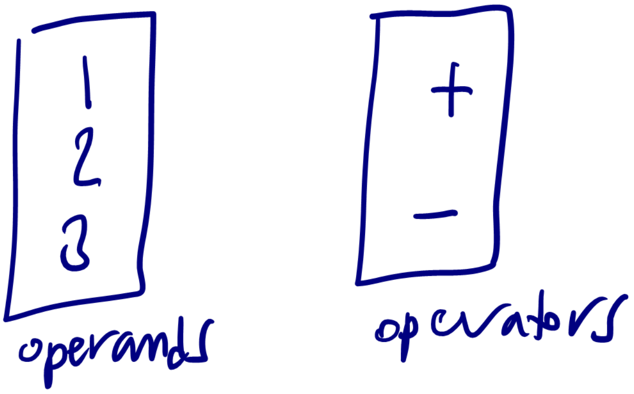
* No parenthesis case:

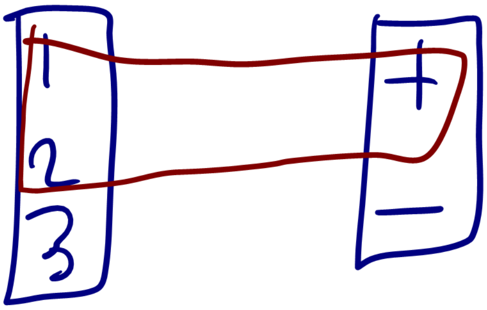
1+2 −3

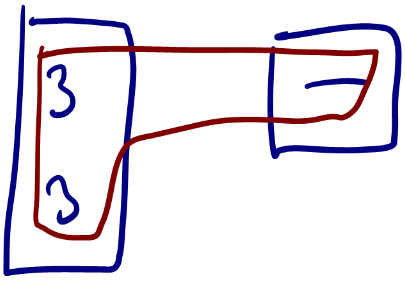


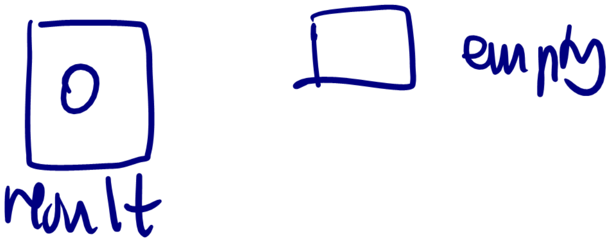
precedence: / , *, +, −

* First evaluate all / in order
* Then evaluate all * in order

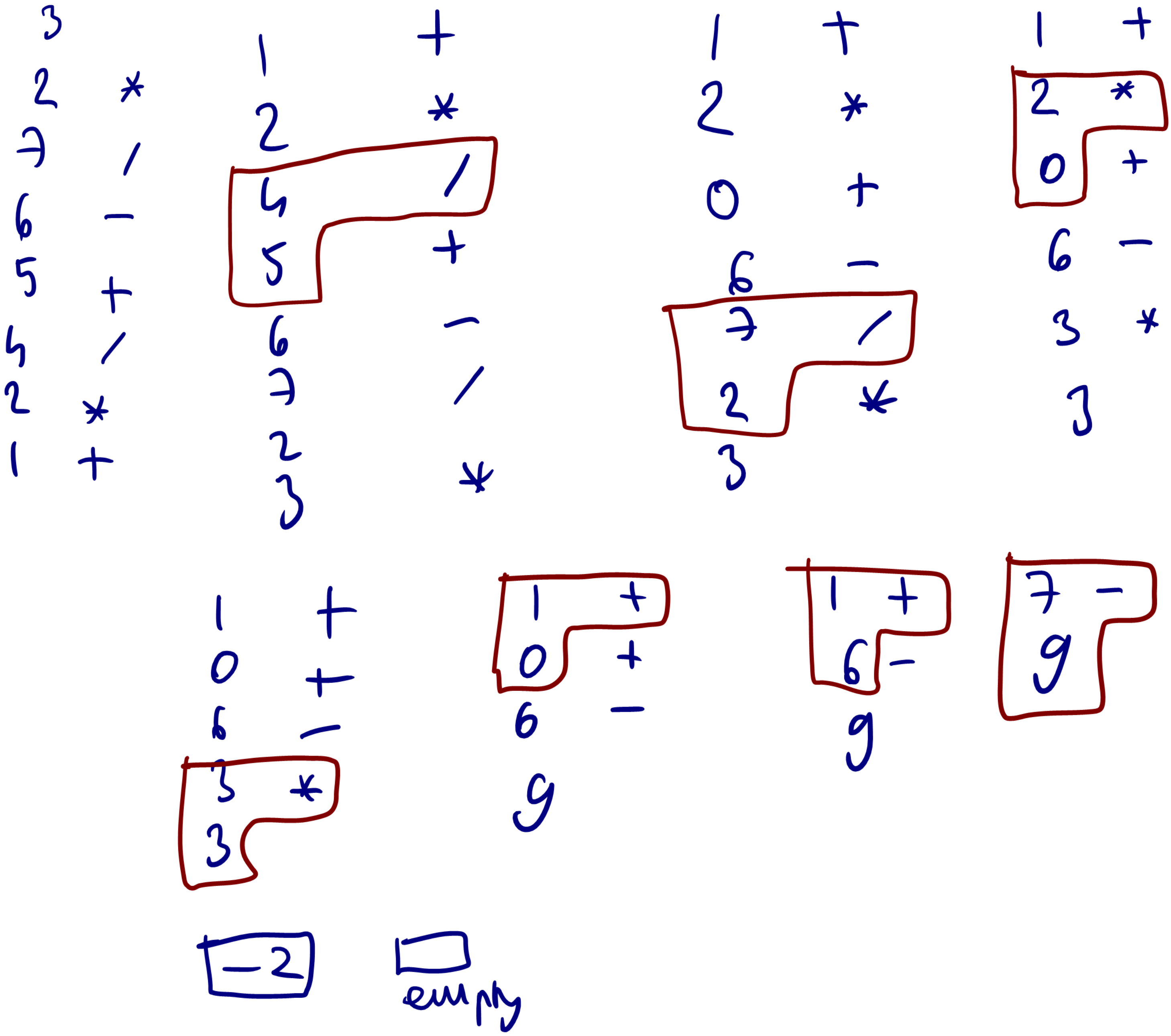
⋮







$1+2*4/5+6-7/2*3$



1+2*4/5+6-7/2*3

3	*
2	/
7	-
6	+
5	/
4	*
2	+
1	

3			
2		*	
7		/	
6			
		-	
$\boxed{5}$	1	+	+
$\boxed{4}$	2	$\boxed{/}$	*

3		*	
2		/	+
7	1	-	
6	2	+	*

4/5=0

3			
2		*	
7		/	+
6	1	-	
0	2	+	*

		1	+
3		2	*
2	*	0	+
7	/	6	-

		1	+
		2	*
3	*	0	+
		6	-

7/2=3

3

3 *

1 +

2 *

0 +

6 −

1 +

2 *

0 +

6

3 −

3 *

3 *

3 −

6 +

0 *

2

1 +

return to the original stack

* Case with parenthesis

$$(1+2\ /3 + (3-4)) + 2$$

* Get Rid of parentheses:

$$\underbrace{(1+2/3\ +\ (3-4}_{\text{tempstack}}\quad \boxed{)}\underbrace{)+2}_{\text{stack}}$$

$$\underbrace{(1+2/3\ +}_{\text{tempstack}}\qquad \begin{matrix}\text{evaluate}\\ 3-4=-1\end{matrix}\qquad \underbrace{)+2}_{\text{stack}}$$

