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Leo J. Raskind

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# PROTECTING COMPUTER SOFTWARE IN THE EUROPEAN ECONOMIC COMMUNITY: THE INNOVATIVE NEW DIRECTIVE

*Leo J. Raskind\**

The European Council Directive of May 14, 1991 entitled, "On The Legal Protection of Computer Programs", (the Directive) announces a major development in this branch of copyright law.<sup>1</sup> This Directive provides a framework of common principles of software protection to govern the member nations of the Economic Community. Its text reflects the culmination of an active debate among copyright specialists about computer software protection that was initiated by the publication of the earlier, provisional statement in the Green Paper of 1988 (the Green Paper).<sup>2</sup> After the Council of the European Community adopted the Directive, it acquired the force of law within the Community, ordering compliance by January 1, 1993. A second consequence of the promulgation of this Directive is the lively debate that will ensue in the several national legislatures as each body begins the task of interpreting and applying the general principles of the Directive to the legislative task of conforming the copyright law of each State to the Community norms set out in the Directive. The Directive warrants the attention of copyright watchers outside the Community, for it presents an innovative synthesis of various approaches to the principal problems in software protection.

Recognition of the complexity and controversy raised by the adaptation of traditional copyright doctrines to this new technology is reflected in the Preamble to the Directive (the Pream-

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\* Visiting Professor, Brooklyn Law School, I express my appreciation for the constructive comments from Jane C. Ginsburg and Richard H. Stern on an earlier draft.

1. Council Directive 91/250 on the Legal Protection of Computer Programs, 1991 O.J. (L 122) 45 [hereinafter Council Directive].

2. Commission of the European Communities, Green Paper on Copyright and Challenge of Technology — Copyright Issues Requiring Immediate Action, June 7, 1988, COM(88)172 final [hereinafter Green Paper]. For the background of the evolution of the several White Papers that set out the Internal European Market by January 1, 1993, see Alfred P. Meijboom, *Software Protection in 'Europe 1992,'* 16 RUTGERS COMPUTER & TECH. L.J. 407 (1990); Robert J. Coleman, *The 1991 Horace S. Manges Lecture — Intellectual Property and the European Community After 1992,* 15 COLUM.-VLA J.L. & ARTS 117 (1991).

ble). Initially, there is the recognition of the distinctive nature of computer software programs, as well as an appreciation of the importance of the computer industry to the economic development of the Community.<sup>3</sup> Thus, the Preamble notes that the production of software programs requires the investment of considerable "human, technical, and financial resources that may be appropriated by copying at a fraction of the costs of development."<sup>4</sup> The task of legislating copyright protection for software also requires striking a balance between the economic incentive of the author and the societal interest in promoting the development of software. Finally, the implementation of the Directive will necessarily modify the copyright law of member states by reducing the essentially territorial character of copyright protection.<sup>5</sup>

Substantial changes in the national laws of some member states may be required by the Directive. Membership in the Berne Convention<sup>6</sup> or the Universal Copyright Convention<sup>7</sup> by the member states of the Community requires only that the copyright laws of the member states are not incompatible with essential elements of the treaty provisions. For example, uniformity in the scope and duration of copyright protection is not required for adherence to the Conventions. However, the Directive mandates harmonization of the copyright laws of the member states in conformity with the Directive's stated norms. In some member states, there are substantial differences between the Directive and existing national law. For example, there are differences in the threshold requirement of "originality" among the German, French, and United Kingdom copyright laws, as well as variations in the duration of protection, among other differences.<sup>8</sup>

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3. Council Directive, *supra* note 1, pmb1.

4. Council Directive, *supra* note 1, pmb1.

5. Arthur Fakes, *The EEC's Directive on Software Protection and Its Moral Rights Loophole*, 5 SOFTWARE L.J. 531 (1992); Andre Lucas, *Copyright in the European Community: The Green Paper and the Proposal for a Directive Concerning Legal Protection of Computer Programs*, 29 COLUM. J. TRANSNAT'L L. 145 (1991); Mark P. Tellini, Note, *Uniform Copyright Protection for Computer Software in the EEC*, 13 B.C. INT'L & COMP. L. REV. 483 (1990); Dennis Cline, Comment, *Copyright Protection of Software in the EEC: The Competing Policies Underlying Community and National Law and the Case for Harmonization*, 75 CAL. L. REV. 633 (1987).

6. Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, revised July 27, 1971, 25 U.S.T. 1341, 828 U.N.T.S. 221.

7. Universal Copyright Convention, July 24, 1971, 25 U.S.T. 1341.

8. Andre Lucas, *The Council Directive of 14 May 1991 concerning the Legal Pro-*

The Directive also announces some innovative changes. The Preamble seemingly accepts the practice of reverse engineering, without ever using this phrase, by noting that the user of a computer program may not be "prevented from performing acts necessary to observe, study, or test the functioning of the program."<sup>9</sup> Limited acceptance of the practice of reverse engineering is suggested by the reference to the need for "interoperability" in Article 6 of the Directive.<sup>10</sup> Many industry people assert that reverse engineering is a necessary requirement for technological progress in the industry but that view was hotly disputed in the deliberations over the Directive.<sup>11</sup> The Preamble also sanctions some reverse engineering in conjunction with the use of a computer program by permitting such reproduction as is consistent with "fair practice."<sup>12</sup> Indirect support for the practice of reverse engineering may be inferred from the reference in the Preamble to Articles 85 and 86 of the Treaty of Rome.<sup>13</sup> By expressly preserving the supremacy of these latter treaty provisions that restrict certain anti-competitive practices, as well as the abuse of a "dominant [market] position" by a competitor, the Directive may be interpreted as sanctioning reverse engineering as an aspect of competition as required under Community law. Despite these references, the Directive takes a restrictive view of reverse engineering.

