A CASE FOR SHARING*

To the Editors:

Science and technology flourish on publication

New knowledge is built on existing knowledge. Secrecy is detrimental to the advancement of science. Secrecy results in duplication of effort, and fewer and delayed additions to new knowledge. The academic community's duty is to make new knowledge available — teach, research, publish.

Secret software

The combination of resurgence of the free-enterprise spirit with lessened government support in several areas of research has led certain members of the academic community to sell, rather than publish, results and to oblige buyers (licensees) to keep software secret. Often, source code is not made available to any party at any price. There may be in some cases old, obsolete versions available with poor documentation. Globally speaking, in computer software a situation has developed which hasn't been seen in science and technology since wartime and dictatorial regimes.

Publication in chemistry

When a synthesis is published in chemistry, the experimental procedures published contain sufficient information to reproduce the work. In cases, e.g. *Tetrahedron Letters*, where full information is not in the short communication, contact with the authors almost invariably yields the full information. Similarly, chemical patents are obligated to disclose the full and best method, leaving no gaps to prior art.

Double standard

There is a flagrant double standard between what is being disclosed about software (algorithms, programs) versus other innovations in science and technology, including chemistry. Most frequently, even if some results get published, far too little information is disclosed on computer programs to reproduce the work, and explicit requests for full details are:

(1) not filled, or
(2) old versions are made available, or
(3) no, or poor, documentation is supplied.

Documenting results

Documenting software completely is as necessary, as obligatory, and as tedious, as documenting the melting points, spectral constants and other data for synthetic work. Why should the authors of computer-related work be absolved from documenting their results?

* These statements represent my personal attitudes, beliefs and opinions and not necessarily those of the Sandoz organization.

Protecting inventors

How should the (intellectual) property of a brilliant young computer software inventor be protected?

— The same proven way as inventors, authors and developers of other property, and

— through copyright and patenting.

It has been argued that copyright provides insufficient protection, because computer programs can be cast into equivalent forms that pass tests of copyright violation.

Conclusion: Effective patents have to be granted.

Chemical, mechanical and electrical patent law has evolved established practices of claims, scope of obviousness and definition of novelty which provide the best of both worlds:

(1) a scope of protection of the inventor, and

(2) protection of the public's interest, and future inventors' opportunities.

These ensure an incentive to disclose, and make knowledge openly available to build new knowledge on, and avoid duplication of effort.

What is needed

Because of the complexities of the software field, and in the best interest of the computer community, its inventors, authors, and consumers, it is the most urgent obligation of the computer experts to arrive at a precise and equitable *definition of obviousness and novelty*, so that the scope of inventions, with claims, can be defined. By solving this bottleneck, patents can be granted for algorithms and programs, which are sufficiently protecting authors, inventors, future authors and inventors, and all of humanity.

It is also highly desirable that organizers of scientific and technical meetings and editors of journals favor those papers whose authors are either disclosing or are willing to disclose in full, with full and good documentation, their software, so that the work disclosed can be reproduced without major effort.

Summary

Unlike in other branches of science and technology, computer programs and algorithms are generally not fully disclosed. This leads to duplication of effort, and prevents building new knowledge rapidly on existing knowledge.

To remedy this, effective patents on computer programs and algorithms should be granted. The community of authors and inventors, along with expert advice from patent attorneys, have to arrive at effective and equitable *definitions of obviousness and novelty*, so that the boundaries of protection on one side, and free progress on the other, can be defined.

The same reasons exist for patenting and disclosing computer software knowledge as for chemistry, electrical and mechanical inventions. Patenting has protected inventors and assured progress for many decades successfully in these fields.

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