No. 94-2003

IN THE SUPREME COURT OF THE UNITED STATES

October Term, 1995

Lotus Development Corporation,
Petitioner,
v.
Borland International, Inc.,
Respondent.

On Writ of Certiorari to
the United States Court of Appeals
for the First Circuit

# BRIEF AMICUS CURIAE OF COPYRIGHT LAW PROFESSORS IN SUPPORT OF RESPONDENT

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# BRIEF AMICUS CURIAE OF COPYRIGHT LAW PROFESSORS IN SUPPORT OF RESPONDENT

## I. INTERESTS OF AMICI

This brief amicus curiae is submitted by thirty-four professors who teach and write about copyright law at accredited law schools in the United States.n1 None of the signatories to this amicus brief has an interest in either party or in the outcome of this case except to the extent that this case will have an important impact on the development of copyright law and principles and on the delicate balance between innovation and competition that intellectual property law seeks to maintain. The consent of the attorneys for both parties to file this brief has been obtained. The signatories to this brief exercised complete control over its editorial contents; Borland helped to defray the costs of printing this brief.

This brief sets forth a number of principles that we, as professors who teach and write about copyright law, believe should be considered in determining the proper scope of copyright protection for computer programs and their user interfaces. Amici do not hold identical views on all issues arising from the application of copyright law to computer programs. There are some among us who would urge the Court to resolve the dispute on one or a few of the following grounds:

(1) a menu command hierarchy is too abstract an element of a computer program to be protectable by copyright law under 17 U.S.C. sect. 102(b), see Ashton-Tate Corp. v. Ross, 916 F.2d 516, 521-22 (9th Cir. 1990);

(2) a menu command hierarchy is unprotectable under sect. 102(b) as a constituent element of a method of operating a computer to perform spreadsheet functions, see Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807, 815 (1st Cir. 1995), Pet.App. 14a-16a (Borland), cert. granted, 116 S.Ct. 39 (1995);

(3) the menu command hierarchy of Lotus 1-2-3 is unprotectable under sect. 102(b) as "a fundamental part of the functionality" of the Lotus macro system, see Lotus Dev. Corp. v. Paperback Software Int'l, Inc., 740 F. Supp. 37, 65 (D. Mass. 1990), Pet.App. 229a (Paperback);

(4) the menu command hierarchy of Lotus 1-2-3 is an inseparable part of a language for constructing macros, and languages are uncopyrightable under sect. 102(b), see, for example, Brief English Systems, Inc. v. Owens, 48 F.2d 555, 556 (2d Cir.), cert. denied, 283 U.S. 858 (1931);

(5) the menu command hierarchy of Lotus 1-2-3 is unprotectable by copyright law under sect. 102(b) because it operates as a program-to-program interface in relation to the execution of macros, and is, therefore, among the elements of the Lotus program whose design was constrained by external factors, see Computer Associates Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 709-710 (2d Cir. 1992);

(6) the menu command hierarchy of Lotus 1-2-3 is unprotectable by copyright law under sect. 102(b) because it is an inseparable part of the behavior of the Lotus program which is an unprotectable process, see Computer Associates Int'l, Inc. v. Altai, Inc., 775 F. Supp. 544, 560 (E.D.N.Y. 1991), aff'd, 982 F.2d 693, 706 (2d Cir. 1992); or

(7) when user interfaces of computer programs lie closer to the functional than to the aesthetic end of the spectrum of potential expressiveness, as the Lotus 1-2-3 user interface does, courts

should employ a virtual identity standard in judging copyright infringement, see Apple Computer, Inc. v. Microsoft, Inc., 35 F.3d 1435, 1444 (9th Cir. 1994), cert. denied, 115 S.Ct. 1176 (1995).

Even so, we agree that the traditional principles of copyright law set forth in the remainder of this brief should be employed in judging the scope of copyright protection available to the Lotus 1-2-3 menu command hierarchy in the context of this case.

## II. SUMMARY OF ARGUMENT

There are two Congressional mandates courts must heed in judging copyright infringement in cases involving computer programs: (1) to protect original expression in computer programs under 17 U.S.C. sect. 102(a), and (2) not to protect abstract ideas or constituent elements of procedures, processes, systems and methods of operation embodied in programs, id. at sect. 102(b).

Congress had computer programs in mind when it enacted sect. 102(b) in 1976. Congress added this provision out of concern that without it, some software developers might attempt to claim copyright protection for commercially valuable methods or processes embodied in programs when all Congress intended to protect was original expression in program texts.

Section 102(b) codifies the principal holding of Baker v. Selden, 101 U.S. 99 (1879), that the constituent elements of a useful art, such as a bookkeeping system or a procedure for treating a disease, are unprotectable by copyright law, even when embodied in an original work of authorship that qualifies for copyright protection. In keeping with the Supreme Court's holding in Baker, sect. 102(b) excludes from the scope of copyright protection not only abstract elements of works, such as ideas, concepts, principles and discoveries, but also constituent elements of "procedure[s], process[es], system[s], [and] method[s] of operation...embodied in [a] work." Id.

