Computerization Of The *Nichols*' Analysis For Assessing Scope Of Copyright Protection And For Assessing Copyright Infringement[1]

by Al Harrison[2]

I. Introduction

This paper addresses the current unsettled state of copyright protection provided for computer programs and concomitant elements thereof.[3] The copyright statutes[4] have become a popular sword for protecting computer programs from infringement by competitors. Copyright protection in a work vests at

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[3] Concomitant elements of computer programs include user interfaces, help screens, user manuals, and internal structure, sequence and organization. Such structure, sequence and organization is commonly, but, unfortunately ambiguously, referred to as "nonliteral elements" of computer programs, so that a particular context and scope thereof applied by courts is usually unclear.

[4] 17 U.S.C. §§ 101-810.

the moment such work is created, provided that the author exhibits sufficient originality and does not infringe upon the copyrights of predecessor authors.[5]

To establish copyright infringement, a plaintiff must prove ownership of a valid copyright and copying of its constituent protectable elements.[6] A court faced with the task of determining whether demonstrated copying rises to the level of infringement must analyze the nature of a copyrighted work to first assess its scope of protection and then to assess the extent of the similarity between the copyrighted work and the alleged infringing work.[7] This paper will also argue that the "Abstractions Test" originally articulated by Justice Learned Hand[8] established a sufficiently broad basis for properly deciding the diversity of computer copyright cases that have been invading the federal courts.

II. Copying Presumptions and Connotations

Copying, at least as frequently perceived by triers of fact, is presumptively unlawful. The connotations associated with the verb "copy" are indicative of one who elects to engage in the duplication process ostensibly to benefit from the fruits of another's labor. If an accused defendant infringer had not

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[5] *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340, 34?, 111 S.Ct. 1282, 1287 (1991).

[6] *Miller v. Universal City Studio, Inc.*, 650 F.2d, 365, 1375 (5th Cir. 1981); *Engineering Dynamics, Inc. v. Structural Software, Inc.*, No. 92-3444 Slip Op., at 9 (5th Cir. July 13, 1994), citing *Feist Publs. v. Rural Tel. Serv. Co.*, 499 U.S. at 361, 111 S.Ct. at 1296 and *Plains Cotton Co-Operative of Lubbock Texas v. Goodpasture Computer Service, Inc.*, 807 F.2d 1256, 1260 (5th Cir.), *cert. denied*, 108 S.Ct. 80 1987).

[7] *Feist Publs. v. Rural Tel.*, 499 U.S. at 361, 111 S.Ct. at 1296.

[8] *Nichols v Universal Pictures Corp.*, 45 F.2d 119 (2d Cir 1930), *cert. denied*, 282 U.S. 902 (1931).

engaged in copying all or part of a plaintiff's work, then such defendant would not be subjected to the legal machinery of the courts. But copying is not actionable *per se:* the focus should be whether copying activity infringes upon the rights of another.

A subtle byproduct of *Saturday Night Live*'s "Copymeister" character[9] is the message that photocopy machines have permeated the business environment and that copying is not inherently a dastardly deed. Justice O'Connor, indeed, has recently articulated that "[n]ot all copying, however, is copyright infringement"[10] and that the constitution "encourages others to build freely upon the ideas and information conveyed by a work."[11] In particular, the constitution authorizes and Congress has enacted Copyright Statutes to "[p]romote the Progress of Science and useful Arts."[12] Accordingly, to establish copyright infringement, both ownership of a valid copyright in a work and copying of original (and hence protectable) constituent elements of the work must be proven.[13]

III. Overview of Copyright Protection

It is well settled that computer programs may receive copyright protection, notwithstanding

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[9] *Saturday Night Live* is a television program broadcast on Saturday nights and presenting a series of skits which typically humorously portray aspects of the human condition. The "Copymeister" is a character, developed and depicted by cast member Rob Schneider, who sits at a desk near a corporate copy machine and taunts every fellow employee making copies. This taunting is intended to be merely in jest, notwithstanding being obnoxious to the Copymeister's fellow employees.

[10] *Feist Publs. v. Rural Tel.,* 499 U.S. at 361, 111 S. Ct. at 1296.

[11] Id., 499 U.S. at 351, 111 S.Ct. at 1290.

[12] Id., citing Const., Art. I, § 8, cl. 8.

[13] Id., 499 U.S. at 361, 111 S.Ct. at 1296.

inherently having an utilitarian purpose.[14] For copyright registration purposes, computer programs are considered to be literary works.[15] This protection has been accorded not only to computer program literal elements manifest in source code[16] or object code,[17] but also to its non-literal elements manifest in a user interface, screen layout, and structure, sequence and organization. [18]

But the scope of copyright protection is limited by statute, precluding such protection from being extended 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."[19] This section was added by amendment to incorporate well-settled law, articulated by the U.S. Supreme Court in the time-honored *Baker v Selden* case[20].

Prior to filing a copyright infringement suit in federal court, registration of the underlying creative

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[14] 17 U.S.C. § 101 (1992) defines a computer program as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result" and 17 U.S.C. § 102(a)(1990) states that"[c]opyright protection subsists [] in original works of authorship fixed in any tangible medium of expression [] from which they can be perceived, reproduced, or otherwise communicated, either directly or with aid of a machine or device." See also *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255, 259-260 (5th Cir. 1988).

[15] See *The Gates Rubber Company v. Bando Chemical Industries, Ltd.*, 9 F.3d 823, 839 (10th Cir. 1993) and *Computer Associates, Inc. v. Altai, Inc.*, 982 F.2d 693, 1249-1250 (2d Cir. 1992).

[16] *CMS Software Design Sys., Inc. v. Info Designs, Inc.*, 785 F.2d 1246, 1249 (5th Cir. 1986).

[17] *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1249 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984).

[18] See R.T. Nimmer, *The Law Of Computer Technology* ¶ 1.02 (Cum. Supp. No. 1 1993).

[19] 17 U.S.C. § 102 (b) (1988).

[20] 101 U.S. 99 (1880).

work must be obtained.[21] Applications for copyright registration of computer programs, filed under Form TX as nondramatic literary works[22], typically receive only a modicum of examination by the Examining Division of the Copyright Office.[23] The purpose of such a cursory examination is to establish that there exists at least a minimal quantum of originality in the work to merit registration.[24] In addition, the recent provision for supplementing copyright registrations with amplifications and corrections under Form CA, has enabled applicants to easily rectify errors or omissions with impunity.[25] It should be noted that for infringements perpetrated prior to obtaining copyright registration, statutory damages[26] are not available.[27]

Notwithstanding that copyright protection may not be extended to ideas, procedures, processes,

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[21] *Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255, 262 (5th Cir. 1988), citing 17 U.S.C. § 411 ("no action for infringement of the copyright in any work shall be instituted until registration of the copyright claim has been made []"). Registration being a prerequisite for filing a copyright infringement suit appears to be ephemeral, however, in view of HR 897 being passed in the House of Representatives on November 20, 1993 and S 373, its counterpart, expected to be passed by the Senate sometime in 1994. See 47 P.T.C.J. 78 (November 25, 1993) (BNA).

