

cs401, 10 / 20 / 11

- HW questions?
- Shift-reduce parsing
- ASTs
- Visitor pattern

LR Conflicts

- A grammar with a shift/reduce conflict?
- A grammar with a reduce/reduce conflict?

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Regex?

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Regex? $(110|1?0)^*$

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Regex? $(110|1?0)^*$
- cfg?

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Regex? $(110|1?0)^*$
- cfg?
 $E' \rightarrow E \$$
 $E \rightarrow FE | \epsilon$
 $F \rightarrow 1G | 0$
 $G \rightarrow 10 | 0$

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Regex? $(110|1?0)^*$
- cfg?
 $E' \rightarrow E \$$
 $E \rightarrow FE | \epsilon$
 $F \rightarrow 1G | 0$
 $G \rightarrow 10 | 0$
- Is this grammar LR(0)?

Shift-Reduce Parsing

- Language: binary strings such that every 11 is followed by at least one 0, and ending in 0
- Suppose we edit the grammar a little...

- cfg?

$$\begin{array}{l} E' \rightarrow E \$ \\ E \rightarrow FE \mid \varepsilon \\ F \rightarrow 1 G \mid 0 \\ G \rightarrow 1 0 \mid 0 \end{array} \quad \longrightarrow \quad \begin{array}{l} E' \rightarrow E \$ \\ E \rightarrow EF \mid \varepsilon \\ F \rightarrow 1 G \mid 0 \\ G \rightarrow 1 0 \mid 0 \end{array}$$

- Is this grammar LR(0)?