An important reason for excluding the constituent elements of processes and methods from the scope of copyright law is, as Baker noted, to avoid disrupting the competition policy principles of patent law which would occur if a court allowed an author to use copyright law to protect elements of his or her work that should be protected, if at all, by patent law. Unlike conventional literary works, computer programs contain many components that are potentially patentable. It is, thus, appropriate for courts to filter out not only abstractions, but also constituent elements of useful processes and methods of operation before making a comparison of two computer programs for the purpose of determining whether infringement has occurred.

If computer programs need more protection against competitive imitation than copyright, supplemented by patent and trade secrecy law, can provide, software developers should seek additional legal protection for computer programs from Congress. Even though incentive-based arguments for extending copyright law to reach all commercially valuable aspects of computer programs may have some appeal, adopting such a rule would ultimately have "a corrosive effect on certain fundamental tenets of copyright doctrine." Altai, 982 F.2d at 712.

## ARGUMENT

## III. COPYRIGHT LAW EXCLUDES NOT JUST ABSTRACT IDEAS, BUT ALSO CONSTITUENT ELEMENTS OF METHODS AND SYSTEMS, FROM THE SCOPE OF PROTECTION AVAILABLE TO ORIGINAL WORKS OF AUTHORSHIP.

There are two Congressional mandates that courts must heed when judging infringement in computer program cases. Courts must protect original expression in programs under 17 U.S.C. sect. 102(a), but must not extend protection to abstract ideas or to procedures, processes, systems, and methods of operation in programs, id. at sect. 102(b).

Neither the District Court nor the Court of Appeals in this case has satisfactorily reconciled these two mandates. The District Court viewed sect. 102(b) too narrowly by regarding it as excluding from the scope of copyright only abstract elements of programs. See, e.g., Lotus Dev. Corp. v. Borland Int'l, Inc., 788 F. Supp. 80, 91 (D. Mass. 1990), Pet.App. 167a (Borland I) ("'[p]rocess,' like 'idea,' is an abstraction..."). The Court of Appeals correctly rejected this interpretation of sect. 102(b) on the ground that constituent elements of methods of operation are unprotectable under sect. 102(b). Borland, 49 F.3d at 816 (1st Cir.), Pet.App. 16a-18a. However, the Court of Appeals did not provide much guidance about how to distinguish protectable expression from unprotectable methods of operation. This brief will offer some guidance about how to reconcile the two Congressional mandates.

### A. Section 102(b), Which Excludes Methods Of Operation As Well As Abstract Ideas From the Scope of Copyright Protection,

### Was Intended To Preclude Copyright Protection For Methods Embodied In Computer Programs.

Section 102(b) of Title 17 of the U.S. Code provides: "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."

The legislative history of this provision indicates that Congress had computer programs in mind when adopting it and meant for it to limit the scope of copyright protection available for computer programs. During legislative hearings leading up to enactment of the Copyright Act of 1976, concerns had been expressed about the need for such a provision so that copyright would not overprotect computer programs.n2 Both the House and Senate Committee reports plainly state:

> Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather than merely to the 'writing' expressing his ideas. Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of copyright law.n3

The legislative history of section 102(b) also indicates that the provision was intended to codify a long line of copyright cases, beginning with Baker v. Selden, 101 U.S. 99, that had held that constituent elements of systems, processes, and the like were beyond the scope of copyright protection available to an original work of authorship.n4 The Final Report of the National Commission on New Technological Uses of Copyrighted Works (CONTU) cited sect. 102(b) and functional writing cases such as Baker and Continental Casualty Co. v. Beardsley, 253 F.2d 702 (2d Cir.), cert. denied, 358 U.S. 816 (1958) as among the sources of guidance for courts judging copyright infringement claims involving computer programs.n5

### B. Under Baker v. Selden, Copyright Protection Is Unavailable To Constituent Elements of Methods and Systems Embodied In a Protected Work.

Courts sometimes describe the Supreme Court's decision in Baker

v. Selden, 101 U.S. 99, as a case about the idea/expression distinction. In Paperback, for example, the District Court described Baker v. Selden as having held that "the text of a book describing a special method of double-entry accounting on paper spreadsheets...was copyrightable expression, but that the...idea of this particular kind of double-entry bookkeeping, was not." Paperback, 740 F.Supp. at 55, Pet.App. 207a-208a; Borland I, 788 F.Supp. at 90-93, Pet.App. 164a-172a.

This characterization of Baker misses the forest for the trees. Baker v. Selden is not principally a case about the unprotectability of abstract ideas,n6 as is evident from the Court's very different statement of the basis of its decision. The Court held that Selden's copyright protected his "explanation" of the useful art described in the work, but not the "useful art" itself. Baker, 101 U.S. at 105. The bookkeeping system, as reflected in the particular selection and arrangement of columns and headings constituting the sample ledger sheets in Selden's book, was beyond the scope of copyright. "[T]he mere copyright of Selden's book did not confer upon him the exclusive right to make and use account-books, ruled and arranged as designated by him and described and illustrated in said book." Id. at 107.n7

The Court explained that Selden's copyright no more gave him an exclusive right to the bookkeeping system than the copyright on a book about the composition and use of medicines would give its author an exclusive right to the medicines discussed in the book. Id. at 102. Selden's claim had seemed plausible because the useful art in that case was embodied in a writing, whereas most useful arts are embodied in wood, metal, or stone. Id. at 105. However, "the principle is the same in all [cases]," said the Court. "The description of the [useful] art in a book, though entitled to the benefit of copyright, lays no foundation for an exclusive claim to the art itself." Id.