## I

Turning to substantive parts of the Directive, it is apparent from the text of Article I that this provision resolves the conflict

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*tection of Computer Programs and its Implications in French Law*, 14 EUR. INTELL. PROP. REV. 28 (1992). For implications on German law, see Anthony Nolan, *Brave New World? Copyright Protection of Computer Programs in Germany & France in Light of European Software Directive*, 39 J. COPYRIGHT SOC'Y 121 (1991).

9. See *infra* pp. 743-48. See also Mindy J. Weichselbaum, Note, *The EEC Directive on the Legal Protection of Computer Programs and the U.S. Copyright Law: Should Copyright Law Permit Reverse Engineering of Computer Programs?* 14 FORDHAM INT'L L.J. 1027 (1991).

10. Council Directive, *supra* note 1, art. 6.

11. For an expression of this position by the Business Software Alliance, a trade association of software manufacturers, see Michel Colombe & Caroline Meyer, *Interoperability Still Threatened by EC Software Directive: A Status Report*, 9 EUR. INTELL. PROP. REV. 325-26 (1990); see also Andrew Johnson-Laird, *Reverse Engineering of Software: Separating Legal Mythology From Actual Technology*, 5 SOFTWARE L.J. 331 (1992).

12. Johnson-Laird, *supra* note 11.

13. TREATY ESTABLISHING THE EUROPEAN ECONOMIC COMMUNITY.

over the optimum intellectual property regime for the protection of computer software.<sup>14</sup> By expressly selecting copyright law and characterizing computer programs as literary works, the Directive effectively ends the discussion over *sui generis* protection for programs. Despite the difficulty of adapting copyright doctrines to the protection of software programs, in part because of the utilitarian and mechanical aspects of software programs, the Directive is clear and unequivocal in its selection of copyright law.<sup>15</sup> In this approach, the Directive continues the position taken in the earlier Green Paper and follows the pattern of the United States and most member states of the Community. Overall, the Directive presents a series of compromises. Having rejected *sui generis* protection for software, it provides a framework of interpretation of traditional copyright doctrines that takes account of the essentially utilitarian nature of computer programs.

Presumably, the preference for the copyright regime rather than for protection by patent, trade secret, misappropriation, or other means can be justified by the recognized benefits of copyright. First, there is the low cost of obtaining protection immediately upon fixation of the work. Second, traditional copyright doctrines serve well to protect subject matter that is distributed in copies that may be cheaply and easily replicated.<sup>16</sup> Finally, the copyright regime affords a flexible framework within which courts may strike a balance between the scope of the right holder's protection and the countervailing rights and interests of users, competitors, and the public.

While the Directive has clearly foreclosed the possibility of *sui generis* legislation in the Community, the possibility of patent protection of computer programs remains to a limited extent. Under the European Patent Convention,<sup>17</sup> the controlling patent law of the Community, patent protection of computer software is expressly excluded by Article 52.<sup>18</sup> The force of this

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14. Article I provides in material part, "In accordance with the provisions of this Directive, Member States shall protect computer programs, by copyright, as literary works with the meaning of the Berne Convention . . ." Council Directive, *supra* note 1, art. 1.

15. Peter S. Menell, *An Analysis of the Scope of Protection for Application Programs*, 41 STAN. L. REV. 1045, 1072-79 (1989).

16. Stanley M. Besen & Leo J. Raskind, *An Introduction To The Law and Economics of Intellectual Property*, 5 J. ECON. PERSP. 3, 11 (1991).

17. European Patent Convention, Oct. 5, 1973, art. 52, 13 I.L.M. 268 (1974).

18. Article 52(2) provides: "The following in particular shall not be regarded as in-

position has, however, subsequently been qualified by Guidelines for Examination in the European Patent Office (Guidelines).<sup>19</sup> The Guidelines interpret Article 52 as a prohibition only against patent protection of a computer software application program standing alone. The Guidelines would permit patent protection of an invention in which the computer program was an element. As the Guidelines explain: "[I]f . . . the subject matter as claimed makes a technical contribution to the known art, patentability should not be denied merely on the ground that a computer program is involved in its implementation."<sup>20</sup>

Subsequent case law limits the scope of patent protection of software to inventions in which the software program is only an ancillary feature.<sup>21</sup> Presumably, the theory of restricting patent protection of computer program algorithms, as such, is that the program serves only to make an existing technology more efficient. Under this analysis, there is patentable subject matter only if there is a process that independently qualifies when the computer program is removed from consideration.

While the scope of patent protection remains narrow, Article 9(1) of the Directive provides, with uncertain effect, for protection of software under cognate branches of intellectual property law.<sup>22</sup> As the relationship between the Directive and the European Patent Convention noted above illustrates, there is an illusory aspect to the enabling language of Article 9(1). For, like patents, the protection of semi-conductor products is one of the

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ventions . . . (c) schemes, rules and methods of performing mental acts, playing games, or doing business, and computer programs." Council Directive, *supra* note 1, art. 52(2)(c).

This treaty, the European Patent Convention, *supra* note 17, was adopted by the Community's nine member states in 1975 and is known as the Community Patent Convention under which there is a single patent regime for all Community member states. See Convention for the European Patent for the Common Market, Dec. 15, 1975, 15 I.L.M. 5.

19. See *supra* note 18.

20. Guidelines For Examination In the European Patent Office, Part C-IV, Sec. 2.

21. Case T26/88, Koch & Sterzel GmbH & Co. V. Siemens AG Philips Patentverwaltung GmbH Application, 2 E.P.O.R. 72 (1988). The United States Court of Appeals for the Federal Circuit has recently held that application of abstract mathematical reasoning to a specific process may be patented. *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992).

22. Article 9(1) provides in relevant part that nothing in the Directive shall prejudice ". . . other legal provisions such as . . . patent rights, trade-marks, unfair competition, trade secrets, protection of semi-conductor products, or the law of contracts." Council Directive, *supra* note 1, art. 9(1).

areas selected by the Community for harmonization.<sup>23</sup> Accordingly, the ability of a member state to protect semi-conductor products will be circumscribed by the harmonization requirements of that Directive. Trade secret protection, unfair competition doctrines, and contractual arrangements, however, remain fully governed by the law of member states, since the Community has not stated an intention to harmonize these bodies of law.

