

Grammar:

$V \rightarrow PQ$

$P \rightarrow \text{int}$

$P \rightarrow \text{float}$

$Q \rightarrow \epsilon$

$Q \rightarrow [\text{size}] Q.$

Augmentation:

$V' \rightarrow V$

$V \rightarrow PQ$

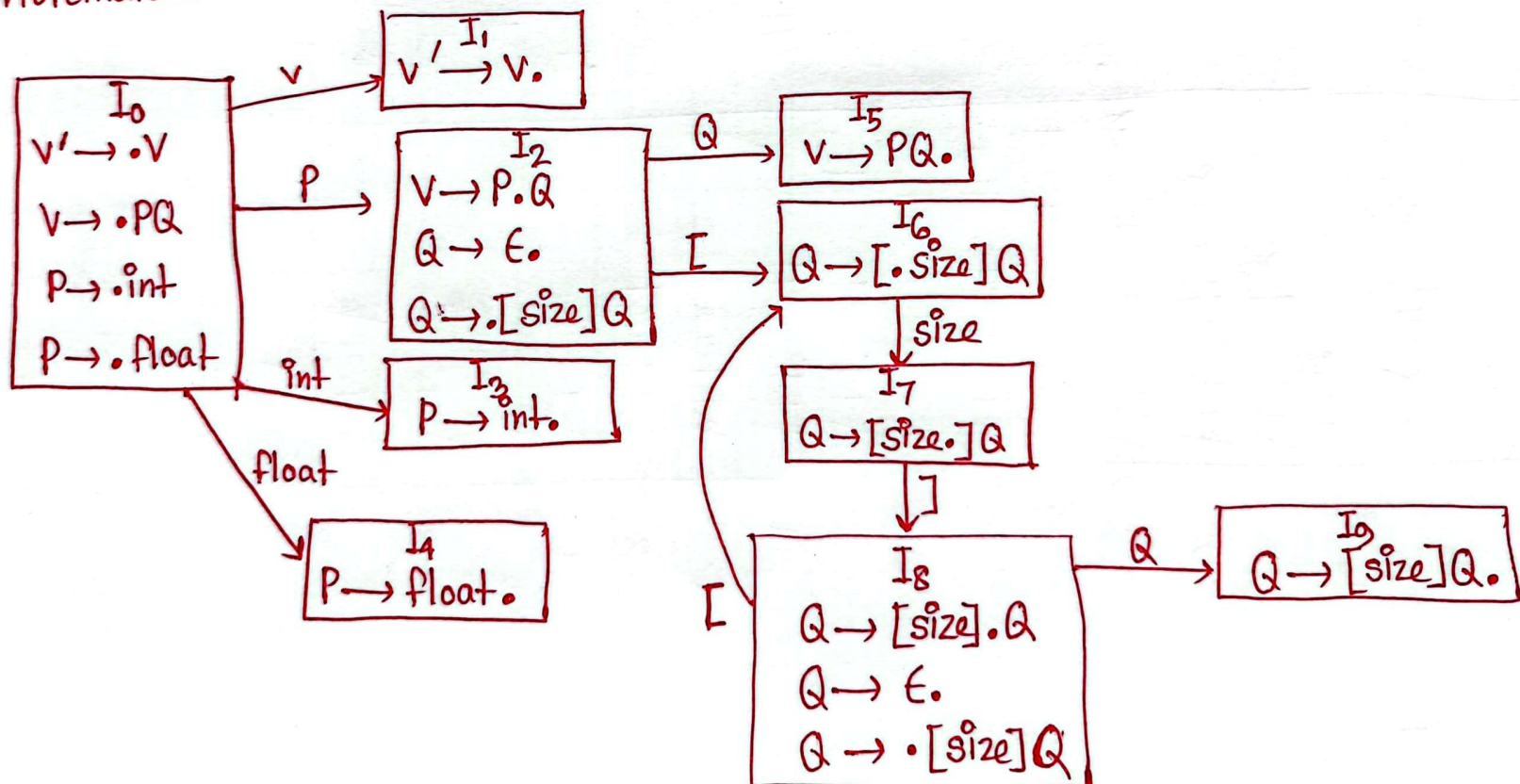
$P \rightarrow \text{int}$

$P \rightarrow \text{float}$

$Q \rightarrow \epsilon$

$Q \rightarrow [\text{size}] Q.$

LR(0) Automaton:



First and Follow Computation:

$$\text{First}(V) = \{\text{int}, \text{float}\}$$

$$\text{First}(P) = \{\text{int}, \text{float}\}$$

$$\text{First}(Q) = \{[, \epsilon\}$$

$$\text{Follow}(V) = \{\$\}$$

$$\text{Follow}(P) = \{[, \$\}$$

$$\text{Follow}(Q) = \{\$\}$$

SLR(1) Parse Table:

State	Action						Go-To		
	int	float	[	size	]	\$	V	P	Q
0	S3	S4					1	2	
1						Accept			
2			S6			R4			5
3			R2			R2			
4			R3			R3			
5						R1			
6				S7					
7					S8				
8			S6			R4			9
9						R5			

$$V \rightarrow PQ \dots \textcircled{1}$$

$$P \rightarrow \text{int} \dots \textcircled{2}$$

$$P \rightarrow \text{float} \dots \textcircled{3}$$

$$Q \rightarrow \epsilon \dots \textcircled{4}$$

$$Q \rightarrow [\text{size}]Q \dots \textcircled{5}$$

Input String: float[size][size][size]

1. $V \rightarrow PQ$

2. $P \rightarrow \text{int}$

3. $P \rightarrow \text{float}$

4. $Q \rightarrow \epsilon$

5. $Q \rightarrow [\text{size}]Q$

Stack	Symbol	Input Buffer	Action
0	\$	float[size][size][size]\$	Shift to 4
04	\$ float	[size][size][size]\$	Reduce by $P \rightarrow \text{float}$
02	\$ P	[size][size][size]\$	Shift to 6
026	\$ P[	size][size][size]\$	Shift to 7
0267	\$ P[size	][size][size]\$	Shift to 8
02678	\$ P[size]	[size][size]\$	Shift to 6
026786	\$ P[size][	size][size]\$	Shift to 7
0267867	\$ P[size][size	][size]\$	Shift to 8
02678678	\$ P[size][size]	[size]\$	Shift to 6
026786786	\$ P[size][size][	size]\$	Shift to 7
0267867867	\$ P[size][size][size	])\$	Shift to 8
02678678678	\$ P[size][size][size]	\$	Reduce by $Q \rightarrow \epsilon$
026786786789	\$ P[size][size][size]Q	\$	Reduce by $Q \rightarrow [\text{size}]Q$
026786789	\$ P[size][size]Q	\$	Reduce by $Q \rightarrow [\text{size}]Q$
025	\$ PQ	\$	Reduce by $V \rightarrow PQ$
01	\$ V	\$	Accept

For Rule no 4 : $Q \rightarrow \epsilon$, There is empty string in the production body. As a result, nothing is popped from the stack and symbol.