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 #140
Topic: awk - reevaluation of field varibles **Relevant Sections:** 4.1.2

In Section 4.1.2 it says: The symbol $0 shall refer to the entire record; setting any other field shall cause the reevaluation of $0. and Assigning $0 shall reset the value of all other fields and the NF built-in variable. The questions are: 1) how exactly is $0 to be re-evaluated? Should it be using the current value of OFS? Note: This is how its historically been documented on page 36 in The AWK Programming Language (1988) by Aho, Kernighan and Weinberger. Also, section 4.1.7.3 (line 314-317) implies this behaviour since this is what is done when an assignment is made to a non-existent field. 2) (a) When $0 is assigned to, how exactly should the other fields bbe reset? (b)What does "reset" mean exactly?

Note: Historical documentation (The AWK Programming Language) ssays that "when $0 is changed by assignment or substitution, $1, $2, etc., and the NF will be recomputed" (c) Is there a reason why POSIX.2 is not more specific on how these fields should be reset? (d) Is it reasonable to assume that the fields shall be computed from the new $0 using FS? (e)If so, then should this FS be the current value (at time $0 was assignment) or should it be the value that was current when the last record was read? (See somewhat related 1003.2 interp. request #118 and #80)

Interpretation Response
Q.1: The standard states on page 163, section 4.1.2 (last paragraph), that $0 is re-evaluated if any field is set. Page 171, section 4.1.7.3 third paragraph, indicates that assignments to non-existent fields cause the value of $0 to be recomputed with the fields seperated by the value of OFS Since "recomputed" and "re-evaluated" are neither one clearly defined, then the standard is unclear in what it means for $0 to be re-evaluated,

and no conformance distinction can be made between alternative implementations based on this. However, it is clear that the current value of OFS should be used whenever $0 is re-computed. When $0 is re-evaluated it is unclear if OFS or FS is used.

Q.2: (a)The standard is unclear on this issue, it states that they are "reset" but does not define what reset means. (b)The standard does not specify what "reset" means. (c)The interpretations committee believes that the authors of the standard did not realise these ambiguities were present in the specification. (d)Yes, although the standard is unclear on this issue, we believe using the value of FS while resetting the values of fields when $0 is reassigned is consistent with the standard. (e)The standard does not speak to this issue, and as such no conformance distinction can be made between alternative implementations based on this. These issues are being forwarded to the sponsor.

Rationale for Interpretation
None.