With regard to contractual arrangements, however, there is a qualification on the scope of national laws within the Software Directive itself. Article 9(1) of the Directive places two constraints on contract rights relating to software. Under Article 9(1), a contract provision is null and void that undertakes to limit the right of the user to decompile in order to achieve compatibility or to reproduce and study a protected program as part of that objective.<sup>24</sup> Similarly, there cannot be a valid contractual provision restricting the right of a rightful owner to make a back-up copy.<sup>25</sup> Accordingly, attempts to use contracts of adhesion to limit specific uses of computer programs will have little scope in the Community.

One issue of potential conflict between the Directive and existing copyright legislation of some member States is the determination of the threshold of copyright protection. Under Article 1, the Directive grants protection to computer programs as literary works, a statement of a traditional copyright doctrine that incorporates the concept of originality under the copyright laws of the common law jurisdictions.<sup>26</sup> In recognition of this interpretation, Article 1(3) of the Directive provides a definition of originality for purposes of the Directive that states the accepted interpretation under the copyright law of the United States and the United Kingdom.<sup>27</sup> In so doing, the Directive poses an issue of accommodation with the copyright laws of the Netherlands<sup>28</sup> and of France.<sup>29</sup> The conflict might arise under Netherlands'

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23. See Council Directive Concerning the Protection of Topographies of Semi-Conductor Products, 1987 O.J. (L 24) 36.

24. Council Directive, *supra* note 1, art. 9(1).

25. Council Directive, *supra* note 1, art. 9(1).

26. See 17 U.S.C. § 102(a) (1988). See *infra* note 29.

27. 17 U.S.C. § 102 (1988); Copyright, Designs and Patent Act, Ch. I(1)(a) (1988).

28. See Meijboom, *supra* note 2, at 425.

29. See Meijboom, *supra* note 2, at 425; Anthony Nolan, *Brave New World? Copyright Protection of Computer Programs in Germany and France in Light of European Software Directive*, 39 J. COPYRIGHT Soc'y 121 (1991); Jane C. Ginsburg, *French Copy-*

law, where there has been some pressure for protecting software as a "writing," rather than as a "literary work."<sup>30</sup> As a writing, a program could be eligible for copyright protection to some extent, even if the claimant merely reduced a program in circulation to tangible form or produced a minor variation of it. Article 1(3) of the Directive states a higher requirement. Copyright protection may attach only if the program is the work product of the author and that program reflects a modicum of intellectual creativity.<sup>31</sup>

There is also a conflict between the threshold of protection under the Directive and that of French copyright law. Under the French Copyright Protection Amendment of 1985,<sup>32</sup> protection is given in a *sui generis* fashion to a distinct category of works designated as "logiciels."<sup>33</sup> This special category requires no element of intellectual creativity by the claimant.<sup>34</sup> The Directive is also at odds in this regard with German copyright law. As interpreted, German copyright law imposes a requirement of some discernable achievement above that of the average computer programmer in order for protection to attach.<sup>35</sup>

In selecting the common law standard of originality for the Community, the Directive provides a useful standard of conformity for the member states. The common law standard has the feature of simplicity to commend it. Protection is established on fixation so long as the work is that of the claimant, the work as a whole consists of more than a trivial variation of existing material, and the work reflects some modicum of creative, intellectual activity.<sup>36</sup> An added advantage of the common law

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*right Law: A Comparative Overview*, 36 J. COPYRIGHT Soc'y 269, 280-81 (1988).

30. See Meijboom, *supra* note 2, at 425.

31. See Leo J. Raskind, *The Continuing Process of Refining and Adapting Copyright Principles*, 14 COLUM.-VLA J.L. & ARTS 125 (1990).

32. French Copyright Protection Amendment of 1985, C. Civ. art. 3 (87th ed. Dalloz 1982-1988).

33. See Nolan, *supra* note 29, at 146-50; Ginsburg, *supra* note 29.

34. See Meijboom, *supra* note 2, at 425.

35. See Inkassoprogram decision of May 9, 1985, GRUR no. 12, 1041 (1985) (Protection requires a strict standard of originality beyond that created by an average programmer.).

36. One formulation under U.S. copyright law is that of Judge Jerome Frank in *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 103 (2d Cir. 1951). He wrote, "Originality in this context means little more than a prohibition of actual copying." *Id.* at 103. (quoting *Hoague Sprague Corp. v. Frank Meyer Co.*, 31 F.2d 583, 586 (2d Cir. 1929)). More recently the Supreme Court of the United States added some modicum of creativity as a requisite in *Feist Publications v. Rural Telephone Service Co.*, 111 S. Ct. 1282 (1991). In applying this new standard, Judge Newman wrote in *Kregos v. The Asso-*



standard of originality is that it defined a fairly coherent body of case law in the United States that can serve to illuminate marginal issues.<sup>37</sup> The functional significance of selecting this standard of originality is to protect software at minimal cost upon completion of the work, thereby avoiding the expense and delay associated with patent protection.

A further consequence of protecting software under copyright law is reliance on the idea/expression dichotomy.<sup>38</sup> This basic doctrine of copyright law serves in tandem with the concept of "originality" to trim the scope of copyright protection granted a right holder.<sup>39</sup> Like Section 102(b) of the United States Copyright Act, Article 1(2) of the Directive provides that protection is limited "to the expression in . . . a computer program." Also like Section 102(b), Article 1(2) bars protection for "ideas and principles."<sup>40</sup>

In contrast to rather settled case law defining "original," the case law in the United States has not developed a clear direction in making the idea/expression distinction with regard to software.<sup>41</sup> An early, flawed decision took the simplistic view that there could be only one "idea" underlying a computer program.<sup>42</sup> Recent decisions reflect a better understanding of the nature of software programs by taking account of the constituent elements of the program.<sup>43</sup> This approach has the merit of

ciated Press, 937 F.2d 700, 705 (2d Cir. 1991), that the claimant of copyright protection for a compilation would first have to "demonstrate originality . . . [and then] to demonstrate that the selection was [insufficiently] creative." *Id.*

37. See *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930) (announcing the patterns test for distinguishing "idea" from "expression"). For a discussion of the application of this test, see BENJAMIN KAPLAN, AN UNHURRIED VIEW OF COPYRIGHT 48 (1966). See also Richard H. Stern, *Copyright In Computer Programing Languages*, 17 RUTGERS COMPUTER & TECH. L.J. 321, 364-68 (1991) (describing inappropriate application of this distinction in software cases).

