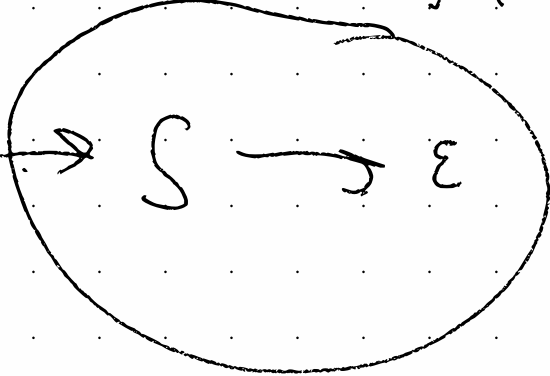


$$A \rightarrow a$$

$$C \rightarrow AB$$

$$S \rightarrow \epsilon$$

CNF



④ Bring to form
chaining variables

⑦ eliminate
 ϵ -rules

① new start
symbol

③ eliminate unit
rules

$$A \rightarrow B$$

ELm. ε

$$S \rightarrow ASA \mid aB$$

$$A \rightarrow B \mid S$$

$$B \rightarrow b \mid \epsilon$$

$$\Rightarrow A \rightarrow B \mid S \mid \epsilon$$

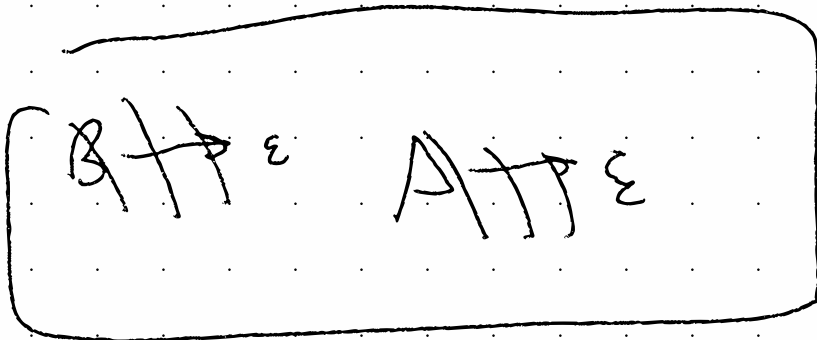
$$S \rightarrow ASA \mid aB \mid a$$

①

$$S_0 \rightarrow S$$

$$S \rightarrow ASA \mid aB \mid a$$

②



$$\mid SA \mid AS$$

$$\mid S$$

$$S_0 \rightarrow ASA | aB | a | SA | AS$$

$$S \rightarrow ASA | aB | a | SA | AS$$

$$A \rightarrow b | ASA | aB | a | SA | AS$$

$$B \rightarrow b$$

ELIM
UNIT

(3) elim

$$A \rightarrow B$$

$$B \rightarrow n$$

$$A \rightarrow b$$

$$B \rightarrow n$$

$$S_0 \rightarrow \lambda$$

$$S \rightarrow n$$

$$S_0 \rightarrow U_B | a | SA | AS | \Delta U_1$$

$$S \rightarrow U_B | a | SA | AS | \Delta U_1$$

$$A \rightarrow b | \Delta U_1 | U_B | a | SA | AS$$

$$B \rightarrow b$$

$$U_a \rightarrow a$$

$$U_1 \rightarrow SA$$

Bring to
Form

$A \rightarrow a E b E c E d E f$

$E \rightarrow \epsilon$

a . b . c . d . f

a b . c . d . f

a b c . d . f

;

abcdf

Exp increase

$p \rightarrow a E b E c E d E f$

| a b E c E d E f

| a E b c E d E f

| a E b E d E f

| a E b E d E f

| a b c E d E f

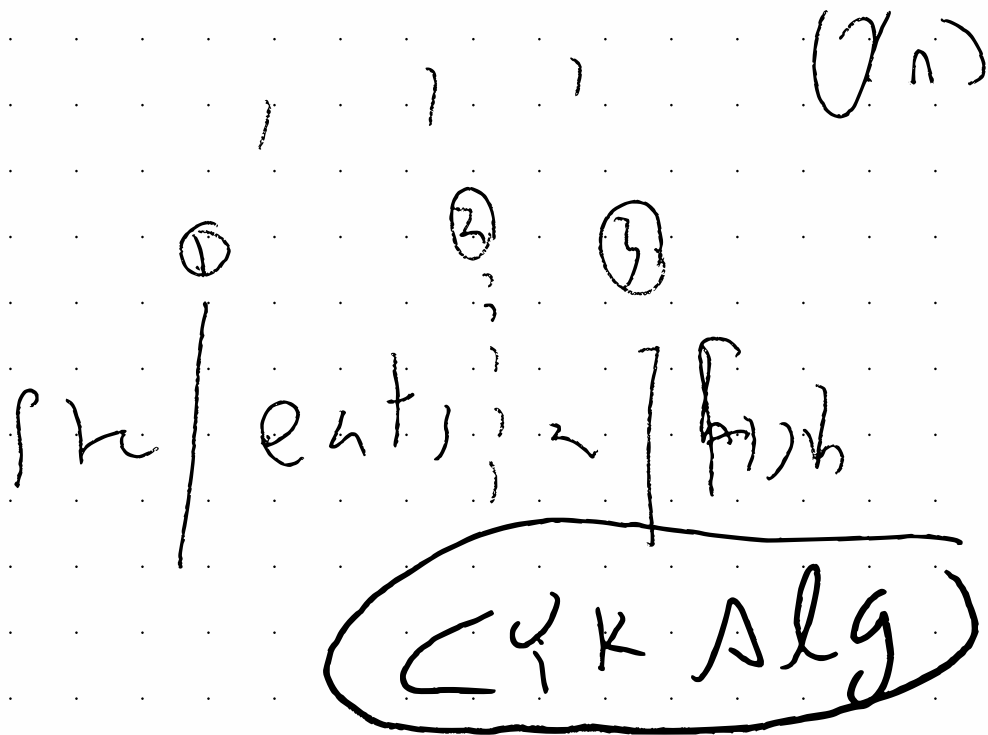
| a E b E d E f

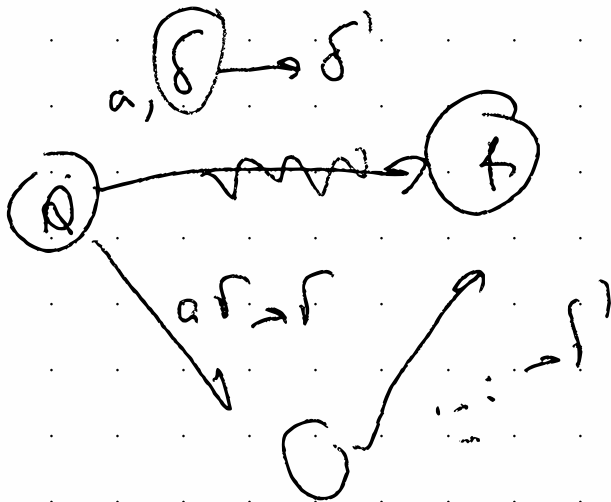
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Dynamic Programming Algorithm





Notational matters