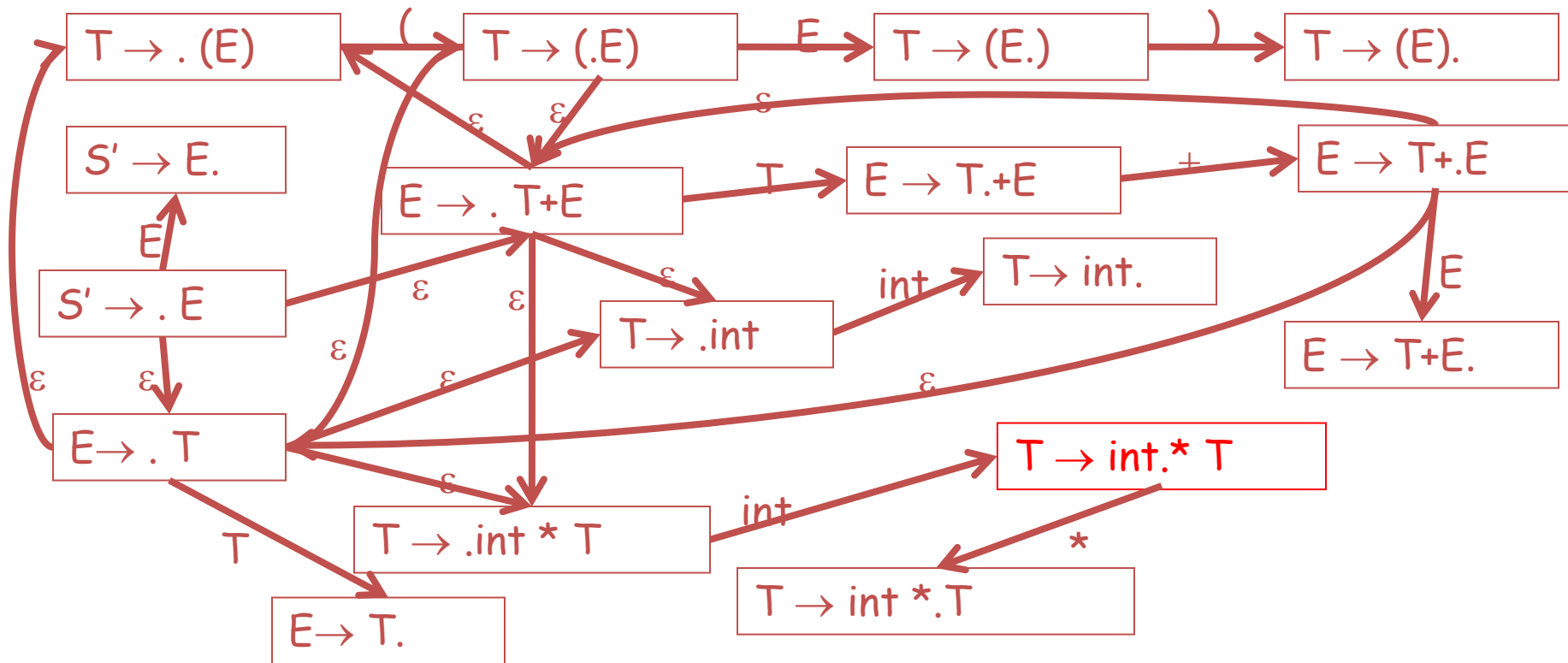


# Recognizing VP

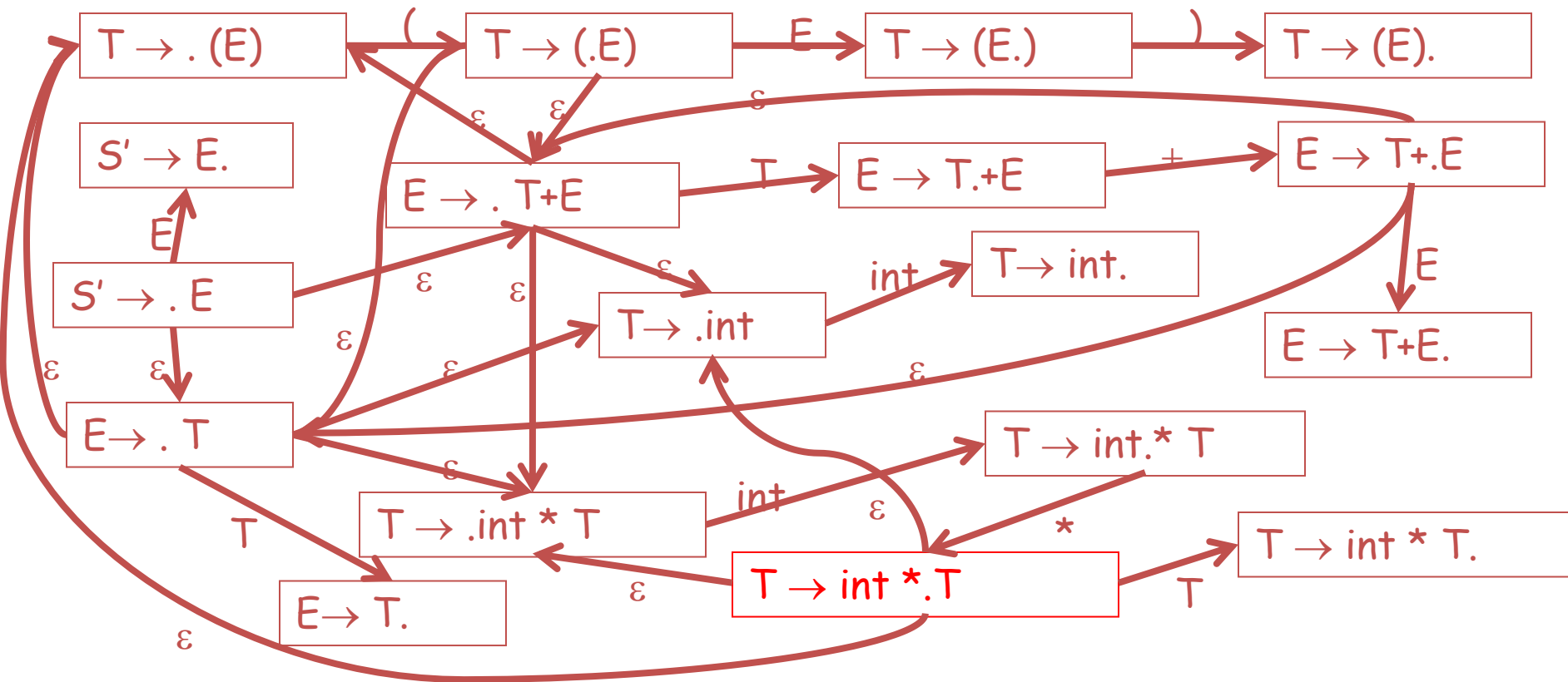




# Recognizing VP



# Recognizing VP



# Recognizing VP

Choose the correct NFA for the given grammar

$S' \rightarrow E$      $E \rightarrow -E \mid id$

