

Activity - Syntax

Tuesday, August 22, 2023 3:50 PM

1) Which of the following are valid sentences based on the example BNF specification for English?

`<sentence> ::= <subject> <verb> <object>.`
`<subject> ::= <adjective> <noun>`
`<adjective> ::= <adjective> | <adjective><adjective>`
`<object> ::= <noun> | <subject>`
`<noun> ::= table | horse | computer`
`<adjective> ::= big | fast | good | high`
`<verb> ::= is | makes`

~~a.~~ fast table is high. *<noun>*

b. good computer is fast computer. *<adj>*

<adjective> c. big high table is good table.

~~d.~~ table makes horse.

~~e.~~ good tables are big.

~~f.~~ is fast computer good. *<subject>*
<adjective> <noun>

2) Which of the following are valid statements based on the example BNF specification for a programming language?

```

<statements>      ::=  <assign> | <assign> <statements>
<assign>          ::=  <variable> = <expr>;
<expr>            ::=  <variable>
                    | <variable> <operator> <variable>
                    | ( <expr> ) <operator> ( <expr> )
<variable>        ::=  <char> | <char> <variable>
<char>            ::=  a | b | c | ... | z | 0 | 1 | ... | 9
<operator>        ::=  + | - | * | / | % | < | > | == | ≤ | ≥

```

a. x = 3;

b. a = 4;

b = 3;

~~c. k = (a + a) * (b % 4 * b);~~

d. s = s1 + s2;

~~e. (a/b) = (c3 - d4);~~

f. x = y + 4

could be written as $((b \% 4) * (b))$

$\langle \text{assign} \rangle \langle \text{statements} \rangle$

$\langle \text{assign} \rangle \langle \text{assign} \rangle$

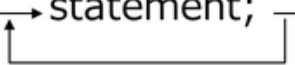
$(\langle \text{expr} \rangle) \langle \text{operator} \rangle (\langle \text{expr} \rangle)$


$\langle \text{variable} \rangle \langle \text{operator} \rangle \langle \text{variable} \rangle$
 $\langle \text{operator} \rangle \langle \text{variable} \rangle$

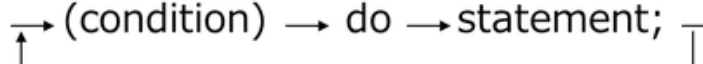
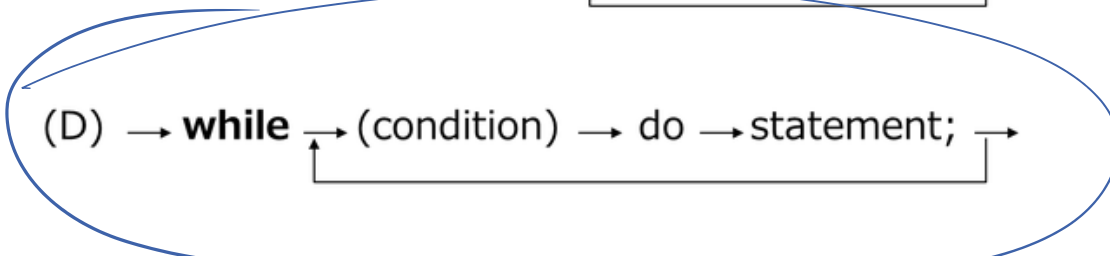
$\langle \text{char} \rangle$
 $\langle \text{char} \rangle \langle \text{variable} \rangle$

3) What is the syntax graph for a while-do loop?

(A) \rightarrow **while** \rightarrow (condition) \rightarrow do \rightarrow statement; \rightarrow

(B) \rightarrow **while** \rightarrow (condition) \rightarrow do \rightarrow statement; \rightarrow


(C) \rightarrow **while** \rightarrow (condition) \rightarrow do \rightarrow statement; \rightarrow


(D) \rightarrow **while** \rightarrow (condition) \rightarrow do \rightarrow statement; \rightarrow



(E) \rightarrow **while** \rightarrow (condition) \rightarrow do \rightarrow statement; \rightarrow
