Section 3:

Left-X Grammars

CS 164 @ UC Berkeley, Spring 2024

Reminders

WA 1 is released, and is due tonight at 11:59PM PST.

(No slip days for written assignments)

WA 2 will be released tomorrow

PA1 is released, and is due on Feb 19 at 5PM PST.

Reminder to take care of yourselves, and to prioritize your health! WAs are worth 5% of your grade so don't stress too much about them!

Left-Recursive Grammars

Def'n: For some non-terminal S in the CFG: $S \rightarrow^* S\alpha$

We can make left-recursive grammars into right-recursive ones:

$$S \rightarrow S\ \alpha \mid \beta \longrightarrow \begin{array}{l} S \rightarrow \beta\ S' \\ S' \rightarrow \alpha\ S' \mid \varepsilon \end{array}$$

Rewriting left-recursive grammars

$$S \to S\ \alpha \mid \beta$$

$$S \to \beta\ S'$$
$$S' \to \alpha\ S' \mid \varepsilon$$

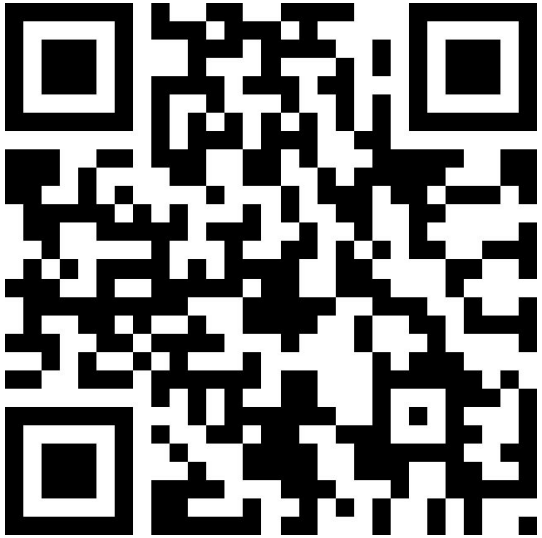
$$S \to 1 \mid S\ 0$$

Left-factoring

To convert a CFG into a LL(1) grammar, we may need to do left-factoring:

$E \rightarrow T + E \mid T$

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



Anonymous feedback form:
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