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ON THE THRESHOLD OF 1992 EUROPE DEBATES SOFTWARE PROTECTION

*REPORT ON THE INTERNATIONAL SYMPOSIUM ON
REVERSE ENGINEERING IN WEST BERLIN, MARCH 1989*

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Anna M. Freska‡

I. INTRODUCTION

Today, technological progress is taken for granted. What is not so obvious, however, is the fact that new development can be so rapid only with the help of existing technology. In the computer industry especially, so called reverse engineering,¹ or analysis of existing computer software, is a technical and economic necessity. Through reverse engineering, newer and better computer software can be offered to consumers faster and cheaper since research and development costs can be kept to a minimum. For some, reverse engineering is a way to faster technological progress and increased rate of innovations. For others, however, reverse engineering means the pirating of programs. In view of these facts, the legal

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1. Reverse engineering can take on various meanings depending on the context in which it is used. Many have defined the process of reverse engineering as the simple copying of an existing computer program. For purposes of the legal debate, it may be divided into two phases: first, the extraction of information from an existing program, sometimes called "reverse analysis"; second, the utilization of the extracted information, commonly termed "forward programming." As long as reverse analysis is done for purely scientific purposes, or for adaptation of a lawfully acquired program to the specific hardware needs of the user, it is deemed to be legal. The debate begins as soon as the purpose of the analysis is the extraction of information as the basis for the production and marketing of new programs. Thus, it is important to make a critical distinction between *analysis* of a program and the *utilization* of its code, especially if the process of reverse engineering discloses the otherwise inaccessible source code of the program.

considerations of the propriety of reverse engineering have come to the forefront of current international legal debate on software protection. One such discussion took place in West Berlin on March 29-30, 1989.² Over 80 participants and panelists representing Europe, Japan, and the United States gathered at the International Symposium on Reverse Engineering to debate the merits and disadvantages of legal protection of software. The debates focused entirely on issues related to reverse engineering of computer software.

The fact the Symposium took place at a time when Europe faces the creation of a single European economic market³ was never lost on the participants. As economic unification approaches its projected completion date of 1992,⁴ the impact of a united Europe on the world economy can hardly be overestimated. Economically, the European Economic Community will form the largest single market in the world and assure a high standard of living for its residents.⁵ Consequently, it was not by chance that industry representatives had a strong presence at the Symposium. Software protection is by no means an issue limited to legal scholarship, but rather a powerful interest of the burgeoning software industry. It is the economic reality of market competition that compels the formation of a legal framework for reverse engineering in Europe. The single market is not being erected on empty ground, but on current realities. Thus, those economic actors with an established presence in the European computer software market (predominantly American and Japanese) will naturally strive to retain that lead after 1992. Reverse engineering is clearly interpreted as either a threat or benefit to those interests.

The Berlin Symposium thus bore witness to the clash over the issue of permissibility of reverse engineering and the scope of protection conferred by copyright and other legal protections in light of

2. *International Symposium on Legal Protection of Software*. All references herein to the *International Symposium on Legal Protection of Software* will be cited as *Script to the Berlin Symposium* including the speaker's name. (The script is housed at the Santa Clara Computer & High Technology Law Journal office).

3. The European Economic Community (EEC), established in 1958 upon the signing of the Treaty of Rome, consists of twelve member states (Belgium, Denmark, France, Great Britain, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, and West Germany). The primary objectives of the EEC include creating a single economic market, development, expansion, increased stability, raising of the standard of living, and closer relations with the United States. December 31, 1992 is the target date for completion of the implementing legislation. For a more complete discussion of the EEC, see Colyvas, *European Economic Community: Approaching Complete Formation*, 5 SANTA CLARA COMPUTER & HIGH TECH. L.J. 498 (1989).

4. See *supra* note 3.

5. Colyvas, *supra* note 3, at 499.

the emerging European Economic Community. One school of thought advocated further liberalization of existing protective measures, deeming them excessive and obstacles to desirable technological growth. The other "side," for the most part representing the German and United States computer industry and regulatory establishment, favored preserving the status quo. This report will compare views of some of the opinions toward reverse engineering expressed by European, Japanese and American industrial and legal representatives at the Symposium.

