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A Components Approach to Intellectual Property in a Dynamic Technology Environment

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A COMPONENTS APPROACH TO INTELLECTUAL PROPERTY IN A DYNAMIC TECHNOLOGY ENVIRONMENT

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I. INTRODUCTION

The concept of protecting intellectual property has been around since long before the founding of the United States and is expressly recognized in the U.S. Constitution.¹ In Article I, Section 8, Patents and Copyrights, the Constitution provides Congress with the power to “promote the Progress of Science and Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”² As Justice Stevens noted in *Sony Corp. of America v. Universal City Studios, Inc.*:³

From its beginning, the law of copyright has developed in response to significant changes in technology. Indeed, it was the in-

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1. U.S. CONST. art. I, § 8, cl. 8.

2. *Id.*

3. 464 U.S. 417 (1984).

vention of a new form of copying equipment—the printing press—that gave rise to the original need for copyright protection. Repeatedly, as new developments have occurred in this country, it has been the Congress that has fashioned the new rules that new technology made necessary.⁴

In the past two decades, much of the focus of American and other courts in the area of intellectual property has been on the intellectual property rights associated with computer programs. While initially struggling with the patentability of computer programs,⁵ courts have recognized such patentability, provided the program satisfies the other standard requirements of patentability⁶ (*i.e.*, originality, novelty, and non-obviousness).⁷ Likewise, it is well settled that the literal aspects of a computer program are eligible for copyright protection.⁸ The literal aspects are the actual source and object code of the program.⁹

The non-literal elements of a computer program relate to aspects such as the user-interface and look and feel of the program.¹⁰ A potential infringer may decompile a program to determine the logic behind it, gathering enough information to rewrite the program in a different language or using different functionality, thus avoiding infringement of the literal elements of the program.

This Article will address the protection of technological intellectual property in our current computer dominated business environment. The focus will be on copyright protection for computer programs. It should be noted that the concept of a components approach to computer program protection should be valid with patents, as well. Part II will discuss the federal statute dealing with copyright, Title 17. Part III will discuss two circuit court cases that have had a substantial impact on the treatment of copyright protection for computer programs. Part IV will discuss a components approach to protecting those intangible assets, suggesting that additional protection may be achieved at a component level.

II. COPYRIGHT: THE STATUTE

A. Background

As noted above, the U.S. Constitution provides the power for Congress to promote the arts and sciences by securing rights in writings

4. *Id.* at 430–31 (footnotes omitted).

5. *See, e.g.*, *Parker v. Flook*, 437 U.S. 584 (1978).

6. *See Diamond v. Diehr*, 450 U.S. 175 (1981).

7. *See generally* 35 U.S.C. §§ 101–03 (1994 & Supp. V 1999).

8. *Computer Assocs. Int'l v. Altai, Inc.*, 982 F.2d 693, 702 (2d Cir. 1992).

9. *E.g.*, *Johnson Controls, Inc. v. Phoenix Control Sys., Inc.*, 886 F.2d 1173, 1175 (9th Cir. 1989). Source code is the programming language in which the program has been written; object code is the machine readable language of the hardware, consisting of a series of zeros and ones. *Id.* at 1175 n.2.

10. *Id.* at 1175 & n.3.

and inventions for authors and inventors, respectively.¹¹ The federal copyright law is codified in Title 17 of the United States Code. From 1909 to 1976, Title 17 remained virtually unchanged; however, the rapidly accelerating use of computer programs began to present problems as the Copyright Act of 1909 had not anticipated the development of computers.¹² In 1976, Congress passed the Copyright Revision Act, which classified computer programs as “literary works.”¹³ The intent of Congress to include computer programs as literary works is well settled by the courts.¹⁴

B. *Subject Matter*

The subject matter of Title 17 is addressed in §§ 102 and 103.¹⁵ Section 102 states:

(a) Copyright protection subsists, in accordance with this title, in *original works of authorship* fixed in any *tangible medium* of expression, now known or later developed, from which they can be *perceived, reproduced, or otherwise communicated*, either directly or *with the aid of a machine* or device. Works of authorship include the following categories:

(1) literary works;

....

