The New C Standard (Excerpted material)

An Economic and Cultural Commentary

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6.8.6.3 The break statement

Constraints

A **break** statement shall appear only in or as a switch body or loop body.

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Commentary

The behavior of the **break** statement is only defined in these contexts.

Other Languages

In most languages the arms of a **switch** body are syntactic units, each having an implicit **break** statement after the last statement. There is no requirement for a construct having the behavior of the C **break** statement, in a **switch** body context.

Coding Guidelines

The coding guideline discussion for the **continue** statement is also applicable to the **break** statement. In the context of a **switch** statement developers are invariably going to need to use to **break** statements. Given that many of the reader comprehension issues apply to all uses of jump statements, any argument against the use of **break** statements could also be used to argue that **switch** statements should not be used.

Semantics

A **break** statement terminates execution of the smallest enclosing **switch** or iteration statement.

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Commentary

Using the analogy given earlier for the **continue** statement:

```
1   {                       {                       {
2   while (/* ... */) {      do {                    for (/* ... */) {
3     /* ... */               /* ... */               /* ... */
4     break;                  break;                  break;
5     /* ... */               /* ... */               /* ... */
6     }                     } while (/* ... */);    }
7   brea: ;                 brea: ;                 brea: ;
8   }                       }                       }
```

The outer pairs of braces not appearing in the source code, they have been added here to show an affect.

Other Languages

Some languages allow blocks to be labeled. This label name can then appear in a statement (sometimes using the keyword **exit**), indicating that execution of that block is to terminate.

In most other languages **case** and **default** labels are part of the syntax of the **switch** statement. When the statement associated with these labels completes execution flow of control is defined to continue after the **switch** statement (there is an implicit break statement). These languages do not usually support a special statement whose purpose is to terminate execution of a **switch** statement (a **goto** statement could be used to do this). In BCPL the **ENDCASE** statement is equivalent to the C **break** statement within a **switch** statement (the BCPL **break** statement terminates execution of loops only).

135) Following the **contin:** label is a null statement.

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Commentary

That is, there are no statements from the loop body that were written by the developer.

References