II. EUROPEAN VIEWPOINTS

As the creation of a single European market approaches,⁶ it is imperative that the American legal community gain knowledge of Western European legal trends. For the American reader interested in European legal developments regarding computer software protection and reverse engineering, some level of familiarity with the status of German software protection and reverse engineering is necessary because German legal theory is most likely to have the greatest impact on the shape of European attitudes toward intellectual property.⁷ Likewise, a familiarity with the European Economic Community Commission's Proposal for a Council Directive on the Legal Protection of Computer Programs is beneficial to understanding the direction Europe is taking.

A. *Views of the German Legal Profession*

For Germany, reverse engineering has not constituted a major legal issue until this time.⁸ Current German legal thought admits that computer programs are not easily subsumed by the statutory laws of copyright, patent, or unfair competition⁹ and supports the introduction of laws designed specifically to protect computer software.¹⁰ This sentiment was echoed by quite a few participants at the Symposium, who concur that software issues pose new questions and challenges which the existing legal regimes are ill-equipped to handle. The existing German laws simply cannot provide clear answers. Thus, each issue becomes a matter of speculation on what legal provisions may or may not apply. New

6. Colyvas, *supra* note 3.

7. Kullman, *Der Schutz von Computer Programmen und-chips in der BRD und in Den USA* 3 (1988).

8. Loewenheim, *Script to the Berlin Symposium*.

9. *Id.*

10. *Id.*

legislative¹¹ initiatives addressing software protection are thus deemed necessary.

As Professor Ulrich Loewenheim¹² noted in his remarks, "the German Federal Supreme Court has set the requirements for copyright protection so high that, as a result, most programs are protected under unfair competition law only".¹³ The speaker scrutinized the legal ramifications of both aspects of reverse engineering: reverse analysis¹⁴ and forward programming¹⁵. The mere analysis of a program does not entail any infringement dangers. The controversy begins with the question of reproduction. Although the input of a program into computer memory amounts to copying in a technical sense, for practical reasons German legal experts propose that it should not fall under the rubric of reproduction.¹⁶ However, even the seemingly clear case of hardcopy output poses considerable uncertainty:

So far the application of the fair use doctrine seems to be the adequate solution. According to existing law, however, this doctrine may not be applicable in such cases. One may already doubt whether it applies to the reproduction of an entire program. But even if such doubts could be dissipated, under German copyright law the fair use doctrine does not apply to computer programs. According to Section 53(4) of the Copyright Act, the reproduction of a computer program 'shall only be permissible with the consent of the copyright owner' even if otherwise such reproduction were within the limits of fair use.¹⁷

Consequently, the speaker conceded the need for a legal model that would also apply the fair use doctrine to reverse analysis.

Forward programming requires closer scrutiny of the ways in which a base program may be used. The postulate that substantial use of the original work should warrant the owner's authorization received wide approval. The approval of unsubstantial use is usually beyond contest and in the German legal system finds its basis in the doctrine of free use.¹⁸ Furthermore, the misappropriation doc-

11. It is important to note that the impact of precedent in the German legal system is very limited. German law is entirely codified and relies primarily on statutes. Therefore, protection of computer technology will most likely be achieved through legislation.

12. Loewenheim, Prof. Ulrich, Universität Frankfurt am Main, Senckenberganlage 31, 6000 Frankfurt, West Germany 31.

13. Loewenheim, *Script to the Berlin Symposium*.

14. *See supra* note 1.

15. *See supra* note 1.

16. Loewenheim, *Script to the Berlin Symposium*.

17. *Id.*

18. *Id.*

trine would not prevent forward programming, barring a case of outright copying. Likewise, the practice of using a program to develop compatible programs would not be forbidden by unfair competition law.