38. *Feist Publications Inc. v. Rural Telephone Co.*, 111 S. Ct. 1282 (1991); *L. Batlin & Son v. Snyder*, 536 F.2d 486 (2d Cir. 1976); *Alfred Bell*, 191 F.2d at 99.

39. *Feist Publications, Inc.* 111 S. Ct. at 1287 (no one may claim originality as to facts).

40. Compare 17 U.S.C. § 102(b) (1988) and Council Directive, *supra* note 1, art. 1(2).

41. Pamela Samuelson, *Computer Programs, User Interfaces, and Section 102(b) of the Copyright Act of 1976: A Critique of Lotus v. Paperback*, 55 LAW & CONTEMP. PROBS. 311 (1992).

42. "The purpose or function of a utilitarian work would be the work's idea, and everything [else] . . . would be part of the expression." *Whelan Associates v. Jaslow Dental Lab.*, 797 F.2d 1222, 1236 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987).

43. *Computer Associates Int'l, Inc. v. Altai, Inc.*, 775 F. Supp. 544, 560 (E.D.N.Y. 1991), *aff'd*, 1992 WL 139364 (2d Cir. June 22, 1992); *Sega Enter. Ltd. v. Accolade, Inc.*,

facilitating the distinction between the expression and the underlying idea in a software program by its focus on the structural elements of the program, e.g., the object and source code, parameter lists, services required, and the general outline. From this perspective, infringement may be determined by a series of comparisons of these intrinsic features of the program, instead of by matching amorphous, extrinsic criteria such as overall purpose, structure, sequence, and organization. Since recent case law seems to offer a workable judicial approach to the idea/expression determination, the reliance of the Directive on this approach offers a functional norm for national laws to follow.

Once the conditions and scope of protection are established under Articles 1 and 2 of the Directive, attention is directed to the identification of the right holder to complete the process of copyright protection.<sup>44</sup> Articles 2 and 3 of the Directive address the tangled issue of ownership.<sup>45</sup> The traditional approach of copyright law to this issue begins with the grant of the right to the creative person when the expression in a work of authorship is fixed in a tangible form.<sup>46</sup> A corollary of this principle holds that works prepared by employees in the course of their employment makes the employer the right holder.<sup>47</sup> Within this framework of polar alternatives, troublesome characterization problems have arisen where the creative person is neither an employee nor an independent creative person. The most troublesome cases involve one person commissioning another to prepare a protected work in which fundamental aspects of the design and some supervision are provided by the commissioning person.<sup>48</sup>

Article 2 of the Directive states the basic principle that the copyright belongs to the creative person, except where the person is an employee hired for the creative task or under instruction of the employer.<sup>49</sup> The Directive takes the position in the employer/employee cases, that the employer (natural person or

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No. 92-15655, 1992 WL 293141 (9th Cir. Oct. 20, 1992).

44. Council Directive, *supra* note 1, arts. 1 & 2.

45. Council Directive, *supra* note 1, arts. 2 & 3.

46. Julie Katzman, Note, *Joint Authorship of Commissioned Works*, 89 COLUM. L. REV. 867 (1989).

47. I.T. Hardy, *Copyright Law's Concept of Employment: What Congress Really Intended*, 35 J. COPYRIGHT Soc'y 210 (1988).

48. See, e.g., *Community For Creative Non-Violence v. Reid*, 490 U.S. 730 (1989) (sculptor given detailed instructions of design of statue).

49. Council Directive, *supra* note 1, art. 2.

entity) is the right holder as to the economic rights.<sup>50</sup> Presumably, the moral rights of the author are not affected and may remain subject to national law. The Directive also leaves the identification of the right holder in the cases involving various contractual arrangements outside the employment relationship to the national law of member states. The Article accordingly provides in Article 2(1) that: "The author of a computer program shall be the natural person or group of natural persons who has created the program or, where the legislation of the Member State permits, the legal person designated as the right holder by that legislation."<sup>51</sup> Article 2(1) serves as a statement of general principles, the application of which are to be implemented by the law of each member state. Article 3 cedes effective determination of ownership to national law as follows: "Protection shall be granted to all natural or legal persons eligible under national copyright legislation as applied to literary works."<sup>52</sup>

In addition, Article 2 recognizes the existence of collective and joint works, also leaving the determination of these relationships to national law.<sup>53</sup> Overall, the Directive provides a comprehensible statement of general principles for the identification of the right holder or right holders, leaving the precise elements of the employment or contractual relationship to national law. Programmers as employees will not be right holders, but may use contractual arrangements to retain some aspects of ownership or of attribution. Users who commission programs can invoke national law to determine ownership rights and may rely upon contractual arrangements to allocate ownership.

As member states undertake the task of harmonizing national laws with the Directive, there should be no significant conflict over the ownership issues. Some adjustment in the national law of some member states may be required on account of the reference in Article 2(3) granting only the economic rights to the employer, presumably leaving moral rights subject to national law.<sup>54</sup> Since Article 1 makes reference to protecting computer software as literary works "within the meaning of the

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50. Council Directive, *supra* note 1, art. 2(3).