(b) In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.¹⁶

Section 103 addresses compilations and derivative works and states in full:

(a) The subject matter of copyright as specified by section 102 includes compilations and derivative works, but protection for a work employing preexisting material in which copyright subsists does not extend to any part of the work in which such material has been used unlawfully.

(b) The *copyright in a compilation or derivative work extends only to the material contributed by the author of such work, as distinguished from the preexisting material employed in the work*, and does not imply any exclusive right in the preexisting material. The copyright in such work is independent of, and does not affect or

11. U.S. CONST. art. I, § 8, cl. 8.

12. H.R. REP. NO. 94-1476, at 47 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5660.

13. *Id.* at 54, *reprinted in* 1976 U.S.C.C.A.N. 5659, 5667.

14. *See, e.g.,* *AccuSoft Corp. v. Mattel, Inc.*, 117 F. Supp. 2d 99, 101 (D. Mass. 2000).

15. 17 U.S.C. §§ 102–03 (2000).

16. *Id.* § 102 (emphasis added).

enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material.¹⁷

C. Definitions

Section 101 includes the following relevant definitions:

A “compilation” is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship. The term “compilation” includes collective works.

....

A “derivative work” is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a “derivative work.”

....

“Literary works” are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied.

....

“Registration,” for purposes of sections 205(c)(2), 405, 406, 410(d), 411, 412, and 506(e), means a registration of a claim in the original or the renewed and extended term of copyright.

....

A “computer program” is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.¹⁸

D. Registration

Registration of a work is not required for copyright to exist;¹⁹ however, except in special circumstances, no action for infringement may be filed until a work has been registered.²⁰ In addition, statutory damages and attorneys’ fees are only recoverable for registered works.²¹ Registration of a copyright requires depositing a copy of the work,²²

17. *Id.* § 103 (emphasis added).

18. *Id.* § 101.

19. *See id.* § 408(a).

20. *Id.* § 411.

21. *See id.* § 412.

22. *Id.* § 408.

an application for registration,²³ and payment of a registration fee to the United States Copyright Office.²⁴

E. *Rights of Copyright Holder*

Section 106 enumerates the rights of a copyright holder and states:

Subject to sections 107 through 121, the owner of copyright under this title has the exclusive rights to do and to authorize any of the following:

- (1) *to reproduce* the copyrighted work in copies or phonorecords;
- (2) *to prepare derivative works* based upon the copyrighted work;
- (3) *to distribute copies* or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
- (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, *to perform the copyrighted work publicly*;
- (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, *to display the copyrighted work publicly*; and
- (6) in the case of sound recordings, *to perform the copyrighted work publicly by means of a digital audio transmission*.²⁵

F. *Infringement and Remedies*

Section 501 defines an infringer simply as “[a]nyone who violates any of the exclusive rights of the copyright owner [as set out in the statute].”²⁶ Statutory remedies for infringement include injunction,²⁷ impounding and disposition of the infringing article,²⁸ damages and disgorgement of profits,²⁹ and court costs and attorneys fees.³⁰

Section 504 addresses the damages available to the copyright holder. Generally, the copyright infringer is liable for the actual damages suffered by the copyright holder plus any profits resulting from the infringement, or statutory damages.³¹ The copyright holder may elect, at any point prior to final judgment, to recover the statutory damages set out in § 504.³² Those damages currently are, for *each* infringement, an amount “not less than \$750 or more than \$30,000 as

23. *Id.* § 409.

24. *Id.* § 708.

25. *Id.* § 106 (emphasis added).

26. *Id.* § 501(a).

27. *Id.* § 502(a).

28. *Id.* § 503.

29. *Id.* § 504(a)(1), (b).

30. *Id.* § 505.

31. *Id.* § 504(a).

