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A Response to Gregg Williams' "A Threat to Future Software"

*by I. Trotter Hardy**

I write in response to an article by Gregg Williams that first appeared in BYTE magazine in the January, 1986, issue, and was reprinted in the February 1986, issue of Software Protection on page 7.

Mr. Williams expresses concern over Apple's demanding changes in the Digital Research GEM interface so that it looks less like the Macintosh interface. He believes that Apple's actions will stifle the incremental growth of computer interfaces. I do not understand or share his concerns.

When Apple demanded that the GEM interface be changed, it was doing no more than Mr. Williams asks of the industry; insisting that Digital Research make an incremental, i.e., non-copy-right infringing, change to the interface. Apple itself made incremental changes to the Xerox PARC experimental interface to produce the Macintosh interface. It merely asked that Digital Research do likewise. By describing GEM's copying of the Mac as "incremental improvement," Mr. Williams seems to be using a euphemism for

"copying"—GEM's improvement or evolution over the Macintosh is hard to find.

More to the point, I do not understand how Mr. Williams can reconcile the demand for incremental improvement with a simultaneous call for standardization of user interfaces that settles on that of the Macintosh. Standardization means that everyone copies the same interface—not that they improve it. To justify the need for this standardization, Mr. Williams draws an analogy to cars. He implies, if I understand him correctly, that few people would drive cars if different manufacturers used different controls for the same functions. I have driven different cars, and it seems to me that they all do use different controls. The gauges, the knobs, the sliding levers, the placement of headlight switches—they all differ radically from car to car. It might be nicer, I agree, if that were not true, but only because many people drive more than one car. I am not persuaded that many people use more than one computer. If in fact most people use only one computer, then standardization of interfaces is of no significant benefit.

Mr. Williams goes on to point out the desirability of open hardware and software archi-

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lectures by pointing to the IBM-PC. He credits the wide-spread acceptance of the IBM-PC to its openness, something that no doubt did play a large part in its success. He then observes first, that IBM compatibles account for a healthy slice of the personal computer market, and second, that Apple has begun to slow the erosion of its own market share with the Macintosh. In other words, IBM is losing sales to the compatibles, and apparently also losing some of its market share, and Apple is gaining market share. How on earth, then, can he conclude that Apple should do what IBM has done: let clone makers have a field day copying the Mac's design? Does he think that IBM is pleased with the compatible market? Does he think that IBM is actively seeking ways to ensure that more competitors can enter that market and further erode its market share? Does he think that now that the Macintosh is proving itself an alternative to the IBM PC and selling well that Apple should reverse itself and start encouraging Digital Research and others to gain a foothold in its market?

It's worth asking just exactly how an open design benefits anyone. For the IBM-PC, openness meant encouraging the development of a great deal of software and hardware add-ons. Apple's plan to bring out an open architecture Macintosh reflects its realization, in a post-Steven Jobs world, that IBM and the Apple II were right, that add-on hardware is a decided plus for a personal computer. If the computer news periodicals are correct, Apple is moving aggressively toward more openness in that regard. The Macintosh's software has always been open, in that developers have been encouraged from the start to write Mac programs.

The kind of openness that Mr. Williams is talking about is actually neither hardware nor software openness, but user interface openness. That kind of openness will not benefit Apple at all. Programs developed for a GEM copy of the Mac desktop will not necessarily run without substantial alteration on the Mac. At the least, they will not simply run unaltered on both a GEM machine and the Macintosh, in the way that many programs will run unaltered on an IBM and an AT & T or Compaq machine. If buyers turn to Macintosh look-alikes, they will not buy Macintoshes nor will software for the look-alikes enhance the Macintosh market. User-interface "openness" is therefore very different from hardware or software openness.

In any event, IBM did not exactly "allow" the development of clones. It chose to use fairly standard components and architecture in its design rather than advance the state of the art. These components were not new and could not sustain copyright or patent protection. One of the few components that it did not take off the shelf was the ROM BIOS. Has IBM opened that up to the compatible market? It actively seeks to enforce its copyrights on the BIOS.

Mr. Williams accuses Apple of trying to stop not just copying, but also borrowing. What is the difference? Apple took, as he points out, a set of ideas from Xerox PARC and improved on them. There is no copyright on ideas; others are free to use the Xerox ideas—or Apple's—and improve on them by making the same incremental changes that Apple did. The trouble with GEM is precisely that it did not improve on the Mac interface—it just copied it. How outright copying benefits either Apple or the public or advances anything is beyond me.

Mr. Williams calls on the legal system to reject copyright claims unless a copied interface has no distinguishing characteristics from the original whatever. This assertion reflects a basic misunderstanding of copyright law. The test of copyright infringement has always been whether there is substantial copying, never just exact copying. Defining only exact copying to be infringement would encourage copying with only trivial variations, exactly the opposite of the incremental improvement that Mr. Williams would like to see.

Mr. Williams finally suggests that alternative graphic interfaces be developed for the non-Apple market. This is a perfectly sound suggestion, but entirely superfluous. If Apple is going to stop the use of the Mac interface, then an alternative will develop, and already has: the new GEM and Windows use the Macintosh and Xerox ideas, but I gather that they change them enough to avoid infringement. In short, Apple's actions have encouraged exactly the sort of incremental improvements that Mr. Williams thinks it has stifled. And that, of course, is exactly the point of having a copyright law.