51. Council Directive, *supra* note 1, art. 2(1).

52. Council Directive, *supra* note 1, art. 3.

53. Council Directive, *supra* note 1, art. 2(1) recognizes collective works; Council Directive, *supra* note 1, art. 2(2) recognizes joint works.

54. Council Directive, *supra* note 1, art. 2(3).

Berne Convention," the obligation is imposed on national laws of member states to protect both the rights of paternity and of integrity.<sup>55</sup>

The core provisions of the Directive are in Articles 4 and 5, which are concerned with granting the right holder three traditional intellectual property rights: 1) the right of reproduction; 2) the right to make derivative works; and, 3) the right of distribution, including rental rights.<sup>56</sup> Following the traditional statutory format of copyright, the Directive grants these rights in Article 4, but qualifies them in Article 5.<sup>57</sup> Article 4(a) grants the exclusive right of reproduction in terms expressly directed to computer programs as "the right to do or authorize . . . the permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole."<sup>58</sup> Unlike many national copyright laws, the Directive expressly addresses the scope of the right in the context of computer usage, by providing that: "Insofar as loading, displaying, running, transmission or storage of the computer program necessitate such reproduction, such acts shall be subject to authorization of the right holder."<sup>59</sup>

This broad grant of entitlement to the right holder is, however, materially qualified by the limitation of Article 5(1) which relieves the user of the need to obtain permission from the right holder either to reproduce the program or make a derivative work from it where these acts are "necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose, including for error correction."<sup>60</sup> Similarly, Article 5(2) stresses the primacy of the user's rights over those of the right holder where there is a claim of functional need by the user.<sup>61</sup> Article 5(2) thus implements the needs of users of computer programs announced in the Preamble of the Directive.<sup>62</sup> In addition, Article 5(2) grants the rightful owner of a

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55. Council Directive, *supra* note 1, art. 1.

56. Council Directive, *supra* note 1, arts. 4 & 5.

57. Council Directive, *supra* note 1, art. 5.

58. Council Directive, *supra* note 1, art. 4(a).

59. Council Directive, *supra* note 1, art. 4(a).

60. Council Directive, *supra* note 1, art. 5(1).

61. Council Directive, *supra* note 1, art. 5(1).

62. The Preamble states: "Whereas the exclusive rights of the author to prevent the unauthorized reproduction of his work have to be subject to a limited exception in the case of a computer program to allow the reproduction *technically necessary* for the use of that program by the lawful acquirer." Council Directive, *supra* note 1, pmb. (emphasis added).

program the unconditional right to make an archival copy,<sup>63</sup> as will the right to correct program errors, subject to limitations stated in a license.

Qualifying the reproduction and derivative work rights on grounds of technical necessity is a constructive attempt to adapt the doctrine of fair use<sup>64</sup> to computer software. This theme of qualifying the rights granted by the Directive by the uses to which computer programs are put is also reflected in the section of the Preamble which refers to interoperability as a significant role for computer programs.<sup>65</sup> By these references, the Directive provides a perspective for interpretation to national legislatures and to judges in defining the scope of protection of programs. These parts of the Preamble coalesce with the limiting portions of Article 5 to emphasize the utilitarian nature of computer programs. These provisions serve, for example, to guide the interpretation of national laws in the direction of "thin protection" for the non-literal features of computer programs and interfaces. In these provisions, the Directive stresses a sensitivity toward the end use of the program.<sup>66</sup>

The Preamble further urges that the reproduction right be interpreted restrictively where copying of a program can be shown to be associated with achieving interoperability.<sup>67</sup> As though to reinforce the significance of interoperability as an added emphasis on the functional nature of computer programs, the Preamble adds the element of "fair practice." In the paragraph following the reference to interoperability, the Directive states that the user may reproduce without permission if the use

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63. Council Directive, *supra* note 1, art. 5(2).

64. See WILLIAM F. PATRY, *THE FAIR USE PRIVILEGE IN COPYRIGHT LAW* (1986); Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105 (1990); Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors*, 82 COLUM. L. REV. 1600 (1982).

65. The Preamble states, "the function of a computer program is to communicate and work together with other components of a computer system and with users, . . . and where appropriate, physical interconnection and interaction is required to permit all elements of software and hardware to work with other software and hardware . . . in all ways in which they are intended to function." Council Directive, *supra* note 1, pmbl. (emphasis added).

66. See Council Directive, *supra* note 1, pmbl, & art. 5.

67. The Preamble states in part, "Whereas, . . . circumstances may exist when such a reproduction of the code and translation of its form within the meaning of Article 4(a) and (b) are indispensable to obtain the necessary information to achieve the interoperability of an independently created program with other programs." Council Directive, *supra* note 1, pmbl.

can be deemed "legitimate and compatible with fair practice."<sup>68</sup>

The significance of the perspective taken in the Directive may be illustrated by applying the clutch of references in the Preamble and Articles 4 and 5 as the basis of decision in the controversial *Whelan* case.<sup>69</sup> There, the court found infringement of a program written in EDL for an IBM Series One computer by a program written in Basic for an IBM PC. Resting its decision on substantial similarity of non-literal aspects of the programs, the court relied on the amorphous, extrinsic constructs of "structure, sequence, and organization."<sup>70</sup>

Were this case to arise within a member state whose copyright law had been conformed to this Directive, the outcome most likely would be different. Under the Directive, inquiry is focused on function and on interoperability at the outset. In the *Whelan* case, the court gave no consideration to compatibility or interoperability of computer programs.<sup>71</sup> Moreover, the Preamble's reference to "fair practice" would put into the decisional balance the breach of trust element in the *Whelan* case, an element which was also ignored by the trial court.<sup>72</sup> In the actual case, there was a prior, lapsed commissioning arrangement between the parties, during which the defendant employed a deceitful ruse to obtain the source code of the contested program.<sup>73</sup>

While reproduction and derivative work rights are set out in the Directive in express recognition of the utilitarian nature of the computer program, as noted above, the distribution right granted by Article 4(c) is stated in more traditional terms. Like most national copyright laws, the Directive adopts the exhaustion principle which ends the statutory grant of protection to the right holder on the occasion of the first sale of the protected article.<sup>74</sup> The Directive also incorporates current legislation by preserving the rental right for the original owner beyond the first sale, as was recently done in the United States.<sup>75</sup> The Direc-

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68. Council Directive, *supra* note 1, pmbl.