32. *Id.* § 504(c).

the court considers just.”³³ If the court finds that the infringer acted willfully, the court may increase the high-end damages to \$150,000 for *each* infringement. For purposes of calculating statutory damages, all of the parts of a compilation or derivative work constitute one work.

III. COPYRIGHT: THE CASES

A. Whelan & Associates v. Jaslow Dental Laboratory, Inc.

In a case of first impression, *Whelan Associates v. Jaslow Dental Laboratory, Inc.*,³⁴ the Third Circuit addressed copyright protection of the non-literal aspects of a computer program. Jaslow Dental Laboratory, Inc. (Jaslow) was a Pennsylvania corporation involved in the manufacture of dental prosthetics and devices.³⁵ One of Jaslow’s shareholders, Rand Jaslow (Rand), hired Strohl Systems Group, Inc. (Strohl) to develop a computer system to assist Jaslow in keeping its dental lab financial records.³⁶ Strohl wrote the desired program, retaining rights to the system, and entered into an agreement whereby Strohl could market the system and Jaslow would receive a ten percent royalty on such sales of the system to other dental labs.³⁷ Elaine Whelan (Whelan) was an experienced programmer and half owner of Strohl, and wrote the system that became the subject of this case.³⁸ The program was written in a computer language compatible with the IBM computer used by Jaslow³⁹ but which turned out to be incompatible with many of the computers used by the smaller dental labs.⁴⁰ Whelan left Strohl after development of the dental lab system and acquired the rights in the system.⁴¹ Whelan and Jaslow entered into a marketing relationship that lasted two years, at which point Jaslow terminated the agreement between the two.⁴² Rand appeared to have seen a market for the dental lab system with the smaller labs and, with the help of a professional computer programmer, rewrote the program in the more common language, BASIC.⁴³ The parties became involved in a lawsuit against each other, including a claim of copyright infringement by Whelan against Rand.⁴⁴ An expert for Whelan testified that:

[T]he programs were similar in three significant respects. He testified that most of the file structures, and the screen outputs, of the

33. *Id.* § 504(c)(1).

34. 797 F.2d 1222 (3d Cir. 1986).

35. *Id.* at 1225.

36. *Id.*

37. *Id.*

38. *Id.* at 1225–26.

39. *Id.* at 1226.

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.* at 1226–27.

44. *Id.* at 1227.

programs were virtually identical. He also testified that five particularly important “subroutines” within both programs—order entry, invoicing, accounts receivable, end of day procedure, and end of month procedure—performed almost identically in both programs.⁴⁵

The district court ruled for Whelan, finding that while Rand’s BASIC program did not copy the literal aspects of Whelan’s program, it did infringe Whelan’s copyright with respect to the non-literal aspects.⁴⁶

In discussing the legal background of the case, the circuit court reiterated the elements of a copyright action.⁴⁷ The court stated, “Whelan Associates must show two things: that it owned the copyright on Dentalab [the original Whelan program], and that Rand Jaslow copied Dentalab in making the Dentacom program [Rand’s BASIC program].”⁴⁸ The court noted that proving copying by direct evidence is rare⁴⁹ but that “copying may be proved inferentially by showing that the defendant had access to the allegedly infringed copyrighted work and that the allegedly infringing work is substantially similar to the copyrighted work.”⁵⁰ The court went on to note that substantial similarity may not be sufficient to establish infringement because the alleged infringer may still prove that his work is original or that both parties drew from common sources in the public domain.⁵¹

In its review of the scope of copyright protection of computer programs, the court noted that “[i]t is well, though recently, established that copyright protection extends to a program’s source and object codes.”⁵² The court goes on to note that the protectability of these literal elements of a computer program are not at issue in this case.⁵³ In going on to discuss the relevant question of protectability of the non-literal elements of a computer program, the court noted that “Title 17 U.S.C. § 102(a)(1) extends copyright protection to ‘literary works,’ and computer programs are classified as literary works for the purposes of copyright.”⁵⁴ The court quoted Judge Hand’s famous

45. *Id.* at 1228 (citations omitted).

46. *See id.* at 1228–29.