This statement of the rule in Baker makes clear what is sometimes obscured by shorthand characterizations of Baker as concerned with the idea/expression distinction: Baker is fundamentally a case about the unprotectability of the functional content embodied in copyrighted works and the right of others to copy that content in order to make use of it.n8 In reliance on Baker, a long line of copyright cases have held that constituent elements of methods, systems and processes are beyond the scope of copyright protection. See, e.g., Brief English, 48 F.2d 555 (shorthand system not protectable by copyright); Kepner-Tregoe, Inc. v. Carabio, 203 U.S.P.Q. (BNA) 124 (E.D. Mich. 1979) (system for teaching problemsolving techniques not protectable by copyright law); Kern River Gas Transmission Co. v. Coastal Corp., 899 F.2d 1458 (5th Cir.), cert. denied, 498 U.S. 952 (1990) (design for gas pipeline held unprotectable by copyright law); and Taylor Instrument Cos. v. Fawley Brost Co., 139 F.2d 98 (7th Cir. 1943), cert. denied, 321 U.S. 785 (1944) (temperature recording system held unprotectable by copyright law). It is this aspect of Baker v. Selden that is now codified in 17 U.S.C. sect. 102(b).

To speak of Baker v. Selden as a case that is only concerned with the unprotectability of abstract ideas is to miss the main point of the case.

### C. Many Other Recent Computer Program Cases Have Applied Section 102(b) and Precedents Such As Baker v. Selden To Exclude Constituent Elements of Methods and Processes From the Scope of Copyright.

In Altai, 982 F.2d at 704, the Second Circuit Court of Appeals described computer programs as having an "essentially utilitarian nature" which must be taken into account when judging infringement in computer program cases. It looked to Baker v. Selden as the "doctrinal starting point" in cases involving copyright in process-oriented texts, such as computer programs. Id.; see also Sega Enterprises, Ltd. v. Accolade, Inc., 977 F.2d 1510, 1524 (9th Cir. 1992) (describing computer programs as in essence, utilitarian articles and looking to Baker as a key precedent for judging infringement as to works having "strong functional elements"). In line with Baker v. Selden and its progeny, many cases involving computer programs have excluded from the scope of copyright protection available to these works constituent elements of procedures, processes, systems, and methods of operation embodied in them.

Sometimes the detailed program components held to be unprotectable under sect. 102(b) have been parts of a user interface. See, e.g., Apple Computer, Inc. v. Microsoft, Inc., 799 F. Supp. 1006, 1038 (N.D. Cal. 1992), aff'd, 35 F.3d 1435 (9th Cir. 1994), cert. denied, 115 S.Ct. 1176 (1995) (particularized methods for presenting different views of objects and for presenting dialog boxes when selecting menu items); Ashton-Tate, 916 F.2d at 521-22 (spreadsheet command structure). Sometimes the methods and systems held unprotectable under sect. 102(b) have been embedded in the text of the program. See, e.g., Gates Rubber Co. v. Bando Chem. Indus., Ltd., 9 F.3d 823, 845 (10th Cir. 1993) (algorithm embodied in program); Sega, 977 F.2d at 1522 (particularized requirements for achieving compatibility). Still other times, the process that courts have regarded as unprotectable under sect. 102(b) has been a program's functional behavior, that is, the results generated when program instructions are executed. See, e.g., Altai, 775 F. Supp. at 560 and Gates Rubber, 9 F.3d at 836.

While the boundary between protectable expression and unprotectable method has not always shimmered with clarity in these cases, none of these courts shied away from identifying methods and processes as unprotectable elements of copyrighted programs under sect. 102(b) on the ground that if they regarded this or that element of a program as an unprotectable method or process, such a ruling would substantially undermine the availability of copyright protection for computer programs.

### D. The Court of Appeals Was Correct In Concluding That The "Patterns of Abstractions" Approach Is Not The Only Method Of Judging Infringement In Computer Program Cases.

Although courts have been making progress in distinguishing protectable from unprotectable elements in computer programs on a case-by-case basis, the task can be very difficult, as can be seen from the prodigious effort undertaken by the District Court in this case to reconcile Baker v. Selden with the "patterns of abstractions" approach to determining infringement in copyright cases derived from Judge Learned Hand's decision in Nichols v. Universal Pictures, 45 F.2d 119, 121 (2d Cir. 1930), cert. denied 282 U.S. 902 (1931). The District Court ultimately decided that Baker v. Selden had been supplanted by the Nichols "abstractions" approach. Borland I, 788 F. Supp. at 92-93, Pet. App. 170a. This led the District Court to construct a test for judging the copyrightability of the Lotus command hierarchy focused on the Nichols abstractions approach.n9 Id. at 90.