[22] Compendium II, Compendium of Copyright Office Practices, ¶ 321 at 300-16 (1984).

[23] See Declaration of J.A. Baumgarten, former General Counsel of the Copyright Office (extension of Patent and Trademark Office's inequitable conduct doctrine to Copyright Office improper), at 3-4, filed November 15, 1990 in Ashton-Tate v. Fox Software, Inc., 12 U.S.P.Q.2d 1734 (1991) (dismissal by agreement); see also Wiley, *Copyright at the School of Patent*, 58 U.CHI.L.REV. 119, 157 (1991).

[24] For insight into the minimal standard of originality prerequisite to copyrightability, see *Feist Publs. v. Rural Tel.*, 499 U.S. at 361, 111 S.Ct. at 1296; *Donald v. Zach Meyer's TV Sales and Service*, 426 F.2d 1027 (5th Cir. 1970), *cert. denied*, 91 S.Ct. 459 (1971).

[25] See Copyright Office Circular 8, Supplementary Copyright Registration.

[26] See 17 U.S.C. § 504 (1988).

[27] 17 U.S.C. § 412 (1990).

systems, or methods of operation, courts have occasionally granted protection to computer programs which exceed the coverage which would be attainable under the patent statutes. Patent protection, while being eventually recognized by the computer industry in the late 1980's as a viable means of software protection, routinely receives rigorous examination by the US Patent and Trademark Office and concomitantly typically requires protracted prosecution by patent attorneys, before Letters Patent are granted. The filing of a patent application[28] entitles an applicant to designate a purported invention as having a "Patent Pending" or "Patent Applied For." But the mere filing of a patent application does not assure that an applicant will receive the patent grant.[29] To be patentable, an invention must satisfy the threefold statutory prerequisites of usefulness, novelty and nonobviousness.[30] While the life of a patent for an inventive concept is 17 years, the life of copyright in a creative work of authorship is, for an author, the author's life plus 50 years or, for anonymous or pseudononymous works or works made for hire, 75 years from the year of first publication or 100 years from the year of creation, whichever expires first.[31] Thus, to the extent comparable protection may be achieved via either the copyright or patent statutes, copyright is cheaper, quicker and lives longer.

Thus, there is a systemic problem in the intellectual property regime: notwithstanding the copyright statutes precluding protection to inherent aspects of computer programs, to wit: ideas, procedures,

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[28] Patent applications are filed in the U.S. Patent and Trademark Office pursuant to 17 U.S.C. § 111 *et seq*. and in accordance with 37 C.F.R. § 1.51 *et seq*.

[29] See Wiley, *Copyright at the School of Patent*, 58 U.CHI.L.REV. at 157.

[30] See 35 U.S.C. § 101.

[31] 17 U.S.C. § 302 (1988).

processes, systems, etc., the effective scope of protection accorded computer programs based upon copyright registration frequently exceeds the scope of protection that would be attainable through a patent grant. The scope of a patent grant is measured by the particular language of its claims which must have a precise antecedent basis in the specification and drawings. Furthermore, allowance of the claims of a pending patent application is obtained only after rigorous scrutiny by a patent examiner. The scope of a copyrighted work, in the context of ascertaining the precise limits of an author's claim of proprietary rights, is not entertained by the US Copyright Office; such scope is ascertained by a judge in federal court for matters in controversy. Accordingly, the quintessential issue involved in copyright infringement litigation, is the scope of protection to be afforded a registered work of authorship. The boundary values of such protection should be dictated by the scope of the elements of the work actually registered,[32] and, of course, within the statutory limits of copyright protection. Courts routinely cite basic copyright principles but, unfortunately, unevenly assess the scope of copyright protection. Hence, findings of copyright infringement throughout the circuits have proven to be unpredictable. This unsettled situation is primarily due to the obstacles to judicious selection of a proper and reliable test for ascertaining copyright infringement.

IV. Copyright Infringement: The *Nichols* Substantial Similarity Analysis

To establish copyright infringement, a plaintiff must prove actionable copying of a copyrighted work by an accused infringer. Of course, a prerequisite of actionable copying is for a plaintiff to own a

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[32] *Cable News Network, Inc. v. Video Monitoring Services of America, Inc.*, 940 F.2d 1471, 1479 (11th Cir. 1991).

copyrighted work sufficiently original to merit protection as contemplated under copyright law. [33] A plaintiff is typically unable to prove actual copying and, accordingly, must prove that the accused infringer had access to the copyrighted work.[34] To prove actionable copying of a copyright-protectable work, a plaintiff must show that the allegedly infringing work which is similar to plaintiff's copyrighted work is so substantially similar to plaintiff's work to be an infringement thereof.[35] But the rub is for a court to invoke a proper test and to conduct an appropriate analysis for such determination of substantial similarity.

The so-called "Abstractions Test" articulated by Justice Learned Hand more than sixty years ago[36] has been the basis for tests of copyright infringement, albeit in several variations. This Abstractions Test and intertwined substantial similarity analysis were announced by the *Nichols Court* to help assess the boundaries of protectability for a copyrighted work, recognizing that such boundaries were not necessarily limited to literal text and the like. Indeed, if protectability were limited to literal text, then "a plagiarist would escape by immaterial variations."[37]

The *Nichols Court* grappled with a fact situation which compared two plays with common thematic material comprising a "quarrel between a Jewish and an Irish father, the marriage of their children, the birth

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[33] *Feist Publs. v. Rural Tel.*, 499 U.S. at 361, 111 S.Ct. at 1296; *Donald v. Zach Meyer's TV Sales and Service*, 426 F.2d 1027 (5th Cir. 1970), *cert. denied*, 91 S.Ct. 459 (1971).

[34]See, generally, 3 Nimmer and Nimmer on Copyright § 13.01 [A] and See R.T. Nimmer, The Law Of Computer Technology ¶ 1.03[4].

[35] See, generally, 3 Nimmer on Copyright § 13.03 [A].

[36]*Nichols v Universal Pictures Corp.*, 45 F.2d 119 (2d Cir 1930), *cert. denied*, 282 U.S. 902 (1931).

[37] Id at 121.

of grandchildren and a reconciliation."[38] Plaintiff Nichols, as the author of "Abie's Irish Rose," alleged that the defendant's motion picture "The Cohens and The Kellys" constituted an unlawful taking of copyrighted material.[39]

The *Nichols* analysis provided a means to help perceive the structure underlying a copyrighted work as a progression of transitions between successive levels of abstraction until a critical transition occurs wherein there is a clear separation of unprotectable idea from protectable expression.[40] The approach, specifically targeted for a play, but anticipated by the *Nichols Court* to apply to any work of authorship, envisions a series of discrete plateaus, progressing bottom-up from the most detailed to the most general level of abstraction. Each such level or plateau[41], regardless of its relative placement in the abstraction-hierarchy, depends from the work of authorship and is populated with particular constituent elements of the work. Thus, visualizing the progression from the bottom toward the top of the hierarchy of plateaus for the theoretical abstractions corresponding to a play like Abie's Irish Rose, for each such plateau "more and more of the incident is left out." Accordingly, each transition to a higher level of abstraction corresponds to a plateau characterized by incrementally less detail and more generality. [42]

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[38] Id at 122.