$$\underbrace{(1+2/3+\quad -1}_{\text{tempstack}}\quad \underbrace{\boxed{)}+2}_{\text{stack}}$$

$$\underbrace{\emptyset}_{\text{tempstack}}\qquad \begin{matrix}1+2/3-1\\ =0\end{matrix}\qquad \underbrace{+2}_{\text{stack}}$$

$$\underbrace{0}_{\text{tempstack}}\qquad \underbrace{+2}_{\text{stack}}$$

$$\underbrace{0+2}_{\text{stack}}$$ with no parentheses.

$(1+(1+(2+(3+4/5))))$

$(1+(1+(2+(3+4/5\boxed{)})))$

$R=3+4/5$ → evaluate "no parentheses"

push R

$(1+(1+(2+R\boxed{)}))$

$R=2+R$

$(1+(1+R\boxed{)})$

$R=1+R$

$(1+R\boxed{)}$

$R=1+R$

R

$$(1+(1+3/(2+3)))+(1+2+3)$$

$$(1+(1+3/(2+3\boxed{)}))+(1+2+3)$$

$$R=2+3$$

$$(1+(1+3/R\boxed{)})+(1+2+3)$$

$$R=1+3/R$$

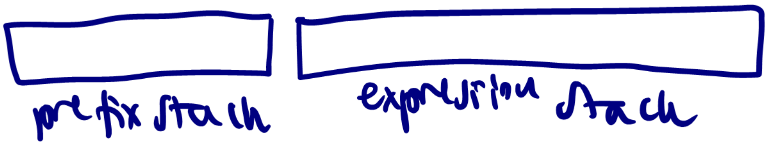
$$(1+R\boxed{)}+(1+2+3)$$

$$R=1+R$$

$$R+(1+2+3\boxed{)}$$

$$R=1+2+3$$

$R+R$ "no parantheses"



- Prefix stack will only have "(" or no brackets
- When expression stack is empty, prefix stack will have an expression without brackets