Application of this test caused the District Court to conclude that Borland had infringed Lotus' copyright because the Lotus command hierarchy was among the more particularized elements of the Lotus program, and many choices existed as to the selection and arrangement of command terms, so there was no merger of idea and expression. Borland II, 799 F. Supp. at 216-19, Pet.App. 131a-135a.

With all due respect to the District Court's herculean effort to formulate an abstractions-based approach to judging infringement in computer program copyright cases, we think the District Court overgeneralized from the Nichols decision and failed to appreciate the continuing viability of Baker v. Selden. As we have shown, Baker mandates exclusion of particularized functional content, such as systems and methods of operation, from the scope of copyright protection in cases involving functional writings such as computer programs. If Judge Hand did not see fit to mention the exclusion of systems, processes, and the like from the scope of copyright protection in Nichols, it was likely because the work at issue--a dramatic play--was of an artistic and fanciful character. Such works are predominantly expressive in content, and so enjoy a broad scope of copyright protection. Only their more abstract elements must be filtered out before an infringement analysis is done. Since functional writings, by definition, contain not only abstract ideas, but also uncopyrightable elements, such as procedures, processes, systems, and methods of operation, the scope of copyright protection available to such works tends to be narrower than for artistic and fanciful works. See, e.g., Sega, 977 F.2d at 1524. The functional methods or systems in these writings must be filtered out before assessing substantial similarity for infringement purposes, as many computer cases recognize. See, e.g., Altai, 982 F.2d at 707-711; Gates Rubber, 9 F.3d at 845.

The First Circuit Court was correct in asserting that it can be misleading to employ an abstractions approach in a case such as this one where the principal issue is whether the aspect of the program that has been copied is or is not an integral part of an unprotectable method or system. Borland, 49 F.3d at 815, Pet.App. 14a-15a. It was also correct in holding, in reliance on Baker v. Selden, that "'methods of operation' are not limited to mere abstractions." Id. at 815-16, Pet.App. 17a. The First Circuit may not have provided an optimal degree of guidance in distinguishing between the unprotectable method it saw in the Lotus program and the protectable expression in the Lotus program, but its decision is consistent with the line of cases described above in which courts have engaged in case-by-case assessments about elements of computer programs that should be regarded as unprotectable methods or processes under Baker and sect. 102(b).

## IV. METHODS AND PROCESSES EMBODIED IN PROGRAMS SHOULD NOT BE PROTECTED BY COPYRIGHT BECAUSE THEIR UTILITARIAN CHARACTER MAKES THEM MORE APPROPRIATE FOR REGULATION BY THE PATENT SYSTEM.

### A. Baker v. Selden Requires That Useful Methods and Systems Embodied in Copyrighted Works Should Be Protected, If At All, Only If They Meet The Standards For Patentability.

An important factor in the Supreme Court's decision in Baker v. Selden was Selden's apparently unsuccessful effort to secure a patent on his bookkeeping system. See Baker, 101 U.S. at 104 (Selden had no patent); 25 L.Ed. at 841, 841 (Selden tried to get patent). Baker's lawyer used Selden's quest for a patent to argue that Selden's system was "a contribution to [the] useful, mechanical art[s], not to literature." See id.

The Court agreed that Selden was trying to get indirectly-through a copyright infringement action--a kind of protection that he had been unable to get directly from the Patent Office, namely, an exclusive right in the system. Baker, 101 U.S. at 104-05. As the Court explained, "[t]o give to the author of the book an exclusive property in the [useful] art described therein, when no examination of its novelty has ever been officially made, would be a surprise and a fraud upon the public. That is the province of letters patent, not of copyright." Id. at 102.n10 This Court has consistently held that innovations in the useful arts that do not meet patent law's novelty and nonobviousness standards, are, if revealed in a publicly circulated product, freely available to be copied by competitors. See, e.g., Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141 (1989).

## B. Authorities Concur With Baker That Courts Must Defer To Patent Law To Protect Useful Methods and Systems Depicted or Embodied in Copyrighted Works.

The principle of deferring to patent law for protection of useful methods and the like has been applied in a long line of copyright cases sanctioning the right of competitors to reproduce functional content regardless of the tangible medium in which it was first fixed. Competitors have, for example, been allowed to copy such things as the detailed design of a three-dimensional boiler or an article of clothing, even though this might require making a schematic representation similar to the plaintiff's design document.n11 This line of cases, now codified in 17 U.S.C. sect. 113(b), reflects the general principle laid down in Baker that the exclusive reproduction right of copyright cannot prevent--directly or indirectly--the use of unprotected ideas or utilitarian features embodied in protected works.

Baker makes clear that this principle applies to functional writings regardless of whether they are expressed in a literary or graphic form:

The fact that the art described in the book by illustrations of

> lines and figures which are reproduced in practice in the application of the art, makes no difference....Had he used words of description instead of diagrams...there could not be the slightest doubt that others, applying the art to practical use, might lawfully draw the lines and diagrams...which he [the author] thus described by words in his book.
>
> The copyright of a work on mathematical science cannot give...an exclusive right to the methods of operation...or to the diagrams which he employs to explain them, so as to prevent an engineer from using them whenever occasion requires. Baker, 101 U.S. at 103.