[39] Id at 120.

[40] Id at 121.

[41] The writer prefers to use the term "plateau" instead of the term "level" because plateau connotes a physical region having contours and the like which better depict the multidimensionality and multifunctionality of computer programs and interactive, dynamic user interfaces; level connotes a one-dimensional height measure.

[42] Id.

Once such a hierarchical decomposition is accomplished, then how does an analysis of these Nichols plateaus provide guidance to a court charged with comparing two allegedly similar works? Justice Learned Hand provided a theoretical basis for a two-step resolution of the infringement issue. First, there is an assessment of the scope of protection to which a work may be entitled, if any, conducted on each abstraction plateau. While assessing the copyrightability of the elements subsumed into plaintiff's Abie's Irish Rose, the coverage was denied to certain elements because of public domain, merger and/or common character and scene prototype considerations.[43] Second, if a work is, indeed, entitled to protection, there is a comparison between the copyrighted work and the alleged infringing work to ascertain whether similarities there between are sufficient to be deemed "substantial," whereupon liability for infringement attaches.[44]

For copyright infringement scenarios in which literal infringement is perpetrated, e.g., in which an accused infringer allegedly has appropriated "a block [of protectable copyrighted materials] in situ," similar quanta of purportedly specific expressions in the accused work should be compared with the copyrighted work. But for scenarios in which an alleged "plagiarist does not take out a block in situ, but an abstract of the whole []", then, for such non-literal infringement of protectable copyrighted materials, the substantiality of such "abstract of the whole" in the accused work should be compared with the copyrighted

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[43] Id. at 121-122. For example, the theme of a quarrel between Jewish and Irish fathers, marriage of their children, birth of grandchildren, and ultimate reconciliation between the fathers was held to be "too generalized an abstraction from what she [the author] wrote. It was only a part of her 'ideas.' " Similarly, the four characters appearing in plaintiff's play were deemed to be common prototypes. "The lovers are so faintly indicated as to be no more than stage properties."

[44] Id. at 121.

work.[45]

Stated differently, the *Nichols* analysis first attempts to focus upon appropriate plateaus which contain a work's copyrighted and protectable materials. Once these plateaus containing such expression are ascertained, then similar expression incorporated in the alleged infringing work may be compared with the complete copyrighted work, construed in the context of the underlying skeleton or structure which "pervades and supports" the copyrighted work at large.[46] But whether the alleged infringing material is essentially "a block in situ" or not, the substantiality of the protectable materials which have been appropriated from the copyrightable work must be analyzed in the context of such copyrighted work *in toto*.

Hence, to properly apply the *Nichols* analysis, a court has the twofold task of focusing upon the protectable portion of a copyrighted or copyrightable work and then assessing the appropriation thereof is substantial in view of the work as a whole. To assist trial judges ascertain the critical plateau at which to evaluate the scope of protectable expression, if any, in a work of authorship, the *Nichols Court* provided an illustration taken from Shakespeare's *Twelfth Night*:

> If Twelfth Night were copyrighted, it is quite possible that a second comer might so closely imitate Sir Toby Belch or Malvolio as to infringe, but it would not be enough that for one of his characters he cast a riotous knight who kept wassail to the discomfort of the household, or a vain and fopppish steward who became amorous of his mistress. These would be

[45] Id.

[46] Id.

> no more than Shakespeare's "ideas" in the play, as little capable of monopoly as Einstein's Doctrine of Relativity, or Darwin's theory of the Origin of Species. It follows that the less developed the characters, the less they can be copyrighted; that is the penalty an author must bear for marking them too indistinctly.[47]

Interestingly, the analysis of the scope of protectability includes a "penalty" notion which relates to the extent of an author's developing (as expression) particular ideas and the like. Insufficiently or inadequately developing such ideas renders purported "expression" thereof not protectable by copyright; the author is presumably penalized by not being accorded protection for insufficiently developed ideas manifest in expression. Does this guidance presumably provide the insight necessary to comprehend the basis for the *Nichols Court*'s decision?

Consider the following table depicting sample plateaus for either plaintiff Nichols' play or defendant Universal Pictures' motion picture. Plateau 1 corresponds to the highest level of abstraction, the most generalized plateau. Plateau 4 corresponds to the lowest level of abstraction, the most detailed plateau.

Plateau	Elements Populating Plateau
1	Man meets and marries woman
	Man meets and secretly marries woman
2	Jewish/Irish man meets and marries Irish/Jewish woman
	Jewish/Irish man meets and secretly marries Irish/Jewish woman

[47] Id. (emphasis supplied).

Plateau	Elements Populating Plateau
3	Jewish/Irish man meets and marries Irish/Jewish woman, over their respective parents' objections
	Jewish/Irish man meets and marries Irish/Jewish woman, over their respective father/widowers' objections
	Jewish/Irish man meets and secretly marries Irish/Jewish woman, using Protestant minister
	Jewish man meets and secretly marries Irish woman, then introduces her to his father as being Jewish
4	Jewish woman meets and falls in love with Irish man, with their families being hostile neighbors in New York City
	Jewish widowed father who is "affectionate, warm and patriarchal" and opposes the marriage of his son to a Gentile woman
	Jewish father who is "tricky, ostentatious and vulgar" and opposes the marriage of his daughter to a Gentile man

The increasing development of either plot, subplot and/or characters, progressing from plateau 1 to plateau 4 should be apparent. First, the transition from plateau 1 to plateau 2 introduces ethnicity couched in the form of Jewish-Irish interfamily relations. Taking a snapshot of a plateau having man and woman meeting and (secretly) marrying and even introducing ethnicity considerations, fails to portray sufficient peaks and valleys to manifest creativity for copyright purposes.[48] Thus, any similarities occurring between two works on both plateaus 1 and 2 should be considered as mere plot subsections or character stereotypes and, accordingly, unprotectable expression. Second, the transition from plateau 2 to plateau 3 introduces intermarriage logistics. Taking a snapshot of a plateau having man and woman (secretly)

[48] Id. at 122.

marrying across religious barriers, still fails to portray sufficient contours of creativity for copyright purposes.[49] Thus, the transition from plateau 2 to plateau 3 is not significant: any similarities occurring between two works on plateau 3 should be considered, on the *Nichols* facts, as mere plot subsections or character stereotypes and, accordingly, unprotectable expression.[50] The transition to plateau 4, however, introduces sufficient creativity in the form of contours representing more detailed plot and character development.[51]

In particular, the *Nichols Court* found, on the one hand, that the stories in the plaintiff's play and the defendant's motion picture were significantly different, and, on the other hand, that their thematic similarities were "too generalized an abstraction from what she [plaintiff] wrote. It was only part of her 'ideas.' " It was also found that the character development common to each work was merely a set of predictable prototypes well known in the art. Hence, it was held that there was no infringement of Nichols work and that her copyright "did not cover everything that might be drawn from her play."[52] It is useful

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[49] Id. at 121-122.

