

Who failed?

In "Analysis and Refutation of the LCAS" (= Language Compatible Arithmetic Standard), ACM SIG-PLAN Notices, Vol. 27, No. 1 (Jan 1992), pp. 61-74, a certain Prof. W. Kahan of the University of California at Berkeley, USA, writes:

"An earlier attempt similar to the LCAS was A. van Wijngaarden's "Numerical Analysis as an Independent Science" in BIT 6 (1966) pp. 68-81. It failed for two reasons. First, it was mathematically intimidating with 32 axioms couched even more inscrutably than the LCAS. Second, it did not cover the CDC 6600, which was the CRAY of its time."

Now this is strange.

- (i) Van Wijngaarden's attempt is blamed for not having achieved what was not attempted: the paper did not propose a standard, which would have been a political act, but proposed an axiomatic basis for the mathematical discipline of numerical analysis, which was a scientific act.
- (ii) The paper is blamed for being "mathematically intimidating". What Prof. W. Kahan here complains about is that van Wijngaarden has taken the trouble to act as a respectable and conscientious scientist: omitting a number of axioms or skirting rigour where rigour was required, all in an effort

to make his text less "intimidating", would have been scientifically dishonest.

(iii) The paper is blamed for not "covering" the CDC 6600, which in Kahan-speak means that the floating-point operations of the CDC 6600 did not meet van Wijngaarden's requirements. As these requirements were very modest, this was an implicit indictment of the CDC 6600, but that was what CDC deserved. In creating Computing Science as a viable scientific discipline, a major effort of the 60s went into keeping Computing Science independent of the (only too often ill-considered) equipment that happened to be on the market. The goal of this independence provided the main motivation behind the whole paper! (In the introduction, van Wijngaarden points out that it is unattractive "to base a science on a particular make of apparatus, presumably obsolete before long".)

We are left with the riddle of how an academic author of presumably some rank can cram so much misunderstanding in only 4 sentences. Part of the explanation may be that Prof. W. Kahan is an extreme victim of the American habit of calling the topic "Computer Science" (in contrast to the more usual "Computing Science" or "Informatics" elsewhere). The habit is unfortunate as it tends to direct too

much attention towards the ephemeral and nurtures
the misapprehension that one can be a good
Professor of CS by being a Professor of
Current Computers and Packages.

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The above has been written to regain my peace
of mind and to shock my professional friends
that are not regular readers of ACM SIGPLAN
Notices.

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