Later commentators, including Professor Benjamin Kaplan of Harvard, have understood this statement to recognize a privilege to appropriate uncopyrightable content from scientific and functional writings.n12

The very fact that functional innovations are so valuable explains why copyright law, with its low standards for obtaining protection and its long duration of exclusive rights, should not protect them. As Professor Goldstein has observed:

> Functional works [such as architectural plans, legal forms, and computer programs] depend for their value primarily on the ingenuity, accuracy, and efficiency--the utility--of their underlying system, concept or method. As a result, enforcement of copyright in these works inevitably threatens the fundamental precept that copyright protection shall not extend to any "idea, procedure, process, system, method of operation, concept, principle, or discovery." Copyright in functional works is in this respect like copyright in fact works, which pose the similar danger of monopolizing elements that should be available for free use by all. The important difference is that in protecting works that are essentially functional in nature, copyright may contradict the principle that protection for these utilitarian elements is better left to the more exacting standards of patent and trade secret law.

Paul Goldstein, Copyright Principles, Law & Practice sect. 8.5 at 116-17 (1989). In short, Baker v. Selden consigns functional works to a regime of "thin" protection in order to defend the line of demarcation between patent and copyright law.n13

A weakening of Baker v. Selden's principle of "thin" copyright protection for functional writings would run counter to the Court's recent decision in Feist, 499 U.S. 340. Relying in part on Baker

v. Selden, the Court ruled that a competitor could copy commercially valuable but unprotectable facts from the plaintiff's directory. Id. at 350, cf. Bonito Boats, 489 U.S. 141 (state law preempted by patent law because it would have removed from the public domain functional designs that had not undergone the patent examination process). Moreover, Feist made clear that the rule of "thin" copyright protection is of constitutional stature. Feist, 499 U.S. at 349-50. In the case of functional writings, the constitutional authorization to enact legislation to promote progress in the useful arts by granting a limited term of exclusive rights to inventors underscores the constitutional appropriateness of limiting the scope of copyright protection available to works depicting content that might be patented.

### C. Computer Programs Embody Many Useful Methods and Systems That Should Be Protected, If At All, By The Patent System.

Unlike traditional literary works, such as novels, computer programs typically embody or implement potentially patentable procedures, processes, systems and methods of operation.n14 Many thousands of patents have issued for program-related inventions in recent years, including utility patents for the following kinds of program components: (1) algorithms applied to industrial uses, see, e.g., Patent No. 4,744,028 (algorithm for efficient resource application); (2) efficient data structures, see, e.g., In re Lowry, 32 F.3d 1579 (Fed. Cir. 1994); (3) user interface techniques, see, e.g., Patent No. 5,467,448 (method for adjusting the format of tables intended for implementation in computer programs); (4) systems for program-to-program or program-to-machine interfaces, see, e.g., Atari Games Corp. v. Nintendo of America, Inc., 30 U.S.P.Q.2d 1401 (N.D. Cal 1993) and (5) systems for controlling the operations of particular kinds of machines, see, e.g., In re Abele, 684 F.2d 902 (C.C.P.A. 1982) (improved method for controlling operations of CAT-scan machine).

Patents have issued for these program elements because the patent statute identifies processes and machines as patentable subject matter, 35 U.S.C. sect. 101. Patent claims frequently characterize the nature of the claimed invention by describing them as a system for doing a particular task or a method of operating a device to accomplish some task. It is no wonder, then--and no mere coincidence either--that 17 U.S.C. sect. 102(b) identifies "process[es], system[s], [and] method[s] of operation" as elements that when embodied in works of authorship are beyond the scope of copyright. Moreover, patents routinely recite prior methods or systems of performing the same function in distinguishing the claimed invention from the prior art. Because of this, the availability of alternative choices is not by itself a reliable basis for distinguishing between elements of a program that are expressive and those that are excludable under sect. 102(b).

In recent years, courts in copyright cases involving computer programs have become increasingly sensitive to the utilitarian nature of computer programs and the important role patents play in providing legal protection to computer program innovations. In Atari Games Corp. v. Nintendo of America, Inc., 975 F.2d 832, 842 (Fed. Cir. 1992), for instance, the court stated that the author of a computer program should look to copyright law to protect the expression in her program, but to patent law to protect the processes or methods of operation that might be embodied in the program. See also Sega, 977 F.2d at 1526 and Borland, 49 F.3d at 819, Pet.App. 23a. (Boudin, J., concurring) (noting that extending a broad scope of copyright protection to computer programs "can have some of the consequences of patent protection in limiting other people's ability to perform a task in the most efficient manner").

### D. The District Court Improperly Applied Copyright To Protect Useful Methods or Systems In The Lotus Program.

As noted above, there are some among us who are persuaded by the First Circuit's ruling that the Lotus command hierarchy is an unprotectable method of operating a computer to perform spreadsheet functions. However, in the event the Court is not persuaded by the "method of operation" rationale employed by the Court of Appeals, we wish to bring to the Court's attention other troublesome aspects of the District Court's copyright analysis in this case.