47. *Id.* at 1231.

48. *Id.*

49. *Id.* (citing *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106, 1110 (9th Cir. 1970)).

50. *Id.* at 1231–32 (citing *Ferguson v. Nat’l Broad. Co.*, 584 F.2d 111, 113 (5th Cir. 1978); *Sid & Marty Krofft Television Prods., Inc. v. McDonald’s Corp.*, 562 F.2d 1157, 1162 (9th Cir. 1977); *Universal Athletic Sales Co. v. Salkeld*, 511 F.2d 904, 907 (3d Cir. 1975); *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741, 752 (N.D. Ill. 1983)).

51. *Id.* at 1232 n.23.

52. *Id.* at 1233 (citing *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1246–47 (3d Cir. 1983) (source and object code); *Williams Elecs., Inc. v. Artic Int’l, Inc.*, 685 F.2d 870 (3d Cir. 1982) (object code); *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 855 n.3 (2d Cir. 1982) (source code)).

53. *See id.*

54. *Id.* at 1234 (citing H.R. REP. NO. 94-1476, at 54 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5667).

statement that “copyright ‘cannot be limited literally to the text, else a plagiarist would escape by immaterial variations.’”⁵⁵

The court noted the *Baker v. Selden*⁵⁶ rule that “[i]t is axiomatic that copyright does not protect ideas, but only expressions of ideas.”⁵⁷ The court goes on to establish its own rule for distinguishing idea from expression in computer programs.⁵⁸ After a lengthy analysis of *Baker v. Selden*, the court stated that “*the purpose or function of a utilitarian work would be the work’s idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea.*”⁵⁹ While subsequent courts have elected not to follow this rule,⁶⁰ this case did help to establish the concept that a computer program’s non-literal elements are protectible by copyright.

B. Computer Associates International v. Altai, Inc.

Six years after *Whelan* was decided, the Second Circuit was asked to address the issue of copyright protection for non-literal elements of a computer program. In *Computer Associates International v. Altai, Inc.*,⁶¹ the infringement in question related to a component part of the software program for which copyright registration had been made.⁶² Computer Associates developed a job-scheduling program called CA-SCHEDULER for use with IBM mainframe computers.⁶³ Within the SCHEDULER program is a sub-routine called ADAPTER, which functions as a translator for various operating systems.⁶⁴

In 1982, Altai began to sell a job-scheduling program of its own, referred to as ZEKE.⁶⁵ Altai’s employee, James Williams (Williams), had worked previously for Computer Associates and hired a Computer Associates programmer and long-time friend, Claude Arney (Arney), to develop a version of the Altai scheduling program that was compatible with a different operating system.⁶⁶ Williams did not know that Arney had worked on the ADAPTER program for Computer Associates and had kept documentation with respect to the coding for ADAPTER in violation of his employment agreement.⁶⁷ Arney proposed a solution for running ZEKE on the different operat-

55. *Id.* (quoting *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930)).

56. 101 U.S. 99 (1879).

57. *Whelan Assocs.*, 797 F.2d at 1234.

58. *Id.* at 1235–38.

59. *Id.* at 1236 (alteration in original).

60. *See, e.g.*, *Computer Assocs. Int’l v. Altai, Inc.*, 982 F.2d 693, 705–06 (2d Cir. 1992); *see also infra* Part III. B.

61. 982 F.2d 693.

62. *Id.* at 698–700.

63. *Id.* at 698.

64. *Id.* at 698–99.

65. *Id.* at 699.

