IEEE Standards Interpretations for IEEE Std 1003.2™-1992 IEEE Standard for Information Technology--Portable Operating System Interfaces (POSIX®)-- Part 2: Shell and Utilities

Interpretation Request #76
Topic: bc large numbers and lines **Relevant Clauses:** 4.3

POSIX.2 Subclause 4.3 specifies the semantics of the "bc" utility.

In subclause 4.3.7.1, lines 1385-1387 state: Very large numbers shall be split across lines with 70 characters per line in the POSIX locale; other locales may split at different character boundaries. Lines that are continued shall end with a backslash. The issue that I would like resolved is: does either the terminating backslash, or the newline, or both, count against the 70 characters in the continued line? In other words, in the POSIX locale, if "bc" needs to display an integer longer than 70 digits, how many digit characters are displayed before the backslash on the first line? I note that the definition of a "line" in POSIX.2 subclause 2.2.2.95 is A sequence of text consisting of zero or more non-<newline> characters plus a terminating <newline> character. From this definition I would conclude that the newline is counted as one of the 70 characters. Thus my understanding of the standard is that under the circumstances described above "bc" would display 68 digits followed by a backslash followed by a newline followed by the remaining digits (split across more lines if necessary).

Interpretation Response
The definition of line includes the newline character, and bc does not override that definition, therefore the <backslash> and <newline> characters are counted as part of the 70 length. The standard clearly states the behaviour for bc and the definition of a line, and conforming implementations must conform to this.

Rationale for Interpretation
Note that this is a change to historical practice.