69. *Whelan Associates v. Jaslow Dental Lab.*, 797 F.2d 1222 (3d Cir. 1986).

70. *Id.* at 1248.

71. *Id.*

72. *Whelan Associates, Inc. v. Jaslow Dental Lab.*, 609 F. Supp. 1307 (E.D. Pa. 1985), *aff'd*, 797 F.2d 1222 (3d Cir. 1986).

73. *Whelan*, 797 F.2d at 1232.

74. Council Directive, *supra* note 1, art. 4(c).

75. Under United States copyright law, 17 U.S.C. § 106(3) (1988), the right holder is granted the distribution right, including the sale, rental, lease, loan, or other transfer of ownership. However, section 109(a) qualifies the grant of section 106(3) by permitting

tive states the exhaustion doctrine with the exception of rental of software in Article 4(c) as follows: "The first sale in the Community of a copy of a program by the right holder . . . shall exhaust the distribution right within the Community of that copy, with the exception of the right to control further rental of the program or a copy thereof."<sup>76</sup>

The Directive also makes a constructive contribution to the developing law of computer program protection by recognizing the distinctive role of user interfaces in the marketing of commercial application programs. Under United States copyright law, the scope of protection for the interface has taken a meandering course in the courts. A cluster of decisions reflect a less than full recognition of the role of the interface as providing "user friendly" access to the program, as a material element in successful marketing.<sup>77</sup> Generally, the United States courts have been less than fully sensitive to the nature and function of program interfaces, tending to ignore the utilitarian and standardization aspects of command structures, command terms, and the organization of menus.<sup>78</sup> These cases have generated a body of criticism urging limited protection for interfaces.<sup>79</sup> These commentators stress the need for recognition of the functional role of the interface in both the use and marketing of application programs.<sup>80</sup> Greater judicial awareness is also urged of the need for standardization that drives the design of interfaces toward

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the purchaser to sell or otherwise dispose of the purchased copy of the protected work. Vendors of computer programs asked Congress for legislation to end the practice of commercial software rental. Congress responded in the Computer Software Rental Amendments Act of 1990, Pub. L. No. 101-650, 104 Stat. 5089 (1990). Under 17 U.S.C. § 109(b), the right holder may prohibit rental, lease, or lending for purposes of direct or indirect commercial advantage, notwithstanding a prior sale. Non-profit educational institutions and libraries are exempt from this restriction.

76. Council Directive, *supra* note 1, art. 4(c).

77. *Whelan*, 797 F.2d at 1222; *Lotus Development Corp. v. Barland Int'l, Inc.*, 788 F. Supp. 78 (D. Mass. 1992).

78. *Lotus Development Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990) (finding that menu structure, command terms and structure of interface are infringed by a defendant's compatible spreadsheet; rejecting argument of standardization as word play); *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127 (N.D. Cal. 1986).

79. See, e.g., Samuelson, *supra* note 41; Richard H. Stern, *Legal Protection of Screen Displays & Other User Interfaces for Computers: A Problem in Balancing Incentives for Creation Against Need for Free Access to the Utilitarian*, 14 COLUM.-VLA J.L. & ARTS 283 (1990); Peter S. Mehell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329 (1987); see text accompanying note 43.

80. See, e.g., Stern, *supra* note 79, at 283.

common features accepted by the public.<sup>81</sup>

The Directive offers guidance for the scope of interface protection in Article 1(2) as follows: "[I]deas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive."<sup>82</sup> Coupled with the originality requirement incorporated in Article 1(1), this provision suggests that a successful user interface utilizing commonly accepted command terms in its menu may receive little, if any, copyright protection under national law in conformity with the Directive.

A material qualification of the right holder's reproduction right is reflected in Article 5(3). Although the phrase "reverse engineering" does not appear, the Article effectively grants substantial reproduction rights to the user, free of authorization by the right holder, in order to determine and study the constituent elements and the underlying ideas. Thus, this Article provides that: "The person having a right to use a copy of a computer program shall be entitled, without authorization of the rightholder, to observe, study or test the functioning of the program in order to determine ideas and principles which underlie any element of the program . . . ."<sup>83</sup> Taking Article 5 together with Article 6, which permits decompilation, completes the grant of limited reverse engineering rights under the Directive. Article 6 deprives the right holder of her reproductive right where "reproduction of the code and translation of . . . [the program's] form are indispensable to obtain the information necessary to achieve interoperability."<sup>84</sup>

It is a fair inference that the hammer marks of compromise account for the omission of an express reference to "reverse engineering" and that these several qualifying provisions are part of a compromise of this contested issue. For example, the granting language of Article 5 is circumscribed by limiting phrases as to the scope of unauthorized reproduction for study or testing as follows: "[The study or testing is done] while performing any of the acts of loading, displaying, running, transmitting or storing

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81. See Stern, *supra* note 79; Samuelson, *supra* note 41.

For an economic analysis of standardization considerations for new products, see Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986).

