Parsing-III

Complete Course on Compiler Design

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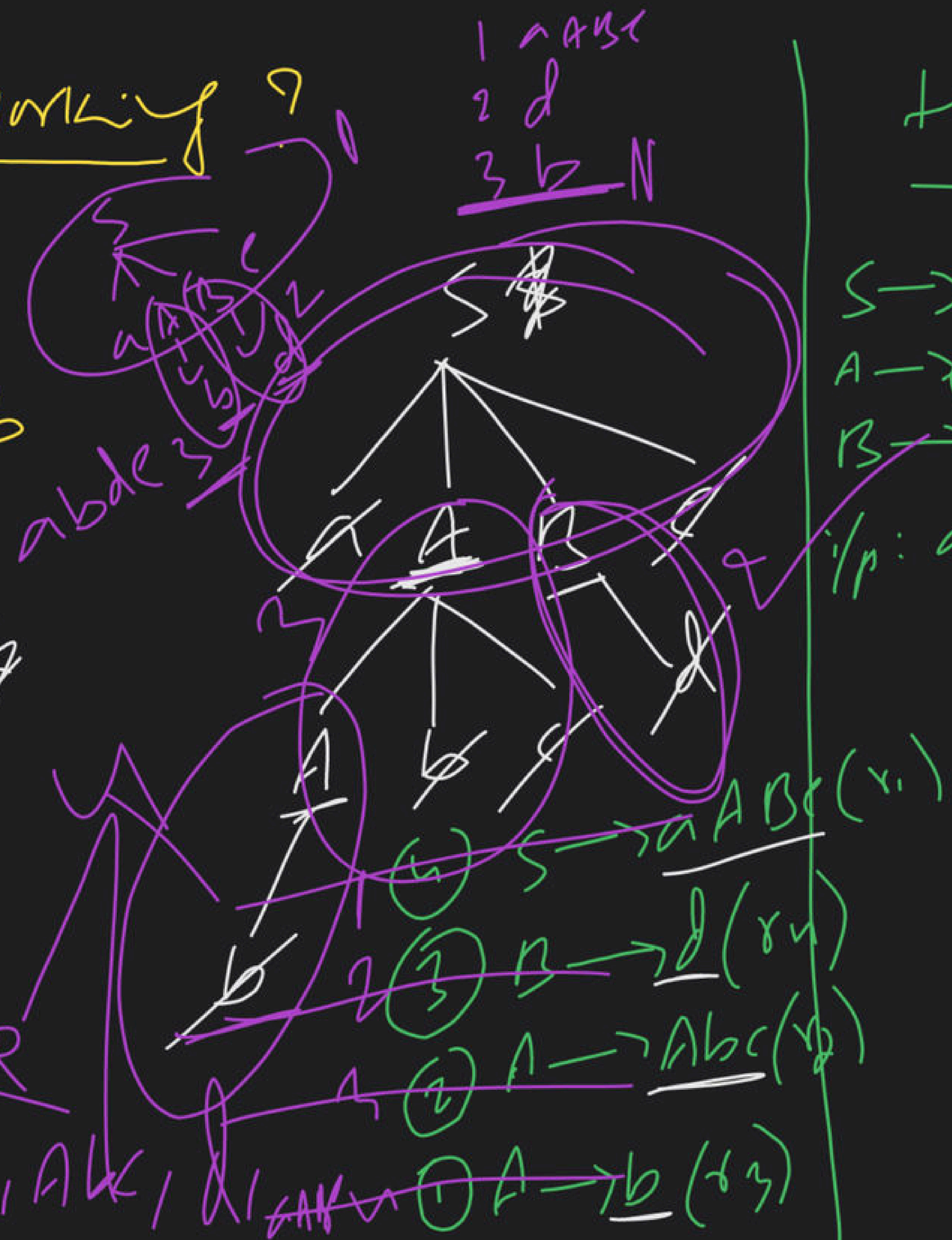
How TDP Working?