Professor Loewenheim admitted that computer programs posed a new challenge to German law which it could not adequately meet at this time.¹⁹ He offered cautious support to the advocates of developing new legal models for reverse engineering, and tended to favor legislative initiatives. Now, the existing legal regimes remain and thus a stronger effort towards their interpretation might, in Professor Loewenheim's view, yield something fruitful. He placed strongest emphasis, however, on working toward a judicial consensus on an international basis "leading to similar principles worldwide."²⁰

B. *Views of the German Industry*

The German software industry also made its position known at the Symposium, not surprisingly reiterating its unequivocal support for copyright of computer programs. Just like American industry, it firmly opposed any modifications that might weaken the protection established under international conventions.²¹ Thus, the industry postulated strict interpretation of existing copyright provisions. The very concept of reverse engineering in the context of software was viewed with suspicion and the practice itself perceived as a "tool in industrial competition."²² Consequently, any arguments in favor of legal modifications or exclusion from protection were rejected:

A computer program is 'fairly' used if it is used according to the terms which the user has accepted. Whatever might be additionally allowed or tolerated in genuine scientific or private use has no relevance to what is here called reverse engineering as a tool in industrial competition.²³

The German industry hailed the European Community Commission's proposed Directive on computer program protection as reflecting the same views on the issue. This comes as no surprise in view of the fact that the proposed Directive is interpreted by many

19. *Id.*

20. *Id.*

21. Reference is made to copyright regulations supported by established international conventions such as the Berne Convention and the Universal Copyright Convention.

22. Goldrian, *Script to the Berlin Symposium*.

23. *Id.*

as excessively generous to industrial interests.²⁴

C. Other European Views

Professor W.R. Cornish²⁵ from the London School of Economics was one of the advocates who favored establishing a new legal regime for reverse engineering as "the ideal state toward which legal systems should work."²⁶ As previously mentioned, a consensus as to the best way to achieve that goal appeared much more elusive. Whereas some speakers tended to favor a new approach, Professor Cornish suggested "modification within the general fields of patent and copyright/neighborhood rights."²⁷ Further, he drew attention to the practical difficulty of resolving the scope of protection dilemma: "There is a point on the scale of degree where copyright should end that is inherently difficult to fix."²⁸

In response to the speakers who advocated legislative remedies in the form of guidelines for the courts,²⁹ Professor Cornish discounted those ideas as counterproductive:

Incitements from legislatures to take either an extensive or a limited view of infringement are likely to prove to be distractions over which much energy is deflected from the essential business of allowing a judicial moral consensus to emerge.³⁰

The controversy did not spare the proposed European Community Commission's Directive on Software Protection, which continues to elicit heated discussions.³¹ The merits of the Directive were emphasized by Ms. Staines³² from the Commission of the European Communities in Brussels. She summarized the challenge associated with reverse engineering as one of balancing the competing interests of protection of owner rights with public access to information. As the controversy whether reverse engineering is a legal method of divining underlying ideas can only grow in intensity, any effort to develop adequate legal models is certainly appreciated.

24. See *infra* p. 65.

25. Cornish, Prof. W.R., Law Department University of London, The London School of Economics and Political Science, Houghton Street, London WC2A 2AE U.K.

26. Cornish, *Script to the Berlin Symposium*.

27. *Id.*

28. *Id.*

29. See *infra* p. 73 (comments by Keplinger).

30. *Id.*

31. See Staines, *An Assessment of the European Commission's Proposal for a Council Directive on the Legal Protection of Computer Programs*, 6 THE COMPUTER LAW 19 (1989).

