CMPT 383
Quiz #1
September 13, 2005

1) Write a concrete example of orthogonality (from a real programming language)
   Pascal: functions can return only scalar/pointer types (no arrays or records).
   C: All parameters are passed by value except arrays (passed by reference).
   Modula-2: Integer, real, etc ca be compared (with <, <=, etc) but strings cannot.

2) In the following fragment of a program, cite which characteristics of readability have/have not been applied (see example)

```
 1.        loop 1:
 2.               if ( num > 10 ) go to out;
 3.        loop 2:
 4.               if ( sum < 0 ) go to next;
 5.               if (no_final == false ) go to out
 6.               sum = sum + 1;
 7.               go to loop 2;
 8.        next:
 9.               num++;
10.               go to loop 1;
11.        out:
```

   a) 2,4,5,7,10: Poor *control statements* (the use of "go to" requires to jump from one statement to some nonadjacent statement).
   b) 6,9: *Overall simplicity* due to *feature multiplicity* (there is more than one way to accomplish a particular operation).
   c) 5: Adequate use of *data types* (Boolean vs. Integer).

Example:
```
 1.        while ( extra > 10.5 )
 2.        {
 3.               mark = extra + 4.7;
 4.               if ( mark < 74.9 )
 5.               {
 6.                      message = "not" + "enough";
 7.               }
 8.        }
```
Answer:
   a) 3, 6 : Overall simplicity due to operator overloading
   b) Pairs 2-8, 5-7: Syntax considerations because there are no special words for block structure