$S \rightarrow aABe$

$A \rightarrow Abc \mid b$

$B \rightarrow d$

i/p: abbcde



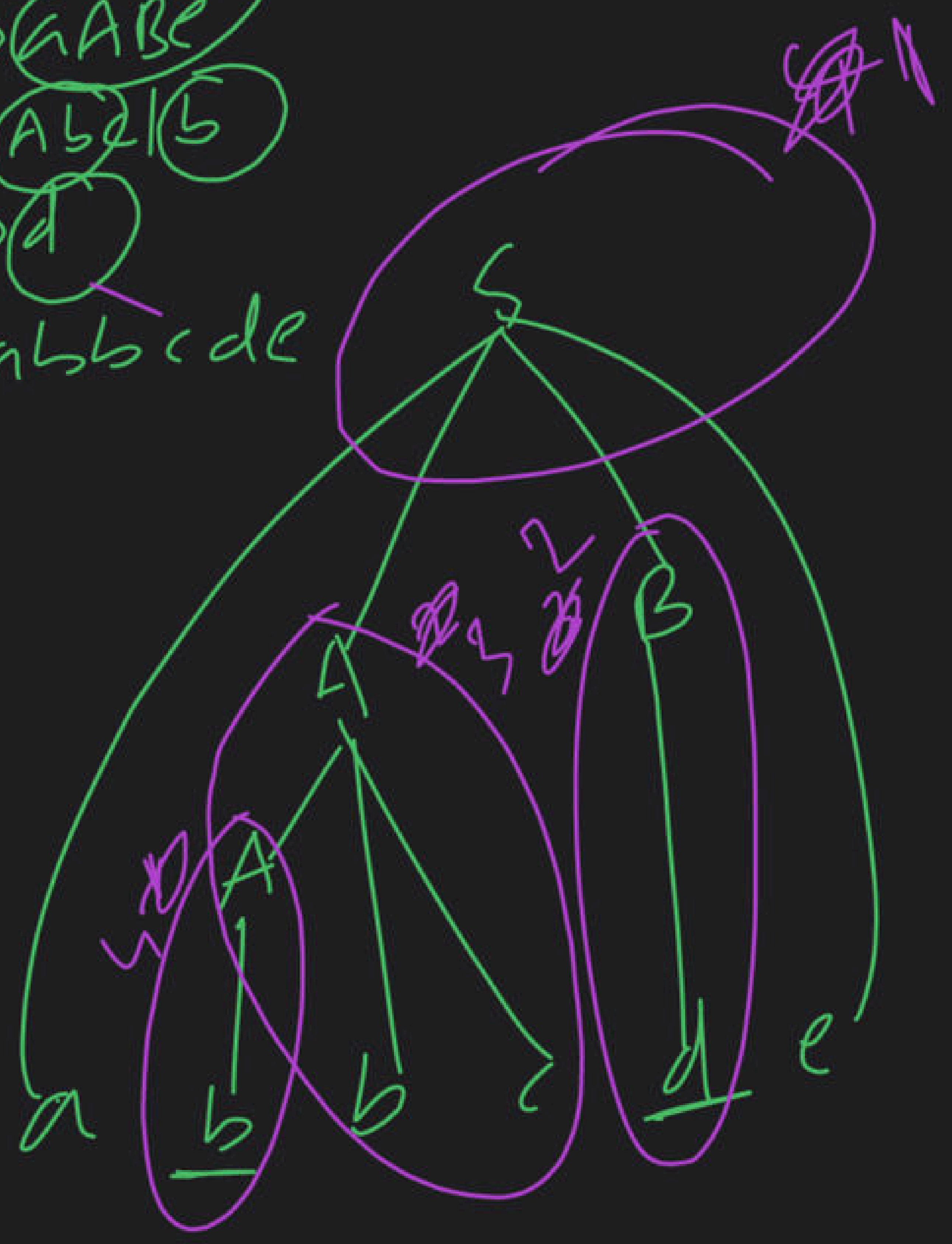
How BUP working?