First, the District Court characterized the Lotus command hierarchy as "a fundamental part of the functionality of keystroke sequences and the macro language." Borland II, 799 F. Supp. at 207, Pet.App. 110a; see also id. at 213, 219, Pet.App. 123a, 134a. It would appear to us that a macro language and fundamental parts of the functionality of a macro system would be beyond the scope of copyright protection under well-established principles deriving from Baker v. Selden and the "shorthand system" cases. See, e.g., Brief English, 48 F.2d 555 and Griggs v. Perrin, 49 F. 15 (C.C.N.D.N.Y. 1892).n15

Second, the District Court seemed more bothered by functional uses of the Lotus command hierarchy by Lotus's competitors than by informative displays of them. Compare Paperback, 740 F. Supp. at

69, Pet.App. 237a, (suggesting it would be lawful for a competing spreadsheet product to display the Lotus commands on a help screen to inform users about the equivalent command in the second program, or to have a macro conversion facility such as that provided in Microsoft's Excel product) with Borland II, 799 F. Supp. at 219, Pet.App. 134a. ("[T]he macros and keystroke sequences are protected to the extent that it is necessary to infringe a copyright to use them.") (emphasis added). From the standpoint of traditional principles of copyright law, this strikes us as backwards.

Third, in its most recent Borland decision, the District Court found copyright infringement arising from Borland's "key reader" feature that permitted users to use the same keystrokes to perform the same functions as the Lotus program. Execution of program functions through use of this feature does not involve any display of Lotus commands or their hierarchy. Indeed, in this last decision, the District Court seems to have found infringement based on "originality" in the selection and arrangement of executable functions of a program. Lotus Dev. Corp. v. Borland Int'l, Inc., 831 F. Supp. 223, 231 (D. Mass. 1993), Pet.App. 40a-41a (Borland IV).

Finding infringement based on similarities in executable functions comes perilously close to finding infringement based on the fact that the two programs perform the same functions. This is not what Congress intended when it enacted sect. 102(b).n16 Nor is it what Congress expected when enacting the computer program-related amendments to the copyright statute in 1980. Congress had been reassured by CONTU that as long as programmers wrote their own code, it should not infringe copyright for two programs to perform the same functions. CONTU Final Report at 21-22.

There is no question that copyright law provides protection to the literal code of computer programs, that is, to the set of statements and instructions that can be used in a computer to bring about certain result. 17 U.S.C. sect. 101. The courts have enforced this Congressional mandate, and the protection that copyright has provided to program code has incented considerable investments in software development. Copyright has also provided protection to some detailed elements of the internal structure of programs. See, e.g., Altai, 982 F.2d at 702-03. There is, however, nothing in the Copyright Act of 1976, its legislative history, or the computer program-related amendments to this Act added in 1980 to indicate a Congressional intent to extend copyright protection to the functional results occurring when program instructions are executed, such as when a program controls the operations of a nuclear power plant or performs spreadsheet functions.n17 These functional results are processes of the sort that Congress meant to exclude from the scope of copyright protection by enactment of section 102(b).

If computer programs need more protection against competitive imitation than copyright, supplemented by patent and trade secrecy law, can provide,n18 software developers should seek additional legal protection for computer programs from Congress. Even though incentive-based arguments for extending copyright law to reach all commercially valuable aspects of computer programs may have some appeal, adopting such a rule would ultimately have "a corrosive effect on certain fundamental tenets of copyright doctrine," as the Second Circuit so aptly noted in Altai, 982 F.2d at 712.

## V. CONCLUSION

Computer programs have posed many vexing questions for copyright law, including the difficult issues presented by the present litigation. As the Second Circuit Court of Appeals noted in Altai: "Thus far, many of the decisions in this area reflect the courts' attempt to fit the proverbial square peg in a round hole." Altai, 982 F.2d at 712. Even so, courts have been making progress in using case-by-case analysis to develop criteria for distinguishing the expression in programs from the methods or processes that are unprotectable by copyright law under sect. 102(b), just as Congress intended. The utilitarian nature of computer programs necessarily means that they will enjoy a narrower scope of copyright protection than artistic and fanciful works. Useful methods and processes embodied in or carried out by computer programs should be regulated by patent law, not copyright. As with the exclusion of facts from the scope of copyright by virtue of sect. 102(b), the exclusion of useful methods and processes from the scope of copyright "is not 'some unforeseen byproduct of some statutory scheme...,'" but "rather, 'the essence of copyright,' and a constitutional mandate." Feist, 499 U.S. at 349 (citation omitted).