[50] Id.

[51] Id. at 122.

> The plaintiff's Jew is quite unlike the defendant's. His obsession is his religion, on which depends such racial animosity as he has. He is affectionate, warm and patriarchal. None of these fit the defendant's Jew, who shows affection for his daughter only once, and who has none but the most superficial interest in his grandchild. He is tricky, ostentatious and vulgar, only by misfortune redeemed into honesty. Both are grotesque, extravagant and quarrelsome; both are fond of display; but these common qualities make up only a small part of their simple pictures, no more than any one might lift if he chose. (Emphasis supplied).

[52] Id. at 122.

to note that the *Nichols Court* observed that the difference in race between Nichols' respective Jewish and Irish widower fathers, who function as each other's foil, was dictated by the main religious theme of the play.[53] This, of course, echoes the well-settled *scenes a faire* doctrine,[54] and supports the holdings in *Plains Cotton Co-Op v. Goodpasture Computer Services* and *Computer Associates v. Altai* which found copyrighted materials to be unprotectable because of factors and considerations external to the author and contrary to the constitutional purposes of the copyright statutes.[55]

Accordingly, it was held by the *Nichols Court*, presumably making its observations on plateau 3, representing the culmination of the top three (generalized and stereotyped) abstractions, that the defendant had taken no more of the characters "than their prototypes have contained for many decades" accompanied by a detailed recitation of the several differences which clearly distinguished the plaintiff's characters from the defendant's (similar but not substantially similar) characters. The Court also held that the theme of plaintiff's play was not protectable by copyright because it was "too generalized an abstraction from what she wrote. It was only a part of her 'ideas'."[56]

V. Computerizing the Substantial Similarity Test

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[53] Id.

[54] See 3 Nimmer On Copyright § 13.03[B][4].

[55] *Plains Cotton Co-Operative of Lubbock Texas v. Goodpasture Computer Service, Inc.*, 807 F.2d 1256, 1262 (5th Cir.), *cert. denied*, 108 S.Ct. 80 (1987)(relying on *Synercom Technology, Inc. v University Computing* Co., 462 F. Supp. 1003 (N.D. Tex 1978) (Higginbotham, J.); *Computer Associates, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992).

[56] Id at 122.

Using the *Nichols Court*'s guidelines, both trial and appellate courts have striven over the past sixty years to properly adapt its analysis to determine the scope of protection to be accorded a diversity of works of authorship, and then to ascertain whether there exists substantial similarity between an alleged infringing work and a plaintiff's copyrighted work. Learned Hand applied this reasoning to decide whether the film entitled "Letty Lynton" infringed upon the copyrighted play entitled "Dishonored Lady" in *Sheldon v. Metro-Goldwyn Pictures Corp.*[57] Walking through his substantial similarity analysis, Justice Hand observed that similarities included the same situs, the same social class, similar characters and parallel incidents throughout the respective works.[58] Accordingly, since the film was found to exhibit substantial similarity with sufficiently detailed and developed levels of abstraction which permeated plaintiff Sheldon's play, defendant was held to have committed infringement and was enjoined from profiting further from showing its film. The *Sheldon Court*, responding to defendant's argument that some of Sheldon's play borrowed from the public domain, noted that unlike patent protection, originality but not novelty was required for copyright protection.[59]

A decade later, the Second Circuit addressed the substantial similarity issue related to musical compositions by subdividing its analysis into two steps.[60] First, it was determined whether a defendant copied its musical composition from plaintiff. Then, it was determined whether such copying was

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[57] 81 F.2d 49, 54 (2d Cir.) (L. Hand, J.), *cert. denied*, 298 U.S. 669 (1936) (substantial similarity prerequisite for infringement).

[58] Id. at 54-55.

[59] Id. at 53-54 (borrowing is not fatal to copyrightability provided there is prerequisite originality).

[60] *Arnstein v. Porter,* 154 F.2d 464 (2d Cir. 1946).

sufficiently substantial to constitute misappropriation. Pursuant to deciding the first, (copying) step, the *Arnstein Court* compared the musical works *in toto*, i.e., both the protectable and nonprotectable elements were compared. Furthermore, deviating from traditional criterion of considering only the lay observer's vantage point, the court permitted analytic dissection[61] from an expert's vantage point. In the second step, however, the extent of the copying was analyzed from the intended music-listening audience vantage point, i.e., precluding dissection and experts.[62]

Some twenty years later, the Ninth Circuit applied the *Nichols* rationale to establish that a defendant's greeting cards were substantially similar to copyrighted greeting cards, by citing to the Second Circuit's *Sheldon* decision.[63] In analyzing the characters depicted on greeting cards, the mood conveyed by these characters and the arrangement thereof, the court found that, at this level of detail, there was a "remarkable resemblance" therebetween. Indeed, the *Roth Greeting Cards Court* articulated its substantial similarity assessment in terms of defendant's duplicating plaintiff's "total look and feel."[64]

The Ninth Circuit then applied this total concept and feel doctrine in *Sid & Marty Krofft Television Productions v. McDonald's Corp.*,[65] to ascertain whether characters which appeared in McDonald's advertising infringed upon Sid & Marty Krofft's ?H.R. Pufnstuf" characters. It was held that

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[61] Analytic dissection contemplates decomposing a work into its component parts and analyzing each component individually.

[62] Id. at 468-69.

[63] *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106, 1110 (9th Cir. 1970).

[64] Id.

[65] 562 F.2d 1157 (9th Cir. 1977).

McDonald's characters captured the total concept and feel of the H.R. Pufnstuf characters and setting, and were, accordingly, substantially similar thereto. While ascertaining whether substantial similarity existed between the works in issue, the *Sid & Marty Krofft Court* announced a twofold test for enabling a comparison to be made, modeled after the Second Circuit's *Arnstein* test. First, the Court applied an "extrinsic test" to assess the general similarity of ideas and concepts, using analytic dissection and experts. Next, an "intrinsic" test was applied to compare the particular expression used for such similar ideas and concepts on the basis of their impact upon ordinary observers.[66] This incarnation of a substantial similarity analysis fails to improve upon the *Arnstein* analysis: it focuses on copying of idea instead of expression during its extrinsic step and then limits analysis during its subsequent intrinsic step to determining whether there is sufficient similarity of expression of the similar ideas and concepts. Thus, it fails to isolate protectable expression and then to analyze the impact of copying such expression relative to the complete copyrighted work, from the vantage point of a lay observer.

Thereafter, the Second Circuit took the baton and affirmed a decision that two MGM films entitled "Tarzan, the Ape Man" did not infringe upon the book entitled Tarzan of the Apes.[67] Expressly invoking the *Nichols* analysis, after observing "clear similarity" at high, general levels of abstraction involving the lifestyle of the Tarzan character, the *Burroughs Court* found that at specific levels of abstraction there were "differences in the story overwhelm this general similarity." [68] In particular, the various incidents of the respective Tarzan stories in the films vis á vis plaintiff Burrough's book were consistently found to be

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[66] Id. at 1164-1165.