$S \rightarrow aABe$

$A \rightarrow Abc \mid b$

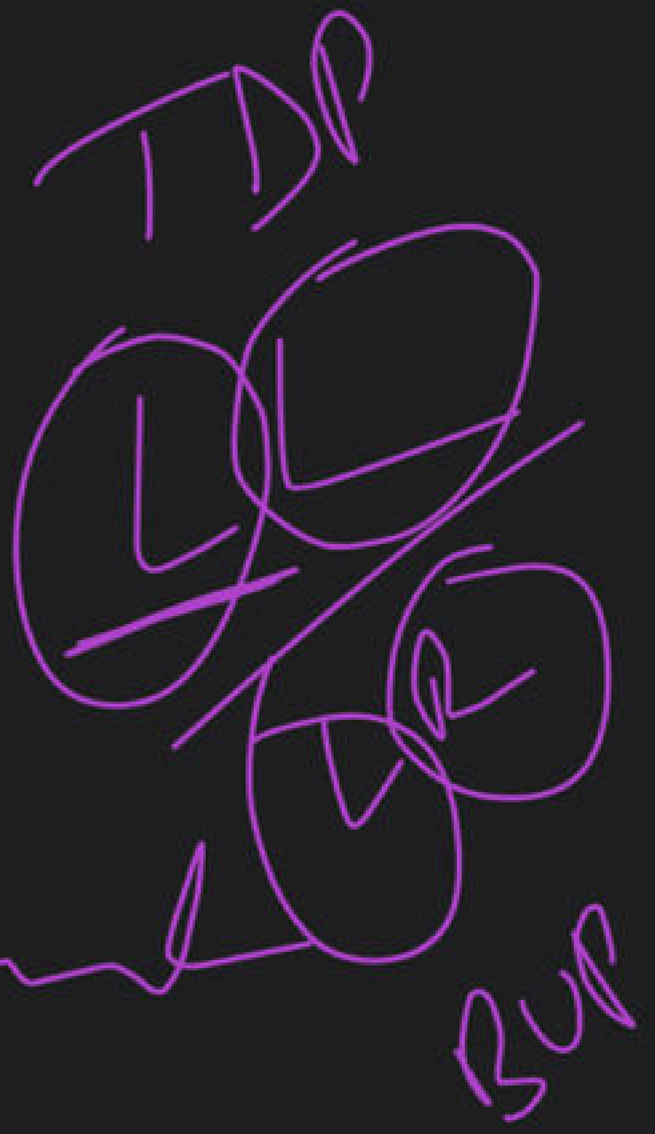
$B \rightarrow d$

i/p: abbcde



Top Down Parser

- With Backtracking
  ⇓
  Recursive Descent parser
- Without Backtracking
  ⇓
  Non-recursive descent parser
  (or)
  Predictive Parser
  (or)
  LL(1) parser