66. *Id.*

67. *See id.* at 699–700.

ing system that was based on his knowledge of ADAPTER.⁶⁸ Williams was not aware of Arney's use of his ADAPTER knowledge in creating the ZEKE system interface, called OSCAR.⁶⁹ Ultimately, Arney used approximately thirty percent of the code taken from ADAPTER.⁷⁰ Computer Associates discovered Altai's use of its ADAPTER code in Altai's translator module and filed suit for copyright infringement and trade secret violations.⁷¹ Upon learning of the alleged infringement, Williams had all of the ADAPTER copied code removed from the latest version of OSCAR.⁷² Effectively, Williams had removed any copying of the literal elements of ADAPTER. Altai did not appeal a judgment against it for the infringement damages associated with the version of OSCAR that included ADAPTER code.⁷³ The district court, however, did not find that the newer version of OSCAR infringed Computer Associates copyright.⁷⁴ Computer Associates appealed that portion of the ruling.⁷⁵

The Second Circuit devoted a considerable portion of its opinion to the concepts of copyright and their application to computer programs,⁷⁶ including some mention of the *Whelan* decision.⁷⁷ As those issues are addressed in the preceding section, this Article will take up the opinion at the point the Second Circuit diverges from the *Whelan* approach. The court pointed out that *Whelan* received a mixed reaction from the courts and a worse reaction from the academic community.⁷⁸ It went on to state, "The leading commentator in the field has stated that '[t]he crucial flaw in [*Whelan's*] reasoning is that it assumes that only one 'idea,' in copyright law terms, underlies any computer program, and that once a separable idea can be identified, everything else must be expression.'" ⁷⁹ The Second Circuit found this idea to "rel[y] too heavily on metaphysical distinctions and . . . not place enough emphasis on practical considerations."⁸⁰ The court established a three-step procedure for determining whether the non-literal elements of two computer programs were substantially similar.⁸¹

68. *Id.* at 700.

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. *Id.* at 701.

74. *Id.*

75. *Id.*

76. *Id.* at 701-12.

77. *Id.* at 702-06 (citing *Whelan Assocs. v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222 (3d Cir. 1986)).

78. *Id.* at 705.

79. *Id.* (quoting 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03[F][1], at 13-122 (2002)).

80. *Id.* at 706.

81. *Id.* at 706-10.

The three steps to be followed using the Second Circuit's test are abstraction, filtration, and comparison.⁸² The court then summarized the test:

In ascertaining substantial similarity under this approach, a court would first break down the allegedly infringed program into its constituent structural parts. Then, by examining each of these parts for such things as incorporated ideas, expression that is necessarily incidental to those ideas, and elements that are taken from the public domain, a court would then be able to sift out all non-protectable material. Left with a kernel, or possible kernels, of creative expression after following this process of elimination, the court's last step would be to compare this material with the structure of an allegedly infringing program. The result of this comparison will determine whether the protectable elements of the programs at issue are substantially similar so as to warrant a finding of infringement.⁸³

The court expanded on this explanation in the following sections of the opinion.⁸⁴ In quoting a leading academic on the abstractions test, the court noted that any literary work may contain both "ideas and expressions."⁸⁵ The abstractions test involves analyzing a computer program at each level of abstraction between the code and the program's ultimate function.⁸⁶ The court quoted another academic in describing the analysis:

At the lowest level of abstraction, a computer program may be thought of in its entirety as a set of individual instructions organized into a hierarchy of modules. At a higher level of abstraction, the instructions in the lowest-level modules may be replaced conceptually by the functions of those modules. At progressively higher levels of abstraction, the functions of higher-level modules conceptually replace the implementations of those modules in terms of lower-level modules and instructions, until finally, one is left with nothing but the ultimate function of the program.⁸⁷

At the filtration step, each level of structure should be evaluated to determine whether it was included as "idea" or was dictated by considerations of efficiency, so as to be necessarily incidental to that idea; required by factors external to the program itself; or taken from the public domain and hence is nonprotectable expression."⁸⁸ Because computer programmers strive for efficiency in programming, and dif-

82. *Id.*

83. *Id.* at 706. The court goes on to spend several pages elaborating on how these steps should be applied. *Id.* at 706–11.

84. *Id.*

85. *Id.* at 707 (quoting NIMMER & NIMMER, *supra* note 79, § 13.03[F][1], at 13-125).

86. *Id.*

87. *Id.* (quoting Steven R. Englund, Note, *Idea, Process, or Protected Expression?: Determining the Scope of Copyright Protection of the Structure of Computer Programs*, 88 MICH. L. REV. 866, 897 (1990)).

