

Quiz 8 Solution

8.1 Solution

1. $S \rightarrow X$
2. $X \rightarrow Y Z$
3. $Z \rightarrow a b Y Z$
4. $Z \rightarrow \epsilon$
5. $Y \rightarrow V W$
6. $W \rightarrow c V W$
7. $W \rightarrow \epsilon$
8. $V \rightarrow d$

$\text{First}(S) = \text{First}(X)$

$\text{First}(X) = \text{First}(Y)$

$\text{First}(Y) = \text{First}(V)$

$\text{First}(Z) = a, \epsilon$

$\text{First}(V) = d$

$\text{First}(W) = c, \epsilon$

8.1 Solution

1. $S \rightarrow X$
2. $X \rightarrow Y Z$
3. $Z \rightarrow a b Y Z$
4. $Z \rightarrow \epsilon$
5. $Y \rightarrow V W$
6. $W \rightarrow c V W$
7. $W \rightarrow \epsilon$
8. $V \rightarrow d$

$$\begin{aligned} \text{First}(S) &= \text{First}(X) \\ &= d \end{aligned}$$

$$\begin{aligned} \text{First}(X) &= \text{First}(Y) \\ &= d \end{aligned}$$

$$\begin{aligned} \text{First}(Y) &= \text{First}(V) \\ &= d \end{aligned}$$

$$\text{First}(Z) = a, \epsilon$$

$$\text{First}(V) = d$$

$$\text{First}(W) = c, \epsilon$$

8.2 Solution

1. $S \rightarrow X$
2. $X \rightarrow Y Z$
3. $Z \rightarrow a b Y Z$
4. $Z \rightarrow \epsilon$
5. $Y \rightarrow V W$
6. $W \rightarrow c V W$
7. $W \rightarrow \epsilon$
8. $V \rightarrow d$

$\text{Follow}(S) = \text{eof}$

$\text{Follow}(X) = \text{Follow}(S)$
 $= \text{eof}$

$\text{Follow}(Y) = \text{First}(Z)$
 $= a, \text{Follow}(X), \text{Follow}(Z)$

$\text{Follow}(Z) = \text{Follow}(X)$
 $= \text{eof}$

$\text{Follow}(W) = \text{Follow}(Y)$
 $= a, \text{Follow}(X), \text{Follow}(Z)$

$\text{Follow}(V) = \text{First}(W)$
 $= c, \text{Follow}(Y), \text{Follow}(W)$

$\text{First}(S) = \text{First}(X)$
 $= d$

$\text{First}(X) = \text{First}(Y)$
 $= d$

$\text{First}(Y) = \text{First}(V)$
 $= d$

$\text{First}(Z) = a, \epsilon$

$\text{First}(V) = d$

$\text{First}(W) = c, \epsilon$

8.2 Solution

1. $S \rightarrow X$
2. $X \rightarrow Y Z$
3. $Z \rightarrow a b Y Z$
4. $Z \rightarrow \epsilon$
5. $Y \rightarrow V W$
6. $W \rightarrow c V W$
7. $W \rightarrow \epsilon$
8. $V \rightarrow d$

$\text{Follow}(S) = \text{eof}$

$\text{Follow}(X) = \text{Follow}(S)$

$= \text{eof}$

$\text{Follow}(Y) = \text{First}(Z)$

$= a, \text{Follow}(X), \text{Follow}(Z)$

$= a, \text{eof}$

$\text{Follow}(Z) = \text{Follow}(X)$

$= \text{eof}$

$\text{Follow}(W) = \text{Follow}(Y)$

$= a, \text{eof}$

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

$= c, \text{Follow}(Y), \text{Follow}(W)$

$= c, a, \text{eof}$

$\text{First}(S) = \text{First}(X)$

$= d$

$\text{First}(X) = \text{First}(Y)$

$= d$

$\text{First}(Y) = \text{First}(V)$

$= d$

$\text{First}(Z) = a, \epsilon$

$\text{First}(V) = d$

$\text{First}(W) = c, \epsilon$