Recursive Descent parser

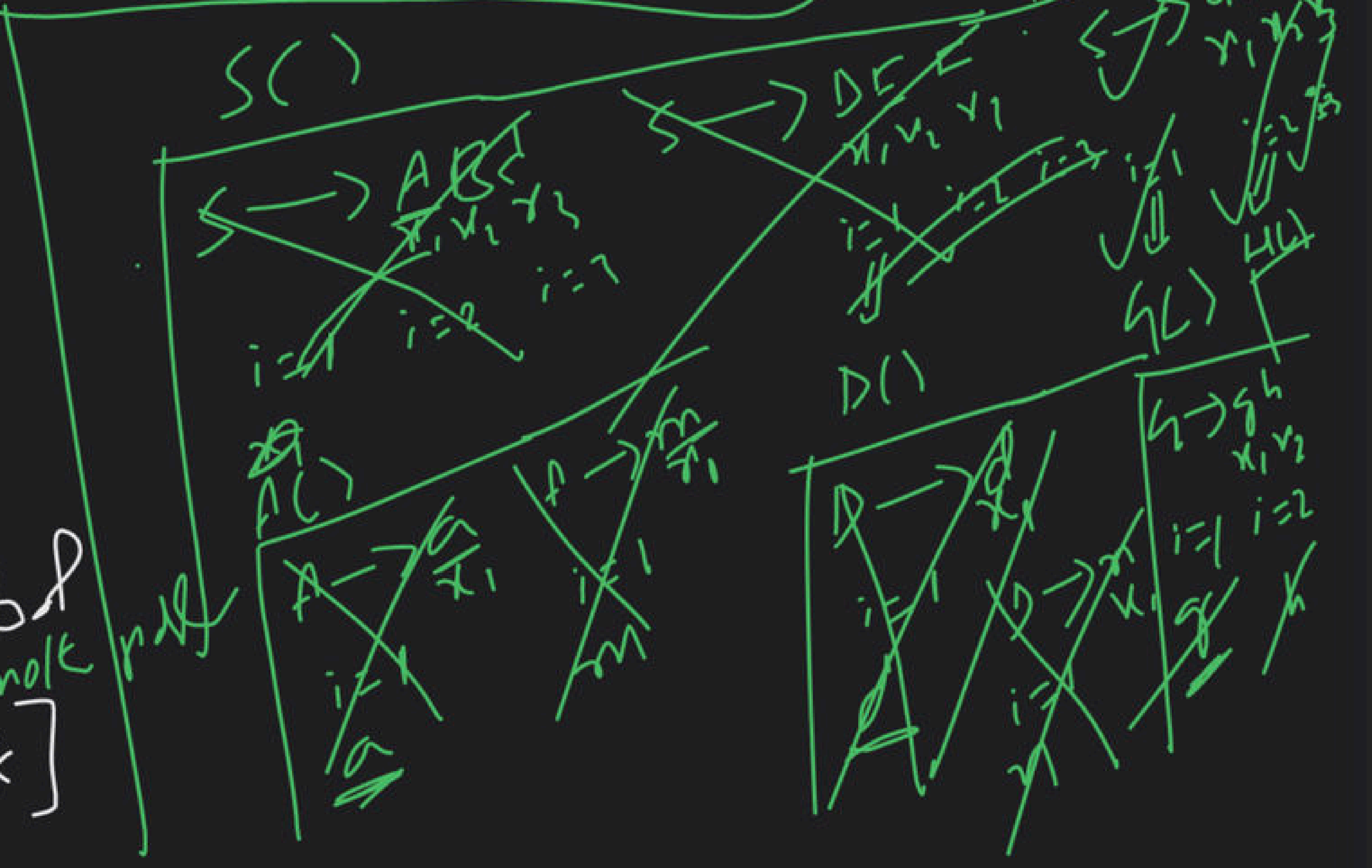
$S \rightarrow \overset{1}{ABC} \mid \overset{2}{DEF} \mid \overset{3}{GHI}$

$A \rightarrow a$	$D \rightarrow dn$	$G \rightarrow gh$
$B \rightarrow b$	$E \rightarrow e$	$H \rightarrow ij$
$C \rightarrow c$	$F \rightarrow f$	$I \rightarrow kl$

i/p: ghijkl

	g
S	3

```
S()
{
    • correct of S from table
    Select ~~any production of~~ S ( S → $X_1 X_2 X_j \dots X_k$ )
                                       S → A B C
    for (i=1 ; i ≤ k ; i++)      (3)
    {
        if ( $X_i$ is variable)
            $X_i$();
        else
        if ( $X_i$ == LAS)
            increment i/p symbol
        else
            error [Backtrack]   Try another rule
    }
}
```