32. Staines, Ms. A., Commission of the European Communities, Rue de la Loi 200, B-1049 Brussels, Belgium.

The Symposium itself gave grounds to interesting propositions to this effect. Still, as Ms. Staines contended, the proposed Directive evidenced the most realistic approach to this issue. The document reinforces the basic principles of copyright with the "idea/expression dichotomy" and the right of free access to information (further protected under the European Community competition policy.) This is understandable since, as the speaker admitted, problems lie not in the copyright law per se but "in the grey areas around its parameters."³³ The main merit of the proposed Directive, therefore, is alleged to reside in the fact that it "clarifies the scope of copyright, to remove doubt and to achieve a balance between the legitimate interests of both producers and users of software."³⁴

D. *The Council Directive on the Legal Protection of Computer Programs*

The European Community, rushing to meet the deadline for economic unity after 1992, is fully aware of the importance of intellectual property protection for future software development. That is why theoretical attempts to come up with appropriate common principles are already under way. One such example is the aforementioned European Community Commission's Proposal for a Council Directive on the Legal Protection of Computer Programs. The Directive aims at establishing Europe-wide principles in order to harmonize individual member states' legislation on the issue. Once enacted by the Council, it becomes binding legislation which supersedes national laws.³⁵ As a Directive, it sets the goal for the Community, while leaving specific implementation in the hands of the individual states.

In view of the inherent difficulties in bringing together diverse legal concepts and perceptions of the issue³⁶ it was only to be expected that the Directive would be based on an established international legal framework for copyright.³⁷ The Directive, however, has incurred substantial criticism on the point that it fails to provide a

33. Staines, *Script to the Berlin Symposium*.

34. *Id.* Note, however, that this particular view is contested by numerous European analysts, who interpret the Directive as being unduly protective of the industrial interests.

35. Colyvas, *supra* note 3, at 500.

36. Take for example the diverse originality standards applied by member states. In Germany the standard is set extremely high, while in the Netherlands the difficulties over originality may have explained the withdrawal of planned legislation in this area. What's more, the draft Directive does not solve this problem.

37. The Universal Copyright Convention, The Berne Convention, and other international treaties.

fair balance between the competing interests involved: protection of owner rights and promotion of European public interests. The fact is that the computer software market in Europe is essentially controlled by foreign computer giants to the detriment of European producers striving for a greater market share.³⁸ In the eyes of many, the draft Directive, by favoring more stringent protective measures, offers excessive protection to the current status quo. For example, in the context of reverse engineering, Article 4 of the Draft Directive apparently forbids any kind of independent analysis without authorization by restricting such acts as "reproduction of the program in part or in whole, loading, viewing, running, transmission or storage of the computer program. . . ." Consequently, critics charge that not only "expression" but also "ideas and principles" seem to be protected, contrary to copyright principles and the Commission's stated intentions.³⁹

It is no secret that intense lobbying efforts accompanied the drafting process of the Directive, thus prejudicing the public interest issues.⁴⁰ The European software industry is in danger of being permanently stunted should the current Directive be adopted. In that case the intended harmonization would almost certainly fail as legislative pressures in individual states to protect the local interests would weaken and circumvent the provisions of the Directive. This, in effect, is implied in warnings that the Directive, though purporting to offer clear solutions to the major problems of copyright protection, leaves major questions unresolved.⁴¹ It is very likely that the present draft Directive will undergo further modifications in response to the voiced criticisms and objections. Whether the final version will successfully achieve the stated intentions of clarification and harmonization remains an open question. On the basis of the legal debates articulated during the Berlin Symposium it can be fairly safely assumed that — any possible future modifica-

38. Staines, *supra* note 34.

39. *Id.*

40. "A general and major criticism of the Draft Directive must be the extent to which the current dominators of the European market are protected by it. There appears to have been extensive consideration of the "protection" of suppliers' interests, but very little examination of the European public interest, "promotion" of the European software industry, or consideration given to whether Europe has more to gain by having a less stringent protective regime."

41. For example, unresolved issues include how to use the law of copyright to effectively balance the competing interests of protecting intellectual property rights and the need for access to information to allow competition, and how to harmonize the laws of member states in order to produce a standard regime of regulation throughout the community. See Staines, *supra* note 34.

tions that might intervene before the Directive becomes law notwithstanding — the established international protective regimes for software will stand as the legal framework for Europe after 1992.

III. JAPANESE VIEWPOINTS

In the course of recent decades the Japanese law evolved in the shadow of the American legal model. Still, it is no secret that the extraordinary technological development in Japan utilized the achievements of others on a grand scale. Fierce competition among producers is taken for granted and considered by many the key to successful development. So, as could be expected, the Japanese participants at the Symposium presented a fairly unified stand in favor of reverse engineering.

