

CS 331 Programming Languages, Spring 2025
Shift-Reduce Parsing Table

Grammar

Start symbol: *all*.

\$ represents a lexeme marking the end of the input.

1. *all* → *expr* \$
2. *expr* → *term*
3. *expr* → *expr* ("+" | "-") *term*
4. *term* → *factor*
5. *term* → *term* ("*" | "/") *factor*
6. *factor* → ID
7. *factor* → NUMLIT
8. *factor* → "(" *expr* ")"

Parsing Table

A blank cell indicates ERROR. "NL" is short for NUMLIT.

STATE		ACTION TABLE									GOTO TABLE			
		ID	NL	+	-	*	/	(	)	\$	<i>all</i>	<i>expr</i>	<i>term</i>	<i>factor</i>
Start	1	S2	S3					S4			G18	G13	G10	G9
ID	2	R6												
NL	3	R7												
(	4	S2	S3					S4				G7	G6	G5
(f	5	R4												
(t	6			R2	R2	S11	S11		R2					
(e	7			S14	S14				S8					
(e)	8	R8												
f	9	R4												
t	10			R2	R2	S11	S11			R2				
t *	11	S2	S3					S4						G12
t * f	12	R5												
e	13			S14	S14					S17				
e +	14	S2	S3					S4					G16	G15
e + f	15	R4												
e + t	16	R3												
e \$	17	R1												
a	18	ACCEPT												