

integer

$$\text{first}(\text{digit}) \cap \text{following}(\text{digit}) \\ = [\{0, 1\}]$$

char

$$\text{first}(x) \cap \text{first}(y) \\ = \text{first}(\text{letter}) \cap \text{first}(\text{digit})$$

ident

$$\text{first}(\text{char}) \cap \text{following}(\text{char}) \\ = [\{x, y, z, 0, 1\}]$$

oprnd

$$\text{first}(\text{integer}) \cap \text{first}(\text{ident}) \cap \text{first}(\text{exprn}) \\ = [\text{first}(\text{digit}) \cup \text{following}(\text{digit})] \cap [\{x, y, z, 0, 1\}] \cap [\{0, 1\}] \\ = [\{0, 1\}] \cup [\{x, y, z\}] \\ = \emptyset$$

factor

$$[\text{first}(\text{prodop}) \cup \text{first}(\text{oprnd})] \cap [\text{following}(\text{prodop}) \cup \text{following}(\text{oprnd})] \\ = [\{0, 1\}] \cap [\{0, 1\}] \\ = \emptyset$$

exprn

$$[\text{first}(\text{sumop}) \cup \text{first}(\text{factor})] \cap [\text{following}(\text{sumop}) \cup \text{following}(\text{factor})] \\ = [\{0, 1\}] \cap [\{0, 1\}] \\ = \emptyset$$

input

$$\text{first(ident)} \cup \text{following(ident)} \\ = [\{X, Y, Z, 0, 1\}]$$

if stmt

$$\text{first(block)} \cap \emptyset \\ = \emptyset$$

stmt

$$\text{first(assignmt)} \cap \text{first(if stmt)} \cap \text{first(while)} \cap \text{first(input)} \cap \text{first(block)} \\ = [\{X, Y, Z, 0, 1\}]$$

block

$$[\text{first(stmt)} \cap \text{following(stmt)}] \cup \text{first(D)} \\ = [\{X, Y, Z, 0, 1\}] \cup \emptyset \\ = \emptyset$$