Attorney Shigeru Miki⁴² noted that the Japanese Copyright Act featured “no clear article expressly permitting reverse engineering.”⁴³ Thus, arguments against reverse engineering would point out two elements: first, that dump and disassembly constitute unauthorized reproduction infringing copyright, and second, that it permits acquisition and possible gainful use of technology developed by the owner at great expense of money and effort. The first charge was actually tested in Japanese court in the 1987 case, *Microsoft v. Shuwa*.⁴⁴ In that case the District Court of Tokyo concluded that the publication of a source list, which was obtained by disassembling an interpreter program of a personal computer, would constitute copyright infringement.⁴⁵ Mr. Miki who, incidentally, successfully argued the case, noted, however, that the decision referred to the publication and sale of the source list, while the act of disassembly was neither frowned upon, nor the legality of reverse engineering even discussed.⁴⁶ Mr. Miki contended that accepting that argument would in effect undermine the original developer’s incentive to make a contribution to technological development. That, he stressed, would become a “debilitating factor in society.”⁴⁷ This outright reference to the society’s interest and the necessity for

42. Miki, Shigeru, Attorney at Law, Miki Law Office, Akasaka Palace Building 6F, 1-4-21 Motoakasaka, Minato-ku, Tokyo 107.

43. Miki, *Script to the Berlin Symposium*.

44. Judgment of Jan. 30, 1987, Chiho Saibansho (Tokyo Dist. Ct.) 1219 Hanreijihou 48.

45. *Id.*

46. Miki, *Script to the Berlin Symposium*.

47. *Id.*

technological development was a salient feature in the Japanese arguments.

Scholarly proponents of reverse engineering, like Professor Abe,⁴⁸ who spoke at the Symposium, base their arguments on Article 1 of the Japanese Copyright Act.⁴⁹

The protection of a copyright owner under the Copyright Act has to be carried out 'by taking the just and fair utilization of these cultural achievements into consideration and to contribute thereby to the development of culture.' For this reason, restrictions on the copyright owner's rights are unavoidable.⁵⁰

To Mr. Miki, the purpose of this Article 1 is of such magnitude as to make these restrictions apply also in the context of reverse engineering practices.⁵¹

Although no article in the Japanese law expressly permits reverse engineering, Mr. Miki suggested that Article 47-2 of the Copyright Act⁵² (similar to section 117 of the U.S. Copyright Act) "might be considered to permit such an act."⁵³ Essentially its stipulation refers to efforts in adapting a program for use on different hardware where:

. . .dump and disassembly are absolute necessities to find the part which is needed and thus transplant it . . . Therefore, it has to be interpreted that not only the act of transplanting and obtaining results should be permitted, but also the act of dump and disassembly to convert object code to source code.⁵⁴

48. Abe, Prof. Kouji, Okayama University, RA-303, 1-3 Tsushimanaka, Okayama-shi 70 Japan.

49. Japanese Copyright Act, Article I stipulates: The purpose of this Law is, by providing for the rights of authors and the rights neighboring thereto with respect to works as well as performances, phonograms, broadcasts and wire diffusions, to secure the protection of the rights of authors, etc. having regard to a just and fair exploitation of these cultural products, and thereby to contribute to the development of culture.

50. Miki, *Script to the Berlin Symposium*.

51. *Id.*

52. Japanese Copyright Act, Article 47-2 provides:

"1. The owner of a copy of a program work may, to the extent deemed necessary for such owner to utilize such work in a computer, reproduce or adapt the work concerned (including the reproduction of a derivative work made from such work). Provided that this shall not apply if the provisions of Art. 113, paragraph 2 shall apply to the use of the copy thus utilized. 2. In cases where the owner of a copy as referred to in the preceding paragraph loses his or her right to ownership of any such copy (including any copy which was made according to the provisions of the said paragraph) due to causes other than destruction, he or she shall thereafter not maintain such copy, unless an intention to the contrary is declared by the copyright owner concerned."