[67] *Burroughs v. Metro-Goldwyn-Mayer, Inc.*, 683 F.2d 610 (2d Cir. 1982).

[68] Id. at 623-625.

dissimilar. Furthermore, the similarities in Tarzan characters were found to be within the scope of a character license granted to MGM.[69]

Before tracing the application of the substantial similarity analysis into the computer software industry, it is instructive to attempt to apply the *Nichols* analysis to a recent U.S. Supreme Court compilation copyright decision. While not explicitly referring to the *Nichols* Abstractions Test or copyright-protectability analysis, Justice O'Connor at least colorably appears to analyze the elements of a business white pages on a similar (substantially similar?) basis in deciding *Feist Publications, Inc. v. Rural Telephone Service Co.*[70] That is, Justice O'Connor articulated her analysis of the scope of protectability to be accorded business white pages in terms of elements which may be broken down into plateaus thusly:

Plateau	Elements Populating Plateau
1	type of information reported about each telephone subscriber
2	factual information, *per se*
3	ordering of subscribers in a telephone directory
4	ordering of this information for each subscriber

It should be appreciated that the *Nichols* analysis compels the trier of fact to establish a hierarchy (of relative generality) of elements contained in a copyrighted work. The *Feist Court*, applying traditional doctrines of copyright law to what was reduced to a compilation of facts, after terminating the ill-founded

[69] Id. at 624.

[70] 111 S. Ct. 1282 (1990).

"sweat of the brow" doctrine,[71] to each of these four plateaus, held that a creative spark was missing from the garden variety compilation inherent in a telephone listing (whose elements populated these plateaus).[72] Since business white pages failed to possess sufficient originality to merit any protection by copyright, no copyright infringement liability attached. Having demonstrated a reasonable fit of the *Nichols* analysis to a familiar fact situation, it is time to visit the "computerization" of this and related analyses.

Prior to the advent of desktop computers and the like in the 1980's, Justice Patrick Higginbotham[73] decided litigation involving the protectability of input data formats used in conjunction with mainframe computer software. Judge Higginbotham observed that "these formats express to the user the sequencing of data for simplified access to the computer programs" and "communicates the selection arrangements and sequence" of such data.[74] In view of the well-established constraint against granting copyright protection to blank forms,[75] the court articulated "[t]hat these ciphers bear the computer world name of formats is unfortunate because it suggests that are formats as that term is used in copyright law; they are not."[76] The *Synercom Court* held that there was no idea separable from the formats *per se*, and, accordingly, deemed them to be uncopyrightable. The court articulated, however, that these input formats may be represented

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[71] Id. at 1292-1293.

[72] Id at 1297.

[73] Sitting as a district judge, and now sitting on the Fifth Circuit.

[74] Id. at 1012.

[75] *Baker v. Selden*, 101 U.S. 99 (1880).

[76] Id. at 1011.

in several different forms of expression, including prose descriptions, diagrams and training films.[77]

The *Synercom* data formats may be projected upon *Nichols* plateaus thusly:

Plateau	Elements Populating Plateau
1	sequence and ordering of data in fields
2	sequence and ordering of fields on particular card
3	sequence and ordering of cards in deck

These respective plateaus depict the different type of order and arrangement that characterize the plaintiff Synercom Technology's card decks. Based upon the functional nature of these formats or ciphers, at all levels of detail implemented by Synercom Technology, copyrightability did not attach. If applying the *Nichols* analysis to the more detailed plateaus fails to trigger a creative spark, as contemplated by the copyright statutes, then no protection should be available and, of course, no infringement should be found.

The prevalent applications of tests for scope of copyright protection and for infringement in the context of underlying computer programs was video game cases which were decided during the 1980's. The audiovisual displays of such electronic games were accorded scope of protection on a "total concept and feel" theory. For example, in a dispute between Atari and Amusement World, it was decided that the total concept and feel of the "Meteors" video game was not an infringement of the total concept and feel

[77] Id. at 1013.

of the "Asteroids" video game.[78] Similarly, the Seventh Circuit held that a defendant infringed upon the total concept and feel of the "Pac-Man" video game.[79] Particularly in view of the marginal discrimination exhibited by the typical (juvenile) audience playing Pac-Man, several differences in "aesthetic expression" were deemed to have de minimis impact upon the substantiality of the similarity of the video games to the common player thereof.[80]

This hand-waving, i.e., total look and feel, approach to assessing substantial similarity was extended beyond video games to a simple menu for generating customized signs, banners, greeting cards, and posters.[81] Defendant's audiovisual displays springing from its "Printmaster" computer program were held to infringe plaintiff Broderbund's copyright in the audiovisual displays springing from its "Print Shop" computer program, on the basis of their total concept and feel being virtually identical.[82] The trial court applied the Krofft adaptation of the Arnstein two-step test concluding that both computer programs intrinsically "share the same underlying idea" and then construing that the Printmaster work extrinsically "captures the 'total concept and feel' of the protected [Print Shop] work." That the defendant was guilty of copyright infringement was deemed to be obvious from the "eerie resemblance between the screens of

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[78] *Atari, Inc. v Amusement World, Inc*., 547 F. Supp 222, 228 (D. Md 1981) (relying on *Sid & Mary Krofft Television Productions v. McDonald's Corp.).*

[79] *Atari, Inc. v. North American Philips Consumer Electronics Corp.*, 672 F.2d 607 (7th Cir.), *cert. denied,* 459 U.S. 880 (1982).

[80] Id. at 619.

[81] *Broderbund Software v. Unison World, Inc*., 648 F.Supp. 1127, 1130 (N.D. Cal. 1986).

[82] Id. at 1137.

the two programs."[83]

Prior to applying the *Krofft* two-step substantial similarity test, the *Broderbund* trial court grappled with the issue of whether the Print Shop screen displays were protectable by copyright. To resolve this issue, the Third Circuit affirmation of the *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.* decision[84] was weighed against the *Synercom Technology, Inc. v. University Computer Co.* decision.[85] The *Whelan Court* established the scope of copyright protection to be accorded plaintiff's computer program by focusing upon which of the various *Nichols* plateaus was necessary to accomplish the single purpose or function of the computer program. Thus, for copyrightability and consequent infringement considerations, the "idea" of a computer program, as a utilitarian work, was held to be tantamount to its purpose or primary function. By extension, the Third Circuit reasoned, "everything that is not necessary to that purpose or function would be part of the expression of the idea. [] Where there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose []."[86] Hence, since the idea of each of the two computer programs in issue was the efficient organization of a dental laboratory, virtually all of the nonliteral elements of plaintiff's computer program, manifest in its "structure, sequence and organization" were held to be protectable by copyright.[87]

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[83] Id., as illustrated by the sequence of screens and the choices presented, the screen layouts and the method of feedback to the user.

[84] 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 1031 (1987).

[85] 462 F.Supp. 1003 (N.D. Tex. 1978).

[86] 797 F.2d at 1236.

[87] Id. at 1248.