ex

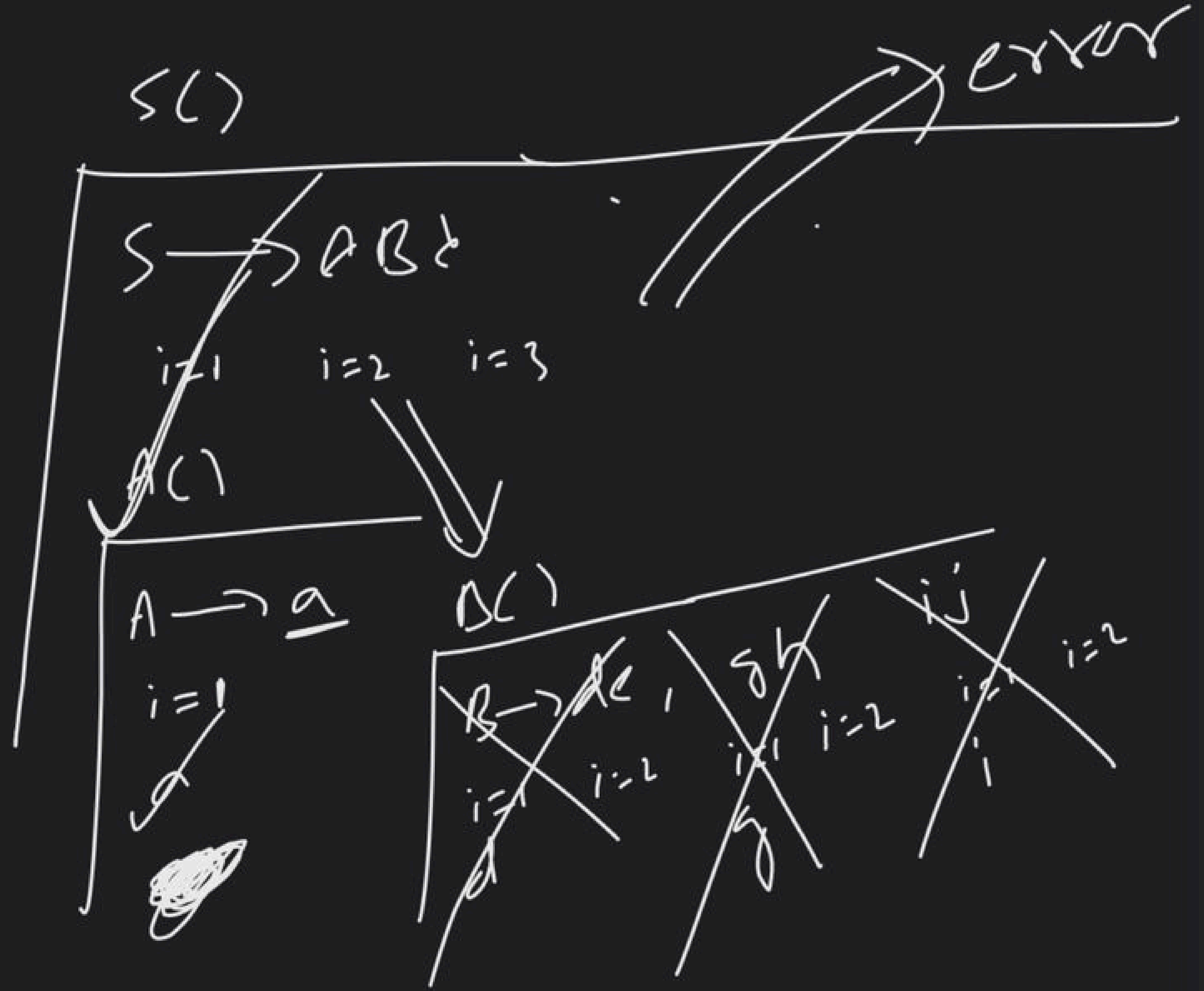
$S \longrightarrow ABC$

$A \longrightarrow \underline{a} \mid \underline{a}b \mid \underline{a}bc \mid d \mid e$