53. Miki, *Script to the Berlin Symposium*.

54. *Id.*

Under Article 47-2,⁵⁵ however, only private use of a copyrighted work is permitted. So, to justify research and experimentation purposes, the speaker turned to Article 32⁵⁶ of the same Act which states: "A work already made public may be utilized in quotations, provided that the quotations shall comply with fair practice and shall be made within justifiable scope in light of the purpose of the quotations such as news reporting, criticism, or research."⁵⁷ The speaker treated these provocative theoretical arguments as legal issues submitted for discussion. Obviously, they drew sharp criticism from the status quo defenders, but helped to underscore the wide scope of divergent views on the subject.

A strong bid for a new legal regime to deal with the fruits of technological progress was made by Attorney Masaharu Ohashi.⁵⁸ He commented that:

A computer program has the primary purpose of conveying signals to a computer and it is of little significance to communicate the message expressed by computer language to a human reader. It is reflected in the fact that not all programs are expressed in a human-comprehensible way, even if their expression is original. Such types of works have not been anticipated by the traditional principles of copyright law.⁵⁹

Even the generally accepted "idea/expression dichotomy" did not escape criticism as being obsolete and restrictive. Drawing upon the concern for cultural advancement embodied in Article 1 of the Japanese Copyright Act,⁶⁰ the speaker cautioned that copyright law may actually contradict itself if it is applied to prohibit access to and the production of new ideas. Consequently, the scope of protection under copyright needs to be reconsidered, while reverse engineering (in the sense of "analysis") should be placed outside the purview of the owner's exclusive rights:

What is needed today is to construct a new copyright system meeting the needs of a new technological age. For this reason, it is necessary to distinguish between the area to be properly covered by the copyright system and the area to be best left to another legal system.⁶¹

55. Japanese Copyright Act, Article 47-2.

56. Japanese Copyright Act, Article 32.

57. Miki, *Script to the Berlin Symposium*.

58. Ohashi Masaharu, Attorney at Law, Abiru, Okazaki & Ohashi, New Ochanomizu 402, 1-9 Awajicho, Kanda, Chiyoda-ku, Tokyo 101.

59. Ohashi, *Script to the Berlin Symposium*.

60. Japanese Copyright Act, Article 1.

61. Ohashi, *Script to the Berlin Symposium*.

This succinct conclusion met with firm criticism but also gained considerable sympathy.⁶²

IV. AMERICAN VIEWPOINTS

The scope of owner rights afforded by American copyright law,⁶³ was strongly defended by Victor Siber,⁶⁴ corporate counsel to IBM, who argued that attempts to "sneak" various aspects of the reverse engineering process (copying, adaptation etc.) under the rubric of permissibility constituted an assault on those rights. In particular, he criticized the purpose-oriented advocacy of reverse engineering:

This approach, i.e., that the end justifies the means, subverts the rights of the owner of the copyright in the subject program. Copyright owners have the exclusive right not only to distribute their works publicly, but also to adapt, alter and translate them. Moreover, it is misleading to depict the purposes of reverse engineering as particularly worthy. Group II and Group III activities [basically involving forward programming] are undertaken in a commercial setting: their ultimate purpose is to make money for the reverse engineer. In the United States, use for commercial purposes is presumptively not a fair use.⁶⁵

Mr. Siber suggested exploring market solutions to these issues, in the form of bilateral negotiations and license acquisitions, as the preferential alternative to chipping away at copyright owners' rights. The copyright law itself was, in his view, sound and successful in dealing with new challenges:

The copyright law has been quite able to deal with new technology, i.e., films, video tapes, compact discs, computer programs. Literary works such as textbooks, encyclopedia, manuals, telephone books, examinations, etc. have some uniqueness, but the strength of our current legal system is that it can accommodate and support the fundamental rights in all of these works, without special categories or exclusions.⁶⁶

The above reasoning contrasted sharply with the cautious optimism exuded by the pro-reverse engineering "side," as exemplified

62. "I am in agreement with Mr. Ohashi that the ideal state towards which legal systems should work must be one in which computer programs are separately treated." Cornish, *Script to the Berlin Symposium*.