88. *Id.*

ferent programmers may utilize the same efficiencies to achieve an objective, their work may result in substantially similar elements of the program, but not copyright infringement.⁸⁹ Elements dictated by external factors are not protectable under the application of a doctrine applied to computer programs that appears to be the technological equivalent of the *scenes a faire* doctrine.⁹⁰ With respect to programs, the doctrine recognizes that computer hardware or compatibility requirements of other programs may impact how a given task is accomplished by a program.⁹¹ To the extent that a program's structure is dictated by those elements, it is not protectable.⁹² Elements taken from the public domain are likewise not protectable.⁹³

The third step of the test, comparison, involves comparing the elements of the two programs for substantial similarity between the protectable elements of the alleged infringed program with the alleged infringing program.⁹⁴ Importantly as it relates to the premise of this Article, the court noted that the "substantial similarity inquiry focuses on whether the defendant copied any aspect of this protected expression, as well as an assessment of the copied portion's relative importance with respect to the plaintiff's overall program."⁹⁵

In the *Altai* case, the court upheld the district court's finding that Computer Associates' program had not been infringed by Altai's new version of OSCAR.⁹⁶ The abstraction, filtration, comparison test established by this court has gained wide acceptance in copyright cases.⁹⁷

IV. A COMPONENTS APPROACH

It appears to be well settled at this point that computer programs are treated as literary works for purposes of copyright protection.⁹⁸ That protection applies to both the literal, *i.e.*, source and object code, elements of the program and the non-literal, or look and feel, elements.⁹⁹ The *Altai* case discussed above has established a test used by

89. *Id.* at 708.

90. *See id.* at 709. The *scenes a faire* doctrine recognizes that it would be nearly impossible to write about a particular topic or time in history without incorporating certain stock elements, *id.* (quoting *Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972, 979 (2d Cir. 1980)), for example, a western movie including gun fights or a saloon.

91. *See id.* at 709–10.

92. *See id.* at 710.

93. *Id.*

94. *See id.*

95. *Id.* (emphasis added).

96. *Id.* at 715.

97. *See, e.g., Eng'g Dynamics, Inc. v. Structural Software, Inc.*, 46 F.3d 408, 409 (5th Cir. 1995); *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 834 (10th Cir. 1993).

98. *See generally supra* Part I.

99. *See generally supra* Part III.

most courts today to evaluate whether the non-literal elements of a program have been infringed. As noted above, that analysis involves the break down of the computer program into its components or sub-routines. These subroutines are often programs that could stand alone in a different context. Examples of such subroutines can be found in the software packages offered by various software publishers in the business and financial application market. An Enterprise Resource Planning (ERP) package, often referred to as “back office” software, which handles various accounting, manufacturing or job costing functions, may include modules for each of those functions, as well as general ledger, accounts payable, and accounts receivable. Each of these modules should be eligible for copyright protection at that level. As the *Altai* case shows, even a subroutine to translate between the program and operating system can be protected.

Despite the apparent eligibility for copyright protection of the more detailed applications just described, some publishers in the business software market have sought copyright protection only at, for example, the ERP package level. In addition, some publishers have not obtained copyright protection for each version of their product even at the package level.

The advantages to registering copyrights at the module or more detailed level appear to be two-fold. First, the abstraction, filtration, comparison test set out in the *Altai* case makes it clear that the relative importance to an infringed portion of a program to the overall program is a consideration in assessing substantial similarity. Intuitively, if the comparison is being made at a more detailed level, the likelihood that the infringed portion has relative importance will be greater.

The second advantage appears to be in the calculation of statutory damages. The statute calls for statutory damages for each infringement. If an entire package were to be infringed and registrations had been filed at the module level, it would appear that statutory damages would be available for the infringement of each registered module, not just a single infringement at the package level. If a package with several modules is involved and a willful infringer has been at work, statutory damages become particularly significant.