

IEEE Standards Interpretation for IEEE Std 1003.1™-1990 IEEE Standard for Information Technology--Portable Operating System Interfaces (POSIX®)

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Interpretation Request #77

Topic: rename **Relevant Sections:** 5.5.3.2.

(Note line numbers are against 1003.1b-1993, but this is applicable to 1003.1-90 included in ISO POSIX.1-1996) The standard states: If the old argument and the new argument both refer to links to the same existing file, the rename() function shall return successfully and perform no other action.

Question: I am assuming that the rationale for the above clause was to ensure that rename("x", "x") does not remove the file "x". I based my assumption on the rationale in subsection B.5.5.3 (lines 3625 through 3628). I feel that the above clause is too restrictive. If you have two files "x" and "y" that both refer to links to the same existing file, then rename("x", "y") will return successfully and perform no other action. I think it would be more logical to perform a remove of link "x" in this situation.

This implementation of rename() would result in the following behaviour from the shell prompt (assuming the mv utility is compliant with IEEE Std 1003.2-1992 4.43.2 lines 7095 to 7103):

```
$ touch x $ ln x y $ ls -li x y 186625 -rw-r--r-- 2 kirk techies 0 Aug 23 10:43 x 186625 -rw-r--r-- 2 kirk techies 0 Aug 23 10:43 y $ mv x y $ ls -li y 186625 -rw-r--r-- 1 kirk techies 0 Aug 23 10:43 y
```

But this implementation may fail some PCTS, since the test suite may look at only "inode numbers" to determine if the "x" and "y" are links to the same existing file and therefore would expect no action to be performed. The "4.4BSD Lite" distribution appears to support this implementation. Since rename() was first implemented in 4.xBSD, I found it strange that the 4.4BSD implementation of rename() would not pass a PCTS. I used the following files as a reference: /usr/src/sys/ufs/ufs/ufs_vnops.c /usr/src/sys/kern/vfs_syscalls.c

Suggested Correction: The clause should be changed to: If the old argument and the new argument both refer to a file with the same name in the same directory, the rename() function shall return successfully and perform no other action.

Interpretation Response

The standard clearly states the requirements for rename(), and conforming implementations must conform to this.

Rationale for Interpretation

Interpretations must be a comment on what the standard actually does say, not what it should say, nor what it says incorrectly. Changes to the standard may be submitted through the revisions process. Forwarded to Interpretations group: Sep 8 1996 Forwarded for review: Oct 22 1996 Finalized: Nov 24 1996