Apparently not appreciating the difference between the strictly linear ordering and arrangement of fields of data on an 80-column conventional computer input card[88] and a two-dimensional screen display menu having sound effects, the *Broderbund Court* considered them both to come under the "user interface" umbrella.[89] But even the much maligned *Whelan Court* apparently understood that the *Synercom* input data formats held to be uncopyrightable *per se* were "structurally simple as compared to full [computer] programs []"; but, in the same breath, the court noted that "insofar as data formats are devices for the organization of data into forms useful for computers, they are similar to programs."[90]

Accordingly, finding no way to avoid colliding with the reasoning of the *Synercom Court*, the Third Circuit interpreted congressional intent manifest in the copyright statutes as "sequencing and ordering to be protectable in the appropriate circumstances" and concluded that "[t]o the extent that Synercom rested on the premise that there was a difference between the copyrightability of sequence and form in the computer context and in any other context, we think that it is incorrect."[91] That pure vanilla data formats are *per se* uncopyrightable have, of course, been the basis for hardware and software compatibility in the desktop

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[88] Prior to the advent of personal computers and the like, data was input to mainframe computers via 80-column cards. Each of these 80 card columns either received a punch in one or more of its 10 rows (identified 0,1,2,..,9) or was blank, i.e., received no punch at all. Such cards were punched (by a keypunch operator) in accordance with data entered on predefined input forms which were then typically verified for accuracy and ultimately input into a card reader. The card reader sensed presence of patterns of punches or holes in a deck of cards and passed the pattern to a computer in the form of electrical signals. See, e.g., Rosenberg, Business Dictionary of Computers at 43-44 (Wiley 1993).

[89] *Broderbund Software*, 648 F.Supp. at 1132.

[90] *Whelan v. Jaslow*, 797 F.Supp. at 1239.

[91] Id. at 1240.

computer marketplace throughout the 1980's and the 1990's.[92] Unfortunately, *Whelan* erroneously concluded that a work merited copyright protection if there are "various means of achieving its desired purpose, which purpose or function corresponds to a work's idea, then everything that is not necessary to that purpose or function would be part of the expression of the idea." [93] As will be discussed hereinafter, while the converse precludes copyrightability[94], there are more hoops through which a work must jump before meriting copyright protection. This ill-founded reasoning was adopted by a district court in Massachusetts deciding cases involving Lotus Development Corporation's 1-2-3 spreadsheet as a copyrighted work[95] and recently adopted by the Fifth Circuit, rejecting the time-honored *Synercom* conclusion that input data formats are uncopyrightable *per se*.[96] But, fortunately, the First Circuit recently rectified the trial court's incorrect perception of copyright law, finding that the Lotus 1-2-3 command structure and menu structure were methods of operation and, hence, uncopyrightable.[97]

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[92]For example, the acceptance of computers manufactured by Compaq Computer Corporation is attributable to 100% compatibility with IBM computers based upon Intel Chips. Similarly, the success of BMC Software is attributable to 100% compatibility with IBM mainframe software and the like.

[93] Id. at 1236 (emphasis supplied).

[94]See, e.g., *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1253, (3d Cir. 1983), cert. dismissed, 464 U.S. 1033 (1984) (idea merges with expression if there are only a limited number of ways to implement functions of a computer program).

[95] See discussion *infra* pertaining to *Lotus v. Paperback Software* and *Lotus v. Borland International, Inc.* decisions.

[96] See discussion infra pertaining to *Engineering Dynamics, Inc. v. Structural Software, Inc.;* the writer was counsel for Structural Software in the trial on the merits and on appeal.

[97] *Lotus Development v. Borland International*, 34 F.3d 1014, 1995 U.S.App. Lexis 4618, 49 PTCJ 547 (1st Cir. 1995) (BNA); see discussion hereinafter.

The Ninth Circuit has refined its copyrightability analysis and test for substantial similarity, primarily to accommodate the peculiarities of technology-related controversies. In *Shaw v. Lindheim* and *Brown Bag Software v. Symantec Corp.*, the Arnstein-Krofft two-part test was modified wherein analytic dissection was authorized as a tool for mapping and comparing not only ideas, but also expression.[98] The Arnstein-Krofft two-part test was reformulated as an "objective and subjective analyses of expression" permitting analytic dissection to be applied to expression in its extrinsic step.[99] Thus, analytic dissection was liberally construed as being useful throughout the copyrightability and substantial similarity inquiries.

The Third Circuit's copyrightability analysis applied in *Whelan* has been adopted by a district court in the First Circuit wherein the structure, sequence and organization of menu commands appearing on a computer screen were held to be protectable by copyright.[100] Having echoed the total look and feel of the Lotus 1-2-3 spreadsheet, Paperback Software was found to have infringed 1-2-3's two-line moving cursor menu representing commands and command choices.[101] The district court after walking through essentially a *Nichols* abstractions analysis, determined on a plateau-by-plateau basis, whether expression was necessary to express the underlying idea and whether such expression was the only way or only one of only a few ways to implement the idea. Then, since expression which populated all but the highest plateau were found to be unnecessary to implement the idea of an electronic spreadsheet, then the comparable

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[98] *Shaw v. Lindheim*, 919 F.2d 1353 (9th Cir. 1990); *Brown Bag Software v. Symantec Corp.*, 960 F.2d 1465 (9th Cir.), *cert. denied*, 113 S.Ct. 198 (1992).

[99] *Shaw* at 1357 and *Brown Bag Software* at 1476.

[100] *Lotus Development Co. v. Paperback Software*, 740 F.Supp. 37 (D. Mass. 1990).

[101] Id. at 68.

Paperback elements taken together were held to be substantially similar to 1-2-3.[102]

Similarly, the same district court in a series of decisions has held that various elements of the Quattro Pro spreadsheet have infringed upon Lotus 1-2-3.[103] Following the Third Circuit's lead in *Whelan*, these lower court *Lotus decisions* rejected the *Synercom Court's* analysis and substituted a copyright-protectability test in which the mere existence of more than a few choices for creating elements of a copyrighted work, e.g., a user interface, magically renders such elements of a copyrighted work protectable.[104] Accordingly, since there were a plurality of ways to implement the 1-2-3 menu structure and like elements, such elements were held to be protectable by copyright. To establish whether Quattro Pro infringed Lotus 1-2-3, the district court ostensibly tightened the test used in the earlier *Paperback Software* case: to determine whether presumably expressive elements populating each plateau were protectable, not only elements which were necessary to the underlying idea were to be excluded, but also elements which were necessary to implement systems, processes, procedures and methods were to be excluded.[105] This refinement of the test for scope of copyright protectability does not appear to have had any impact on the trial court's finding of substantial similarity between Borland's Quattro Pro and Lotus 1-2-3 spreadsheets. But, as emphasized by the First Circuit, such preclusion of noncopyrightable elements is critical to a constitutionally correct substantial similarity analysis which depends from the scope of

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[102] Id. at 60-61.

[103] *Lotus Dev. Co. v. Borland Int'l, Inc.*, 788 F. Supp. 78 (D.Mass 1992); 799 F. Supp. 203 (D.Mass 1992); 831 F. Supp. 202 (D.Mass 1993); and 831 F. Supp. 223 (D.Mass 1993). These decisions have been reversed by the First Circuit. 34 F.3d 1014, 1995 U.S.App. Lexis 4618.