82. Council Directive, *supra* note 1, art. 1(2).

83. Council Directive, *supra* note 1, art. 5(3).

84. Council Directive, *supra* note 1, art. 6(1).



the program . . . which . . . [the user] is entitled to do."<sup>85</sup> In addition to these limitations on the reproduction right, the user is given further power to reproduce the code and form of a protected program by Article 6, entitled, "Decompilation."<sup>86</sup> This Article broadly grants the user the right to invade any of the rights given by Article 4(a) and (b) without authorization if such reproduction is "indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs."<sup>87</sup>

The selection of the term, "decompilation," rather than "reverse engineering" reflects the depth of disagreement over the scope of this right. To some, the term suggests one aspect of reverse engineering. Others involved in the debate over the Directive consider the term "decompilation," which is not defined in the Directive, to have only the restricted meaning stated in the Directive.<sup>88</sup> The overall emphasis of the Directive on facilitating the development of functionally compatible computer programs poses a central policy issue for copyright professionals. Decompilation, a procedure by which the high-level language of a computer program is derived from the machine language, involves at least a partial reproduction or preparation of a derivative work of the protected program. Discerning the high-level language is often necessary to achieve functional compatibility. However, this information at the same time provides the basis for the preparation of a competing product. The difficult policy issue is where the line of infringement is to be drawn.<sup>89</sup>

The Directive restricts permissible reverse engineering by a series of conditions contained in Article 6. For example, Article 6(1)(a) restricts decompilation initially to a user lawfully in possession of the protected program.<sup>90</sup> Thus, a thief would not be

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85. Council Directive, *supra* note 1, art. 5(3).

86. Council Directive, *supra* note 1, art. 6.

87. Council Directive, *supra* note 1, art. 6.

88. U.S. Congress, Office of Technology Assessment, *Finding A Balance: Computer Software, Intellectual Property and the Challenge of Technological Change*, OTA-TCT-527 (Washington, D.C., U.S. Government Printing Office, May 1992) [hereinafter OTA].

89. The problem has been characterized as follows: "Decompilation of a computer program does not provide an imitator with just a good start in producing a competing product; it gives him virtually everything necessary to produce a functionally identical product." William T. Lake et al., *Tampering With Fundamentals: A Critique of Proposed Changes in EC Software Protection*, 6 THE COMPUTER LAW. 3 (1989); see also Johnson-Laird, *supra* note 11.

90. Council Directive, *supra* note 1, art. 6(1)(a).

entitled to decompile a stolen program. Article 6(1)(b) further restricts decompiling a protected program to circumstances in which the purpose is achieving interoperability and the requisite information has not been "made readily available." Uncertainty as to the meaning of availability in this context makes this condition a potential trap for the unwary decompiler. If the phrase "readily available" is interpreted to mean available on request from the right holder and upon terms and conditions imposed by the right holder, then the right to decompile is materially restricted, assuming the goal of achieving interoperability.<sup>91</sup>

The recent report by the Office of Technology Assessment (the Report) notes the unsettled meaning of the phrase, "readily available."<sup>92</sup> Given the uncertain interpretation of availability, a program owner undertaking to decompile a protected program risks an action for infringement. In this case, the decompiler has the burden of showing the unavailability of the desired code. Under the restrictive interpretation of "readily available," the right holder would prevail upon a showing that it was prepared to disclose the desired code had there been a request for it. The less restrictive interpretation of availability would impose on the decompiler only the burden of researching a variety of potential sources, possibly in obscure languages and locations, as well as in public domain material. Subject to subsequent refinement of "availability," decompiling with authorization may be actionable.

Article 6(1)(c) further restricts the scope of permissible decompilation by the requirement that acts of decompilation and reproduction of a protected program are limited to those parts of the original program essential to achieving interoperability. This requirement is designed to bar the production of competing programs by imposing on the decompiler the duty of showing that the matter sought was essential to an independently created program that would connect to the program being decompiled. Absent a showing of such connection to the decompiled program, the acts of reproduction would constitute infringement. This limitation serves as a caution against full scale decompiling of an entire program. Such a record may serve as an evidentiary predicate for negating the stated goal of achieving interoperability.

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91. Council Directive, *supra* note 1, art. 6(1)(b).

92. See OTA, *supra* note 88, at 119 n.151.

If any further proof is needed of the success of the opponents of reverse engineering in formulating this Directive, it may be found in Article 6(2). This second part of Article 6 reinforces the narrowing conditions of Article 6(1) by imposing a series of further limitations on the use of the code obtained by decompiling.<sup>93</sup> Article 6(2)(a) reiterates the constraint of achieving interoperability under Article 6(1)(c) and implies that the interoperability that is the goal, means interoperability between the newly-modified, independent program and the decompiled program. Thus, Article 6(2)(a) states that the information obtained by decompiling shall not "be used for goals other than to achieve interoperability of the independently created computer program."<sup>94</sup> As the Report notes, an earlier draft of the Directive contained an express reference to interoperability as requiring a connection between the independently created program and the decompiled program. The Report cites a communication of the Commission to the effect that the absence of the express reference in the final version of the Directive was not intended to change the requirement of direct connection.<sup>95</sup> Accordingly, a newly created program using code contained by decompiling a protected program would be infringing, if the preparer failed to show a connection of interoperability between the new program and the subject program of decompilation. Presumably, a newly created program that was distributed in competition with the decompiled program would be infringing even if the former were technologically superior, but bore some material resemblance to the code of the latter. A finding of infringement would most surely result if the decompiler were unable to sustain the burden of showing an interoperable connection between the decompiled program and the newly created one in terms of the specific code taken. Article 6(2)(b) serves to underscore the narrow scope of interoperability stated in Article 6(2)(a) by barring the transfer of technology from one decompiled code to another decompiled code, other than to accomplish the kind of interoperability between the two programs required by Article 6(2)(a).

Article 6(2)(c) contains the final limitation on the use of decompiled information, stating that this information cannot be used for "the development, production or marketing of a com-

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93. Council Directive, *supra* note 1, art. 6(1).

94. Council Directive, *supra* note 1, art. 6(2)(a).

95. See OTA, *supra* note 88, at 120 n.152.

puter program substantially similar in its expression, or for any other act which infringes copyright.”<sup>96</sup> There is the negative implication in this section that a newly developed program containing decompiled code that was *not* substantially similar in expression might not infringe. However, this provision is not likely to become a gateway for unrestricted reverse engineering. A newly developed program containing small amounts of decompiled code and marketed in competition with the decompiled program would remain impaled on the narrow interpretation of interoperability stated in Article 6(2)(a) and (b), notwithstanding the lack of “substantial similarity in its expression.” This latter requirement may, however, offer shelter to some programs, resulting from decompilation undertaken to achieve interoperability, that fail in that goal. If that effort affords an opportunity for the subsequent development of an unrelated program that is marketable and bears no similarity to the decompiled program, the resultant program may not be infringing. In these circumstances, the decompiler may be found to have taken no more than an idea from the protected program.

