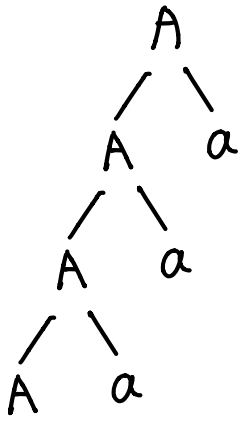
l-recur
& assoc



3.4.3 solving dangling else

$S \to M \mid U$

$M \to i(E)\, M e M \mid o$

$U \to i(E)\, S \mid i(E)\, M e U$

{ }

only rule to gen sole i

$i(0)\ i(1)\ o\ e\ o$

$S \to U \to i(E)\, S \to i(E)\, M$

$\to i(E)\ i(E)\ M\ e M \to i(0)\ i(1)\ o\ e\ o$

$i(0)\ i(1)\ o\ e\ i(0)\ i(1)\ o$

$S \to U \to i(E)\, S \to i(E)\, U$

$\to i(E)\ i(E)\ M\ e\ U \to i(E)\ i(E)\ M\ e\ i(E)\ S$

$\to i(E)\ i(E)\ M\ e\ i(E)\ U$

$\to i(E)\ i(E)\ M\ e\ i(E)\ i(E)\ S$

$\to i(E)\ i(E)\ M\ e\ i(E)\ i(E)\ M$

$S \to (S)S \mid \varepsilon$
① ②

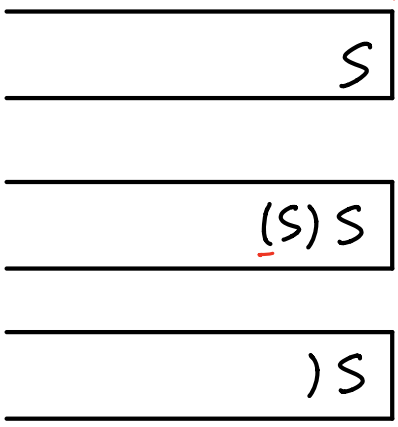
	(	)	$
S	①	②	② comes from

$S \to (\cdots$

$S \to \cdots S)\cdots$
& $S \to \varepsilon$

$S \to \cdots S\$$
& $S \to \varepsilon$

$()\$$ 栈底符与串结尾



Ex.

i(0) i(1) o e o
↑

S $

I $

i(E)SL$ ↘ unmatched

i(0) i(1) o e o
↑

0)SL$

i(0) i(1) o e o
↑

SL$

i(E)SLL$

i(0) i(1) o e o
↑

SLL$

i(0) i(1) o e o
↑

LL$ pref rule → (gen cur look-ahead

eSL$

imm

$A \to A\alpha \mid \beta$

regex $\beta\alpha^*$

make it right-assoc

G. imm

$A \to A\alpha_1 \mid A\alpha_2 \mid \beta_1 \mid \beta_2$

regex $(\beta_1 \mid \beta_2)(\alpha_1 \mid \alpha_2)^*$

G.

$A \to Aa \mid Ba \mid c$

$B \to Ab \mid Bb \mid d$

问题 { left-assoc ; $A \Rightarrow^* Aba$

def 序: $A \to B$, i.e. 不允许形如 $B \to A\gamma_1$, $B \to B\gamma_2$

elim $A \to Aa$ w/ $A \to Ba \mid c$.

$A \to (Ba \mid c)A'$

$A' \to aA' \mid \varepsilon$ GG

elim $B \to Ab$ w/ above:

$B \to (Ba \mid c)A'b$

elim $B \to Bb \mid BaA'b$ w/ $B \to d \mid cA'b$:

$B \to (d \mid cA'b)B'$

$B' \to (b \mid aA'b)B' \mid \varepsilon$