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******FOOTNOTES******

1 They include: Professors Keith Aoki, University of Oregon School of Law, Stephen R. Barnett, University of California at Berkeley School of Law, Ralph S. Brown, Yale Law School, Dan L. Burk, Seton Hall University School of Law, Stephen L. Carter, Yale Law School, Margaret Chon, Syracuse University College of Law, Amy B. Cohen, Western New England College School of Law, Julie E. Cohen, University of Pittsburgh School of Law, Paul J. Heald, University of Georgia School of Law, Peter A. Jaszi, American University, Washington College of Law, Beryl Jones, Brooklyn Law School, John A. Kidwell, University of Wisconsin Law School, Edmund W. Kitch, University of Virginia Law School, Robert Kreiss, University of Dayton School of Law, Roberta R. Kwall, DePaul University College of Law, Leslie Kurtz, University of California at Davis School of Law, David L. Lange, Duke University School of Law, Mark A. Lemley, University of Texas School of Law, Marshall Leaffer, University of Toledo College of Law, Jessica Litman, Wayne State University Law School, Charles R. McManis, Washington University School of Law, Neil Netanel, University of Texas School of Law, L. Ray Patterson, University of Georgia School of Law, Henry H. Perritt, Jr., Villanova Law School, David G. Post, Georgetown University Law Center, Jerome H. Reichman, Vanderbilt Law School, David A. Rice, Rutgers, The State University of New Jersey, S.I. Newhouse Center for Law & Justice, Pamela Samuelson, Cornell Law School, David J. Seipp, Boston University School of Law, David E. Shipley, University of Kentucky College of Law, Lionel S. Sobel, Loyola Law School, Lloyd Weinreb, Harvard Law School, Alfred C. Yen, Boston College Law School, and Diane L. Zimmerman, New York University School of Law.

2 Hearings on S. 597 Before the Senate Subcomm. on Patents, Trademarks, & Copyrights of the Comm. on the Judiciary, 90th Cong., 1st Sess. 197 (1967).

3 H.R. Rep. No. 1476, 94th Cong., 2d Sess. 57 (1976), reprinted in 1976 U.S.C.C.A.N. 5659, 5670 and S. Rep. No. 473, 94th Cong., 2d Sess. 54 (1976) (emphasis added).

4 Id. (indicating an intent to restate the case law). Among the cases regarding section 102(b) as codifying the principal holding of Baker v. Selden are NEC v. Intel Corp., 10 U.S.P.Q. 2d

(BNA) 1177, 1179 (N.D. Cal. 1989) and Signo Trading Int'l v. Gordon, 535 F. Supp. 362, 365 (N.D. Cal. 1981).

5 Final Report of the National Commission on New Technological Uses of Copyrighted Works 18-23 (1979). Congress relied on the CONTU Report in enacting the amendments to copyright law that defined "computer program" (17 U.S.C. sect. 101) and provided for some special rules for programs (17 U.S.C. sect. 117), thereby giving the report a measure of Congressional imprimatur. See, e.g., Altai, 982 F.2d at 703 (deferring to CONTU Report).

6 The idea/expression distinction as related to abstractions predates Baker v. Selden. See, e.g., J. H. Reichman, Computer Programs As Applied Scientific Know-How: Implications of Copyright Protection for Commercialized University Research, 42 Vand. L. Rev. 639, 693 n.288 (1989). Those who look to Baker v. Selden as the case first enunciating the idea/expression distinction are misinformed about copyright history.

7 Although Baker's competing ledger sheets were somewhat different than Selden's in their selection and arrangement of columns and headings, the above-quoted statement makes clear that the Court would have ruled no differently had Baker used identical ledger sheets. See also Benjamin Kaplan, An Unhurried View of Copyright 64 (1967) ("the [Baker] privilege extends to exact copies").

8 As this Court observed in Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340, 350 (1991), the ability of second comers to appropriate unprotectable material from copyrighted works is not an unfair or unfortunate consequence of copyright law, but rather "the means by which copyright advances the progress of science and art."

9 To illustrate differences between the District Court's analysis in the Borland opinions and the Supreme Court's analysis in Baker v. Selden, we think it instructive to apply the District Court's "copyrightability" test to the facts of Baker.

The first step of the District Court's method of analysis involves construction of a hierarchy of abstractions for the aspect of the work whose "copyrightability" is to be determined. Borland I, 788 F. Supp. at 90, Pet.App. 164a (test formulated); Lotus Dev. Corp. v. Borland Int'l, Inc. , 799 F. Supp. 216-19 (D. Mass. 1992), Pet.App. 128a-131a (Borland II) (test applied). If one constructed a hierarchy of abstractions for the ledger sheet portion of Selden's accounting book, the selection of certain words as headings and the arrangement of them and the columns under which entries would be made would seem to be at the lowest level of abstraction. Under the District Court's methodology, this would suggest that these aspects of the ledger sheets should be regarded as expressive.

Consistent with the second step of the District Court's methodology, one would not inquire whether this selection and arrangement was a constituent element of a system, but rather whether the idea of an accounting system and Selden's expression of that idea were merged. To discern this, a court following the District Court's lead would likely examine other accounting books available in the marketplace, just as the District Court considered the availability of other designs for spreadsheet programs in Paperback and Borland. See, e.g., Paperback, 740 F. Supp. at 65-69, Pet.App. 229a-235a; Borland II, 799 F. Supp. at 217-18, Pet.App. 131a-132a. A study of these other accounting materials would likely reveal that Selden's particular selection and arrangement of elements were not essential to every expression of the idea of an accounting system, or solely dictated by the accounting functions they were to perform. Insofar as Selden had freedom of choice about which words to use and in what order to arrange them, under the District Court's methodology, they would likely be treated as expressive rather than being merged with the idea of an accounting system.