In Article 6(3), the final part of this Article, there is the reminder that Berne Convention requirements are to be taken into account in interpreting this Article.

Having defined the basis, scope, and conditions of protection in the first six Articles, the Directive addresses the issue of remedies in Article 7. The approach of the Directive is to leave the traditional battery of copyright remedies to existing national laws, while imposing only a few requirements on national laws. Accordingly, Article 7(1) would require national law to provide “appropriate remedies” for knowingly distributing an infringing copy and for possessing an infringing copy with a view toward commercially distributing it.<sup>97</sup> In Article 7(1)(c), the Directive departs from many national copyright laws by making illegal the possession and commercial distribution of a program to unlock a protective feature of an existing copyrighted program.<sup>98</sup>

The Directive adds one further requirement to the national laws of member states — the remedy of seizure. Under Articles 7(2) and 7(3), any infringing copy of a protected program may be seized, and member states should provide in their laws for

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96. Council Directive, *supra* note 1, art. 6(2)(c).

97. Council Directive, *supra* note 1, arts. 7(1)(a) and 7(1)(b).

98. Council Directive, *supra* note 1, art. 7(1)(c).

seizure of any "means" used for the unauthorized removal of a protective device from a protected program.<sup>99</sup> Presumably, the power of seizure would be limited to those programs, in whatever form, that accomplish the unauthorized removal of protective devices, but would not extend to the hardware employed to generate the tainted unlocking programs.

In its treatment of internal security devices, the Directive takes a more "protectionist" position than does the case law in the United States. There, the legality of such devices rests on the determination of whether the unlocking device infringes the protected program by invading either the reproduction right or the derivative work right of the original program.<sup>100</sup>

After providing for remedies, the Directive addresses the duration of the term of protection in Article 8. The basic term prescribed by the Directive is in conformity with the Berne Convention, which provides protection for the life of the author plus fifty years.<sup>101</sup> For all works where the author is either unknown or a corporate entity, the Directive provides a term for fifty years from the date of initial distribution.<sup>102</sup> Where national law differs from the norm of the Directive by providing a longer term of protection, the Directive is permissive. Such provisions may continue according to Article 8(2), which provides: "Member states which already have a term of protection longer than that provided for . . . [above] are allowed to maintain their present term until such time as the term of protection for copyright works is harmonized by Community law in a more general way."<sup>103</sup> Presumably, terms of protection under the national laws of member states that exceed the norm set by the Directive will be tolerated for an unstated period, but terms shorter than the norm will not be accepted.

In this matter, the Directive seems perverse. The traditional duration of copyright protection is incongruent with the commercial life of computer programs. Given the rapid rate of change in the technology of both hardware and software, a ten-year term would be more appropriate. Perhaps the longer term

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99. Council Directive, *supra* note 1, arts. 7(2) and 7(3).

100. *Vault Corp. v. Quaid Software Ltd.*, 655 F. Supp. 750 (E.D. La. 1987); *aff'd*, 847 F.2d 255 (5th Cir. 1988) (finding that it is not an infringement of protected program to prepare an unlocking program without copying the original).

101. *See supra* note 6.

102. Council Directive, *supra* note 1, art. 8(1).

103. Council Directive, *supra* note 1, art. 8(2).

is a cost of relying on the copyright regime for protection. The origin of the longer term reflects the historical experience with *belles lettres* and fine arts. The model of the impecunious and improvident author or painter, however, is not representative of software designers.

Article 9 undertakes to preserve the application of alternative legal regimes to the protection of software programs. Thus, Article 9(1) states: "The provisions of this Directive shall be without prejudice to any other legal provision such as those concerning patent rights, trade-marks, unfair competition, trade secrets, protection of semiconductor products or the law of contracts."<sup>104</sup> As noted earlier, the full force of these cognate regimes of protection are not as complete as this Article states.<sup>105</sup> Thus, member states do not have full discretion to legislate regarding semiconductor products because the Council issued a Directive in 1987 concerning this subject.<sup>106</sup> As to contract remedies, Article 9(1) itself limits the scope of contract law from application to issues of decompilation, reproduction to make a back-up copy, and reproduction to study or test to determine underlying program ideas. The last sentence of Article 9(1) expressly states: "Any contractual provisions contrary to Article 6 [decompilation] or to the exceptions provided for in Article 5(2) [back-up copy] and 5(3) [reproduce without permission to study and test] shall be null and void."<sup>107</sup>

Only trademark, unfair competition, and trade secret doctrines remain outside the scope of the Directive. The restriction on contract law would presumably deprive shrink-wrap licenses of any efficacy, but may, for example, permit the use of contracts to limit the subscribers of electronic databases from reproducing and distributing copyrighted material.

The final Article, Article 10, sets January 1, 1993 as the effective date for conformity of the national copyright laws of the member states to the Directive.

## CONCLUSION

This Directive makes a significant contribution to the development of copyright law as applied to computer programs. Per-

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104. Council Directive, *supra* note 1, art. 9.

105. See *supra* pp. 5-6.

106. See *supra* note 23.

107. Council Directive, *supra* note 1, art. 9(1).

sons concerned with this area of the law may view it as providing a middle ground between copyright and *sui generis* protection. By expressly taking account of the nature and use of computer programs, the Directive provides an occasion for a review of copyright principles as applied to computer programs. The innovations of the Directive with regard to decompilation and interfaces offer guidance to these difficult areas. Accordingly, the Directive warrants the attention of all concerned with the development of copyright law. Its substantive import has radiations beyond the European Community.