63. See 17 U.S.C. § 102 (1980).

64. Victor Siber, IBM Corporate Counsel, Intellectual Property Law Staff Services, Route 52, Bldg. 300, 428 Hopewell Junction, New York 12533.

65. Siber, *Script to the Berlin Symposium*.

66. *Id.*

by the comments of Attorney Richard H. Stern⁶⁷ of Washington, D.C. Drawing upon the decision in the *NEC v. Intel*⁶⁸ litigation — where Judge William Gray ruled with unprecedented clarity that the information gained from analyzing a pre-existing program and the utilization of aspects of that program (even the listing and disassembly of the Intel microcode) was functional and legitimate reverse engineering given NEC's desire for total hardware compatibility — the speaker pointed to some promising elements:

The first thing that strikes one in the *NEC/Intel* decision is its very favorable attitude toward reverse engineering of software and its acceptance of the propriety of NEC's engineering efforts to understand the 8086/8088 microcode in order to develop competitive products. In this regard, the decision appears much more favorably disposed toward reverse engineering than most prior U.S. software copyright decisions and the prior prevailing legal evaluation by United States counsel.⁶⁹

Furthermore, the speaker viewed the *NEC v. Intel* decision as indicative of two important developments: bringing closer the perceptions of reverse engineering in the contexts of hardware and software, and converging the legal and the technological concepts of permissible reverse engineering.⁷⁰ The rationale proffered by the speaker for favoring these developments centered squarely upon the concept of the public interest:

The basic purpose of the United States copyright laws is to promote the progress of science (and to the extent that copyright is applied to industrial property, to encourage the progress of useful arts). The copyright law accomplishes this purpose by rewarding authors and publishers (and presumably investors in the creation of new works) who disclose their works to the public. The reward is an instrument, however, rather than an end in itself. The ultimate purpose is to benefit the public rather than simply to create private fortunes for authors, publishers or investors.⁷¹

Caution, however, was called for, as the eventual continuation of this judicial momentum is by no means assured. Certain provisions in the copyright law which Mr. Stern considers incongruent with

67. Stern, Richard H. R.H. Stern Law Office, 1300, 19th Street, N.W., Suite 300, Washington, D.C. 20036.

68. *NEC Corporation v. Intel Corporation*, No. C-84-20799-WPG (N.D. Cal. 1989).

69. Stern, *Script to the Berlin Symposium*.

70. *Id.*

71. *Id.*

the needs of technology and society stand in the way.⁷² It did not pass unnoticed by other participants as well that on many points the *NEC v. Intel* decision seems to run counter to stipulations in the copyright law. The speaker identified two areas of discrepancy: listing and disassembling a computer program (acts of reproduction) and recovery of profits attributable to copyright infringement.⁷³ Whether future courts will continue the trend set by the *NEC v. Intel* case or revert to the restrictive spirit of previous decisions remains to be seen. Mr. Stern advocated clarifying the statutory language to eliminate the alleged "incongruities."

Faced with the exasperating nature of problems related to the meaning and definition of reverse engineering and program protection, numerous voices rose in favor of developing a separate legal regime for computer programs. However, there was no consensus as to how that state should be achieved. Naturally, this idea drew strong opposition from the defenders of the status quo. Michael S. Keplinger,⁷⁴ representing the United States Patent and Trademark Office in Washington, D.C., presented a cogent defense of the American copyright law and its relevance to computer program protection. In his view, computer programs are types of literary works to be protected under the principles of international conventions, and should not be accorded any special exceptions.⁷⁵ The overriding value of the copyright law subsists in its capacity to offer adequate protection of due rights balanced with appropriate concern for competition and public interest. Likewise, the speaker contended that sufficient legal safeguards existed for other contentious points in software protection (algorithms, processes and principles of operation) and, thus, "no modification to those legal regimes appear to be needed."⁷⁶

In an argument opposing the ideas of limitations on program copyright, Mr. Keplinger indirectly enunciated a clear rebuke to the German legal position on the essential issue of originality. As mentioned above, program copyright protection in Germany is for all practical purposes unobtainable due to the requirement of a "high level of originality."⁷⁷ The American position opposes any quantitative threshold in this regard:

72. *Id.*

73. *Id.*

74. Michael S. Keplinger, United States Patent and Trademark Office, Office of Legislation and International Affairs, Washington, D.C.

