Logan Oslund

1.

2.2:

(A B (C) has an extra ‘(‘
((A) (B)) is balanced
A B) (C D) has an extra ‘)’
(A (B (C)) has an extra ‘(‘
(A (B (C))) is balanced
(((A) (B)) (C)) is balanced

2.4:

((BOWS ARROWS) (FLOWERS CHOCOLATES))

2.6:

() = NIL
(()) = (NIL)
((())) = ((NIL))
(() ()) = (NIL NIL)
(() (())) = (NIL (NIL))

2.13:

(((FUN)) (IN THE) (SUN))

For FUN:
CAR -> ((FUN))
CAAR -> (FUN)
CAAAR -> FUN

For IN:
CDR -> ((IN THE) (SUN))
CADR -> (IN THE)
CAADR -> IN

For THE:
CDR -> ((IN THE) (SUN))
CADR -> (IN THE)
CDADR -> (THE)
CADADR -> THE

For SUN:

CDR -> ((IN THE) (SUN))
CDDR -> ((SUN))
CADDR -> (SUN)
CAADDR -> SUN

2.15:
((A B) (C D) (E F))

CAR	(A B)
CDDR	((E F))
CADR	(C D)
CDAR	(B)
CADAR	B
CDDAR	NIL
CAAR	A
CDADDR	(F)
CADADDR	F

2.16:
There would be an error, as FRED is a symbol, not a list. CAR cannot be used on symbols.

2.
6:
Unix is mostly written in C.
7:
It is harder to learn, and most people must focus on a specific area of the language while ignoring the other features.
8:
Operations might be used in unintuitive ways that are hard to understand at a glance.
9:
An array element can be any data type except void or a function.
10:
ALGOL 68
11:
GOTO
12:
A program is said to be reliable if it performs to its specifications under all conditions.
13:
To determine whether its type matches that of the corresponding formal parameter in the function.

14:
Having two or more distinct names in a program that can be used to access the same memory cell.
15:
The ability of a program to intercept run-time errors, take corrective measures, and then continue.
16:
The process of writing a program requires the programmer frequently to reread the part of the program that is already written.
20:
The primary programming language deficiencies that were discovered were incompleteness of type checking and inadequacy of control statements (requiring the extensive use of gotos).
21:
Data abstraction, inheritance, and dynamic run time.
22:
Smalltalk
23:
Reliability and cost of execution.
24:
Compilation, pure interpretation, and hybrid implementation.
25:
Compiler
29:
Allows for the easy implementation of many source-level debugging operations.