

Shift Reduce Parser

Example grammar

$$E \rightarrow E + E \mid E * E \mid (E) \mid id$$

Acceptable string $id + id * id$

Right Most derivation

New grammar

$$S \rightarrow 0S0 \mid 1S1 \mid 2$$

$$S \rightarrow 0S0 \quad [S \rightarrow 0S0]$$

$$\rightarrow 01S10 \quad [S \rightarrow 1S1]$$

$$\rightarrow 010S010 \quad [S \rightarrow 0S0]$$

$$\rightarrow 0102010 \quad [S \rightarrow 2]$$



S
↓
0S0
↓
01S10
↓
010S010
↓
0102010

<u>Stack</u>	<u>input</u>	<u>Action</u>
\$	0102010\$	shift
\$0	102010\$	shift
\$01	02010\$	shift
\$010	2010\$	shift
\$0102	010\$	$S \rightarrow 2$
\$010S	010\$	shift
\$010S0	10\$	$S \rightarrow 0S0$
\$01S	10\$	shift
\$01S1	0\$	$S \rightarrow 1S1$
\$0S	0\$	shift
\$0S0	\$	$S \rightarrow 0S0$
\$S	\$	accept

ie the rules we get

$S \rightarrow 2$
 $S \rightarrow 0S0$
 $S \rightarrow 1S1$
 $S \rightarrow 0S0$