[104] This legally unsound doctrine may be viewed as an "inverse" *scenes a faire* approach.

[105] *Lotus Dev. Co. v. Borland Int'l, Inc.*, 788 F.Supp. at 90, citing 17 U.S.C. § 102(b).

copyright-protectability issue.[106]

The Second Circuit directly addressed this key issue of preclusion of noncopyrightable elements from protectability by introducing a series of "filters" into the copyrightability analysis.[107] After rejecting the trial court's reasoning in these two *Lotus* cases,[108] a three step abstraction-filter-comparison test to ascertain the scope of copyright protection for a computer program was articulated:[109]

> [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 materials. Left with a kernel, or possibly 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 the allegedly infringing program. The result of this comparison will determine whether the protectable elements of programs at issue are substantially similar so as to warrant a finding of infringement.

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[106] *Lotus Dev. Co. v. Borland Int'l, Inc.*, 34 F.3d 1014, 1995 U.S.App. Lexis 4618.

[107] *Computer Associates Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 23 U.S.P.Q. 124 (2d Cir. 1992).

[108] Id. at 712.

[109] 23 U.S.P.Q. at 1252-53.

Thus, the *Altai Court* with assistance of a court-appointed expert, after establishing a hierarchy of elements which populate a series of plateaus of abstraction, proceeded to filter out from the various expressive elements those elements which failed to pass traditional copyright doctrines[110] and/or which were dictated either by internal operational or efficiency considerations, or by external market forces. But then, in its third step, instead of considering the protectability to be accorded a computer program by comparing similar elements in the allegedly infringing work against the copyrighted work as a whole, the *Altai* test would analyze each of these protectable elements on an individual basis.

This approach fails to assess the substantiality of the copied elements in the accused work in view of the copyrighted work taken as a *Gestalt*. Making a comparison the *Altai* way is clearly not statutorily correct: the scope of protection to be accorded a copyrighted work is limited by its protectable elements, but these protectable elements must not be segregated from the copyrighted work. A copyrighted work has been created as a *Gestalt* and its integrity in that context must be sustained for the purposes of substantial similarity analysis. This should be true regardless of the nature of the copyrighted work.

This flaw in the otherwise innovative *Altai* test was rectified in the Tenth Circuit's adaptation thereof, in the *Gates Rubber Co. v. Bando Chemical Industries, Ltd.* decision.[111] The Tenth Circuit announced that it would conduct the requisite protectability and infringement analysis using "in substantial part," the "Abstraction-Filtration-Comparison" test applied in its *Autoskill* decision, which was adapted

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[110] Such preclusive doctrines include merger, scenes a faire, public domain, fair use.

[111] 9 F.3d 823 (10th Cir. 1993).

from the *Altai* test.[112] Deciding a case involving two competing computer programs which aided customers select replacement industrial belts, the court recognized that copyright infringement analysis does not end with a finding of copied portions of a copyrighted work, but such analysis must also determine whether such copied portions are protectable under the copyright statutes. [113] Indeed, this circuit court correctly reasoned that:[114]

> Accordingly, in order to impose liability for copyright infringement, the court must find that the defendant copied protectable elements of the plaintiff's program and that those protectable elements comprise a substantial part of the plaintiff's program when it is considered as a whole.

Since the mathematical formulas and algorithms contained in Gates Rubber's engineering module of its computer program appear to be characterized as "process" by the trial court, the Tenth Circuit remanded for clarification of the scope of protectability analysis, including due consideration for filtering out unprotectable elements.[115]

But, equally significantly, the *Gates Rubber Court* articulated that, before any reasonable incarnation of the Abstraction-Filtration-Comparison test is applied to a particular fact situation, it must first

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[112] *Autoskill, Inc. v. National Education Support Systems, Inc.*, 994 F.2d 1476, 1487-98 (10th Cir.), *cert. denied*, 114 S.Ct. 307 (1993).

[113] *Gates Rubber Co. v. Bando Chemical Indus., Ltd.*, 9 F.3d at 834, citing *Baker v. Selden*, 101 U.S. 99, 101-103 (1880) and *Feist Publs., Inc. v. Rural Tel. Service Co.*, 499 U.S. 340, 349, 111 S. Ct. 1282, 1289 (1991).

[114] Id. at 834-835 (citations omitted).

[115] Id.

be ascertained whether there are "probative similarities" between the copyrighted material *en masse* and the allegedly copied material.[116] It was further elucidated that before a detailed analysis is conducted using such a three-prong test or the like, it is crucial to observe that even though verbatim copying of unprotectable elements cannot be the basis of infringement liability, the extent of apparent copying of all elements of a copyrighted work by an alleged infringer must first be assessed.[117] Hence, if there is insufficient probative similarity between a copyrighted work and an allegedly infringing work, then infringement liability does not attach and further analysis is unnecessary.

In two recent copyright decisions involving computer programs, the Fifth Circuit dramatically altered the already fragile, uneven computer copyright landscape. In *Kepner-Tregoe, Inc. v. Leadership Software, Inc.*[118], the Fifth Circuit implicitly adopted the "abstraction-filtration-comparison" announced by the Second Circuit in the *Computer Associates v. Altai* case, but limited the necessity of its application to "sophisticated treatment of copyright cases."[119] Articulating that rigorous application of this three-step analysis was unnecessary because of the "damning similarity — nay identity — of organization and language," the court equated the language used by the plaintiff and the defendant to describe the "heart and soul" of a model related to participative management as being expression.[120] While Leadership Software

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[116] Id. at 832-833.

[117] Id. at 832, n. 7.

[118] 12 F.3d 527 (5th Cir. 1994), *cert. denied*, 115 S. Ct. 82 (1994). The writer was attorney for Leadership Software on appeal.

[119] Id. at 534.

[120] Id. The heart and soul language consisted of eight questions or definitions and five problem attributes or processes which was the basis for the Vroom-Yetten theory of participative leadership

contended that such heart and sole elements constituted unprotectable idea which was inherent in every model of this management theory, the court agreed with Kepner-Tregoe that there are "countless ways of expressing the content of each paragraph [containing one of these elements]" whereby there was no "need for the MPO [computer program] screen text to copy exactly the language []."[121] In so doing, the court subscribed to the *Lotus trial court*'s unsound copyrightability theory that if there are a plurality of implementations of a function and the like, then such implementation is protectable under copyright law, regardless of the absence of copyrightable subject matter.[122]

The "abstractions spectrum" was seemingly visualized by the *Kepner-Tregoe Court* thusly:

Plateau	Elements Populating Plateau
1	management training
2	asking series of questions about decision-making landscape
3	suggesting preferred decision-making process
4	structure, sequence and organization of words, phrases and sentences
5	words, phrases and sentences used to formulate the questions
6	words, phrases and sentences used to formulate the processes

The first three levels of abstraction, i.e., plateaus 1-3, were deemed by the court to be unprotectable; the bottom two levels, i.e., plateaus 5-6, were deemed to "clearly constitute protected expression."[123] Joining the consensus of circuits which have held that "non-literal elements of computer programs and other

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management.