$B \longrightarrow de \mid gh \mid ij$

$C \longrightarrow kl \mid mn \mid op$

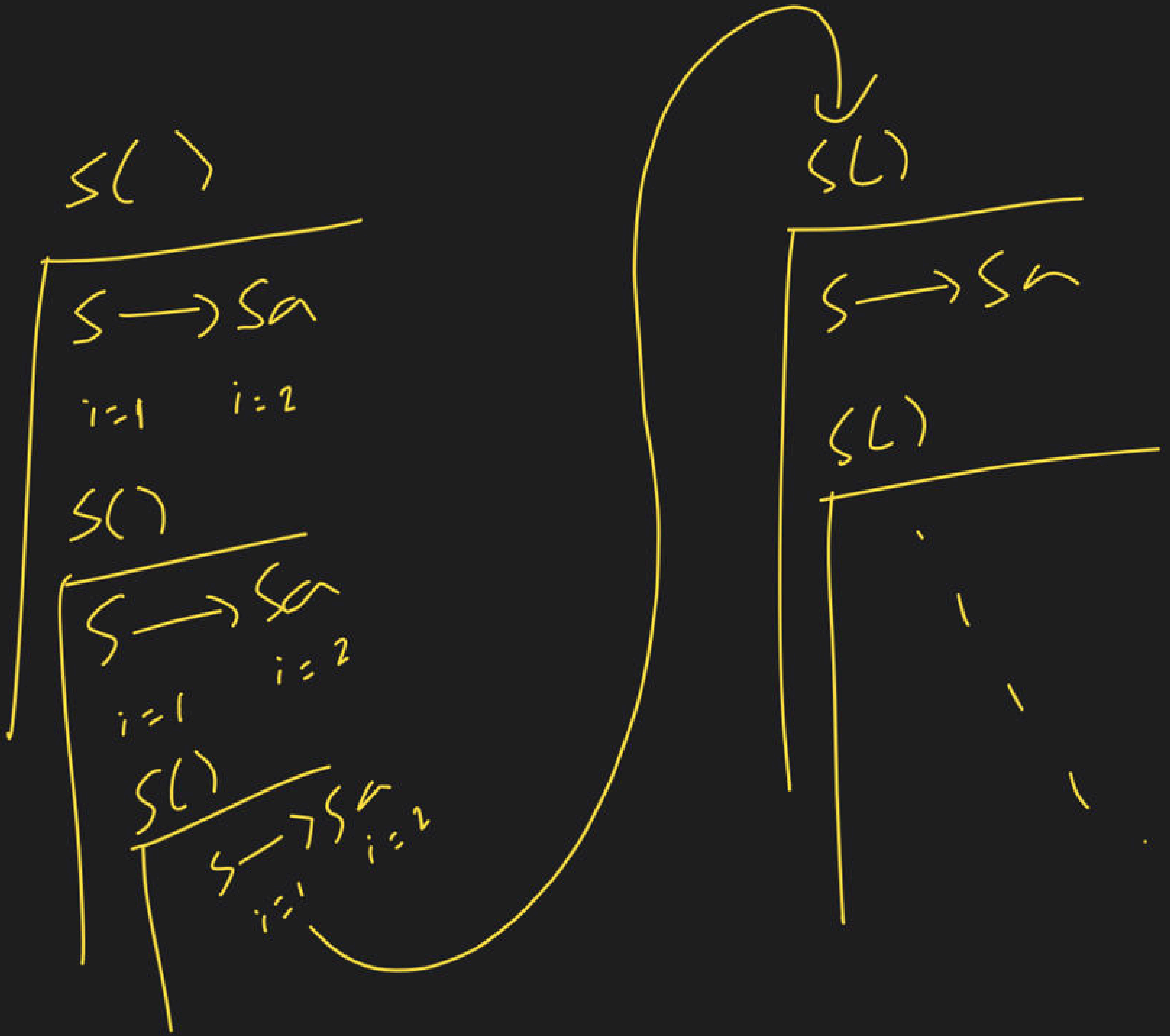
i/p: $\cancel{a}$bcghor



eg

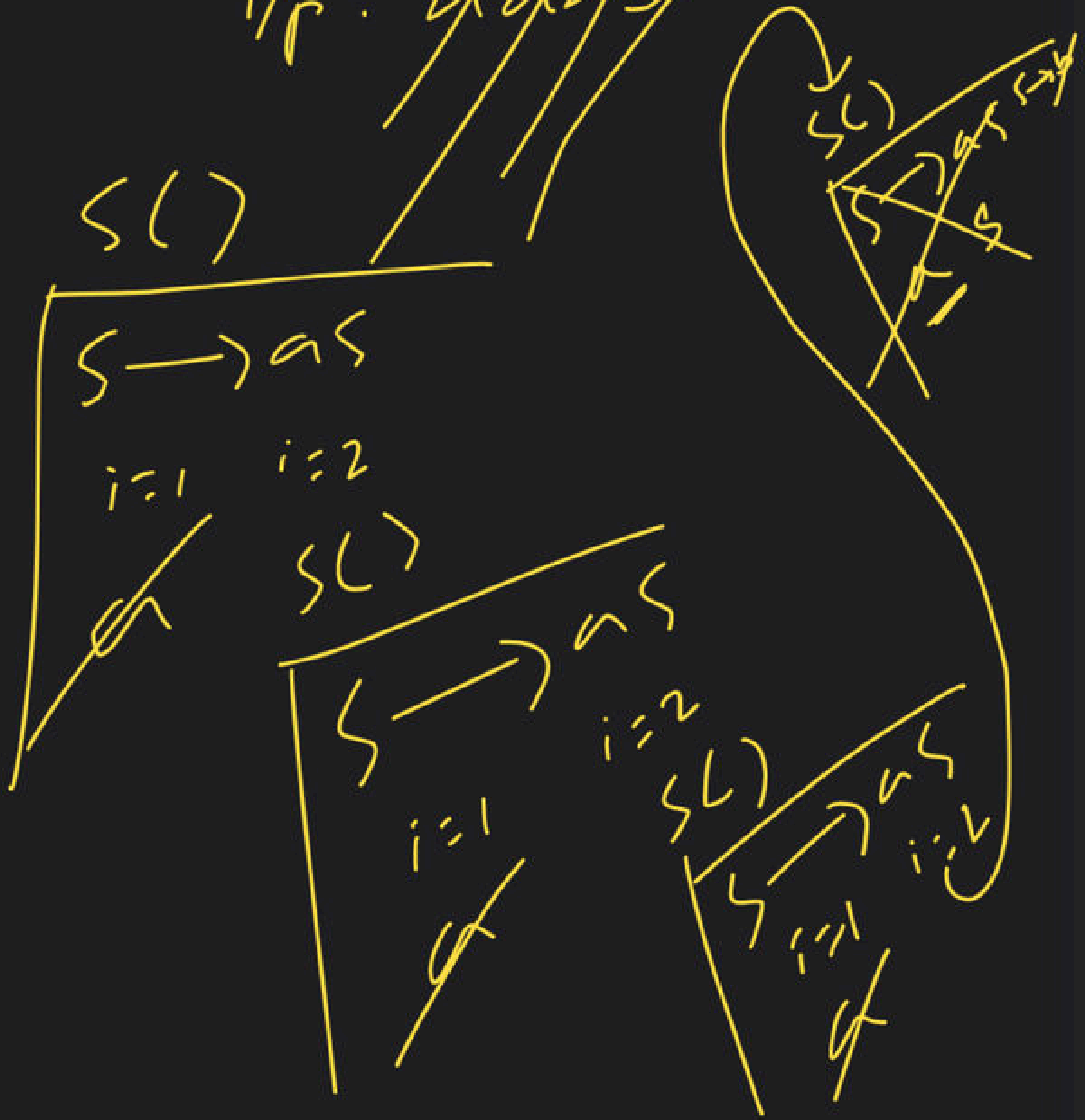
$S \rightarrow Sa \mid b$

i/p: baaa



$S \rightarrow aS/b$

i/p : aaab


S()
S → aS
i:1
i:2
a
S()
S → aS
i:1
i:2
a
S()
S → aS
i:1
i:2
a
S()
S → aS
S → b