In line with the third step of the District Court's methodology, one would next inquire whether the ledger sheets were a substantial or nontrivial component of Selden's book. The answer to this question would almost certainly be that they were a substantial part. Because Baker's ledger sheets were substantially similar to Selden's, infringement would probably have been found applying the District Court's methodology to the facts of Baker v. Selden.

We see nothing in the Supreme Court's opinion in Baker v. Selden to suggest that the Court's ruling depended on whether Selden invented his system before selecting and arranging the columns and headings in the ledger sheets, developed the system and the ledger sheets simultaneously, or even developed the ledger sheets first and then decided later that they would permit people to do better accounting in accordance with a system they suggested. The District Court seems to suggest that merger can only be found if the system existed first and dictated the arrangement of elements. See Borland II, 799 F. Supp. at 212-13, Pet.App. 121a-123a. Nothing in Baker supports this distinction.

10 In Borland I, 788 F. Supp. at 91, Pet.App. 167a, the District Court stated that "[t]he mere fact that patent law allows a means of legal protection for a process...does not establish that there is not also some protection in copyright law." It cited the Supreme Court decision in Mazer v. Stein, 347 U.S. 201 (1954) as a precedent recognizing an overlap of copyright and patent protection. Mazer, however, involved a subject matter that was potentially eligible for both copyright and design patent protection. The statuette in that case was eligible for copyright protection as a sculpture. Because it was intended for sale as a lamp base, it was also potentially eligible for protection as a new and original ornamental design for an article of manufacture under design patent law, 35 U.S.C. sect. 171. We do not read Mazer as recognizing an overlap of copyright and utility patent subject matter, and we know of no precedent which recognizes the coexistence of copyright and utility patent in the same aspect of the same work. To the contrary, several courts have relied on Baker to reject claims of copyright infringement for aspects of a work that were the subject of expired utility patents. See, e.g., Taylor, 139 F.2d 98. Both copyright and patent protection can, of course, be available to computer programs, but each law protects different aspects of programs.

11 See, e.g., Combustion Eng'g, Inc. v. Murray Tube Works, Inc., 222 U.S.P.Q. (BNA) 239, 244 (E.D. Tenn. 1984); Muller v. Triborough Bridge Auth., 43 F. Supp. 298 (S.D.N.Y. 1942); National Cloak & Suit Co. v. Standard Mail Order Co., 191 F. 528 (C.C.S.D.N.Y. 1911).

12 See, e.g., Benjamin Kaplan, An Unhurried View of Copyright 63-66 (1967); Horace Ball, The Law of Copyright and Literary Property 125-28, 274-78 (1944); Arthur Weil, American Copyright Law 191, 209, 411-12 (1917). See also Ralph S. Brown, Eligibility for Copyright Protection: A Search for Principled Standards, 70 Minn. L. Rev. 579, 600-06 (1985); Reichman, Programs As Know-How, supra note 6, at 693 n. 288; 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, 326-27, n.70-71 (1992). But see Melville B. Nimmer & David Nimmer, 1 Nimmer On Copyright sect. 2.18[A], [B] (1995).

13 Baker, 101 U.S. at 102; Kepner-Tregoe, Inc. v. Carabio, 203 U.S.P.Q. (BNA) 124, 130 (E.D. Mich. 1979) (thin protection of functional works is an "open secret"); Sega, 977 F.2d at 1524 (discussing reasons that functional writings have a thinner scope of protection than other classes of works); Altai, 982 F.2d at 704 ("compared to aesthetic works, computer programs hover even more closely to the elusive boundary line described in sect. 102(b)"). See also Julie E. Cohen, Reverse Engineering and the Rise of Electronic Vigilantism: Intellectual Property Implications of "Lock-Out" Programs, 68 So. Cal. L. Rev. 1091 (1995); Mark A. Lemley, Convergence in the Law of Software Copyright?, 10 High Tech. L.J. 1 (1995).

14 Of course, there are many aspects of programs that both copyright and patent law would regard as unprotectable "ideas." See, e.g., In re Meyer, 688 F.2d 789, 794 (C.C.P.A. 1982) (noting the Court's longstanding exclusion of "scientific principles, laws of nature, ideas, and mental processes" from the subject matter of patent law); 17 U.S.C. sect. 102(b) (copyright's exclusion of ideas and principles).

15 See also Samuelson, supra note 12, at 334-35, n.109 (citing commentaries critical of concept that languages can be copyrighted).

16 See, e.g., Pamela Samuelson, Randall Davis, Mitchell D. Kapor, & J.H. Reichman, A Manifesto Concerning the Legal Protection of Computer Programs, 94 Colum. L. Rev. 2308, 2351 (1994) ("program behavior, in general, is unprotectable by copyright law on account of its functionality").

17 Sometimes, of course, the results achieved by execution of program instructions will be textual (an electronic book, for example) or pictorial (such as videogame graphics). In such cases, courts will be able to apply traditional copyright principles when charges of infringement arise. See, e.g., Atari, Inc. v. North American Philips Consumer Elec. Corp., 672 F.2d 607 (7th Cir. 1982) (finding infringement because of similarities in pictorial details of two videogames).

18 See, e.g., Samuelson, et al., supra note 16, at 2342-61.