75. Keplinger, *Script to the Berlin Symposium*.

76. *Id.*

77. *Id.* See *infra* p. 61.

There is no need to qualify the quantum of originality needed to support a program copyright than copyright in any other work. The concept of 'commonplace in the software industry'⁷⁸ would at best be difficult to apply, if not impossible to apply in practice, and a higher standard of originality could leave many commercially valuable programs unprotected.⁷⁹

On the important question of the distinction between "idea" and "expression," Mr. Keplinger also took issue with those who argue that currently proscribed methods of analysis such as decompiling should be legitimized as necessary for effective subject program examination:

Copyright law does not prevent the second programmer from implementing the same ideas by developing an original program of his own independent authorship; but he may not copy, adapt, or translate the original author's expression of the ideas, or exercise any of the other exclusive rights of the copyright owner without authorization. Permitting decompiling or other forms of copying of the program for such purposes simply is not necessary, and may add needless exposure to opportunities for pirating the program.⁸⁰

Cases of program infringement today rarely involve issues of direct copying but, in turn, necessitate close scrutiny of questions of access and substantial similarity. In Mr. Keplinger's view, access is somewhat easier to ascertain, as it can be presumed "in a case in which a second-comer has used a pre-existing work to develop a new work," and when even the viewing of reproduced copies of the program or derivative works "establishes a prima facie case of access."⁸¹ Substantial similarity, however, poses more of a challenge because "one must carefully determine what is protected expression and what is unprotected idea, method, system of operation, or process."⁸² Consequently, one general determination is clearly impossible and judicial decisions can only be ad hoc, according to specific facts of each case. Mr. Keplinger felt that the proper way to remedy this situation would be to establish legislative guidelines for the courts, rather than attempt to "legislate specific exclusions from copyright protection."⁸³ Those guidelines would be flexible enough to allow judges

78. The concept refers to commonly used standard computer programs which many argue should be excluded from copyright protection.

79. Keplinger, *Script to the Berlin Symposium*.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

to respond to the fast-changing technological environment. Concluding these remarks was a strong argument in favor of copyright:

The appropriate application of traditional principles of copyright provides guidance for drawing guidelines to ensure that copyright protection does not go beyond its boundaries and that the interest of both producers and users of programs will be protected. This suggests that copyright, with its exclusion of protection for ideas, provides the appropriate legal forum in which to address issues concerning the details of legal protection for programs.⁸⁴

The American views on this subject were closely scrutinized by other participants because American legal thought is viewed as being the most advanced in this area. As Europeans strive to adapt their laws to the modern technological environment, the American experience offers a convenient learning ground.

V. FINAL OBSERVATIONS ON THE SYMPOSIUM

The Symposium has served its purpose well in providing a forum for intellectual debate of the highest caliber on the timely issue of reverse engineering. The very fact that it took place in Germany underscores the growing interest and concern over reverse engineering in a legal environment which seemed to have taken notice of it only recently. Still, the ramifications stretch even further, for what is really at stake is the future of software industries, European, Japanese and American, in united Europe after 1992.

As evidenced at the Symposium, it is much easier to state the problems than to offer solutions. The problems associated with reverse engineering are not likely to be resolved soon, as even basic controversies over definitions linger on. Still, the battlefield is fairly well drawn. The conflict involves the protection of competing interests, i.e., owner rights and public access. It is clear that striking a fair balance will require all the genius international political and judicial systems can possibly muster.

84. *Id.*