

LR \rightarrow canonical LR (1965)
 Computational resources large

LL parser, \Rightarrow LR is also possible
 but other way

Action

goto

- 1 $E \rightarrow E + T$
- 2 $E \rightarrow T$
- 3 $T \rightarrow T * F$
- 4 $T \rightarrow F$
- 5 $F \rightarrow (E)$
- 6 $F \rightarrow id$

Parsing table

| State | Action | | | | | | Goto | | |
|-------|-----------|----|----|----|-----|--------|------|---|----|
| | id | + | * | (|) | \$ | E | T | F |
| 0 | S5 | | | S4 | | | 1 | 2 | 3 |
| 1 | undef/err | S6 | | | | accept | | | |
| 2 | | R2 | S7 | | R2 | R2 | | | |
| 3 | | R4 | R4 | | R4 | R4 | | | |
| 4 | S5 | | | S4 | | | 8 | 2 | 3 |
| 5 | | R6 | R6 | | R6 | R6 | | | |
| 6 | S5 | | | S4 | | | | 9 | 3 |
| 7 | S5 | | | S4 | | | | | 10 |
| 8 | | S6 | | | S11 | | | | |
| 9 | | R1 | S7 | | R1 | R1 | | | |
| 10 | | R3 | R3 | | R3 | R3 | | | |
| 11 | | R5 | R5 | | R5 | R5 | | | |

\rightarrow terminals
 \rightarrow non terminals

shift
 replace

~~Stack~~ State 3, Action +
 For input

| | | |
|------------------------|-----------------|---------------|
| ⊙ | id + id * id \$ | Shift 5 |
| ⊙ id 5 | + id * id \$ | Reduce 6 |
| ⊙ F 3 | + id * id \$ | Reduce 4 |
| ⊙ T 2 | + id * id \$ | Reduce 2 |
| ⊙ E 1 | + id * id \$ | |
| ↳ goto 1 | | |
| ⊙ E 1 + 6 | id * id \$ | |
| ⊙ E 1 + 6 id 5 | * id \$ | |
| ⊙ E 1 + 6 F 3 | | |
| ⊙ E 1 + 6 T 9 | | |
| ↳ state 6 goto 9 | | |
| ⊙ E 1 + 6 T 9 * 7 | id \$ | |
| ⊙ E 1 + 6 T 9 * 7 id 5 | \$ | |
| ⊙ E 1 + 6 T 9 * 7 F 10 | \$ | Reduce 3 |
| ↳ state 7, F goto 10 | | |
| ⊙ E 1 + 6 T 9 | \$. | |
| ⊙ E 1 | \$ | <u>accept</u> |

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LR forces mimic reverse of RMD

(id)

$E \rightarrow T$

$\rightarrow f$

$\rightarrow (E)$

$\rightarrow (T)$

$\rightarrow (F)$

$\rightarrow (id)$

Track down the actions please!