[121] Id.

[122] Id.

[123] Id. at 535, citing *Gates Rubber Co. v. Bando Chem. Indus.*, 9 F.3d at 836.

copyrightable works may be protected" the *Kepner-Tregoe Court* found that intermediate plateau 4 was also protectable.[124] It should be noted that the court's attempt to apply the *Altai-Gates Rubber* filters to the copyrightable elements which populate plateaus 4-6 was handicapped by its perception that defendant's purported underlying management theory "failed to organize and package its managerial truisms in a single, unique, ineluctable way: there are many ways of organizing those same insights."[125]

Following this reasoning to what it considered to be a logical, but, unfortunately, not a proper legal, conclusion, the Fifth Circuit held that the five abbreviations used verbatim by both plaintiff and defendant are included in features of the model which are "original, protectable expression []."[126] Not only is its application of the abstractions-filtration-comparison analysis flawed, but also the *Kepner-Tregoe Court* attempted to harmonize its *Plains Cotton* holding with the Third Circuit's "structure, sequence and organization" rationale articulated in *Whelan*, and also opened the door for rejection of the *Synercom* decision as being Fifth Circuit law.[127] Ironically, *Synercom* data formats or ciphers are at the bottom of the non-literal element chain: that such ciphers are held to be *per se* uncopyrightable causes no violence to the "general noncontroversial proposition that non-literal aspects of copyrighted works — like structure, sequence, and organization — may be protected under copyright law."[128] Indeed, in a subsequent copyright decision, the Fifth Circuit seems to feel the tension between holding that such data formats are not *per se* uncopyrightable and visualizing how such elements can survive passing through a cascade of

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[124] Id. at 536, citing *Computer Assoc. Int'l v. Altai*, 982 F.2d at 702-703; *Whelan Assoc. v. Jaslow Dental Lab.*, 797 F.2d at 1236-38; *Lotus Dev. Corp. v. Paperback Software*, 740 F.Supp. at 37.

[125] Id. at 537.

[126] Id. The abbreviations AI and AII corresponded to Autocratic processes; the abbreviations CI and CII corresponded to Consulting processes; and GII corresponded to Group processes. Query: Did the court properly describe these abbreviations as "arbitrarily selected characters"?

[127] Id. at 536, n. 20. The Fifth Circuit apparently perceived that to the extent that its *Plains Cotton* decision embraced *Synercom* at the expense of *Whelan*, it was positioned contrary to the Supreme Court holding in *Feist*.

[128] Id.

functionality filters and the like.

Shortly after its *Kepner-Tregoe v. Leadership Software* decision was handed down, the Fifth Circuit decided *Engineering Dynamics, Inc. v. Structural Software, Inc.*, drastically changing what was considered to be settled copyright law by holding that input/output data formats may be copyrightable.[129] Interestingly enough, the Fifth Circuit acknowledged that "computer user interfaces [] to the extent that they are highly functional, or, like the output formats in this case, to the extent that they contain highly standardized technical information, they may lie very near the line of uncopyrightability."[130] If a typical multifaceted, dynamic user interface like Lotus 1-2-3, WordPerfect for Windows or Microsoft Windows lies either near, very near or perhaps adjacent the line of uncopyrightability, where does that leave a one-dimensional, static data format?[131]

Plaintiff complained that defendants copied input and output data formats into its user manual and user interface.[132] Defendants, like the rest of the computer industry, assumed that such ciphers were *per se* uncopyrightable, and argued that only a handful of its input data formats were copied from plaintiff's formats, which were, in turn, copied from Synercom Technology in the 1970's. The Fifth Circuit distinguished Engineering Dynamics' data formats from the ciphers considered by the *Synercom Court* to be *per se* uncopyrightable because "the sequence and organization of formats and reports is as a whole copyrightable."[133] Relying on its *Kepner-Tregoe* decision, the court perceiving no synergy with the

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[129] 26 F.3d 1335, reh'g denied, _ F.3d _, 1995 U.S.App. Lexis ? , n. 9. The writer was trial counsel and represents Structural Software on appeal.

[130] Id. at 1348 (emphasis supplied).

[131] It is interesting to note that the so-called user interface in this case comprised completely independent input 80-column ciphers and output 133-column reports. On the other hand, for the user interfaces involved in such cases as *Apple Computer v. Microsoft* and *Lotus v. Borland*, or *Broderbund Software v. Unison World*, as observed by the *Engineering Dynamics Court*, "it may be difficult to classify a given interface as or the other [i.e., as input or output].

[132] Id. at 1340.

[133] Id. at 1339. It should be noted that due to plaintiff and defendants' fundamental disagreement about what verbiage could be included in user manuals to document input and output data formats, in the

Synercom holding, and held that "nonliteral elements of computer programs may be copyrighted in the Fifth Circuit, but not necessarily copyrightable in this case."[134] This copyrightability was remanded based upon the Fifth Circuit's adaptation of the abstraction-filtration-comparison copyrightability scope analysis applied in *Gates Rubber Court*.[135]

It is ironic that the purported compilation of input formats was remanded for a consideration of their copyrightability as a nonliteral element of a computer program, notwithstanding that the underlying computer program was not registered. But the court perceived such formats as equivalently "springing from a computer program or from a user manual."[136] The Fifth Circuit thus concludes that "EDI complied with the statutory formalities in regard to the user manuals and input formats and output formats reproduced therein."[137] This is correct regarding portions of the user manual and the output reports, but incorrect regarding input formats. Input formats, to the extent that they pass copyrightability muster, would be covered under a separate copyright registration for either the computer program or the formats *per se*.[138]

The *Engineering Dynamics Court* found that "the formats, taken as a whole, readily qualify as 'expression' measured against the idea versus expression dichotomy"[139] and viewed the filtration step as

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context of a refashioned user manual prepared post-trial under orders by the district court, a special master was appointed. The special master's findings and conclusions that defendants' refashioned user manual was noninfringing, were adopted by the district court.

[134] Id. at 1342 (emphasis supplied).

[135] Id. at 1342-43, citing *Gates Rubber v. Bando Chem. Ind.*, 9 F.3d at 834; *Computer Assoc. Int'l v. Altai*, 982 F.2d at 706-11; and Nimmer and Nimmer, 3 Nimmer § 13.03 [F] (successive filtering methodology).

[136] Id. at 1342, n. 9.

[137] Id. at 1340, n. 3.

[138] Generally, to obtain broad copyright protection for a work of authorship such as Lotus 1-2-3 or Quattro Pro a single registration would be sought covering the computer program and user manual, as a complete work. Copyright should include protection to all literal and nonliteral elements of such computer programs, provided creativity and originality prerequisites are satisfied.

[139] Id. at 1344.

imposing limitations upon the scope of copyrightability and simultaneously providing defenses against illicit copying. Thus, normalizing the outcome of the preceding abstraction step, the filtration step enforces the constitutionally and statutorily mandated balance to "protect an author's original, creative expression insofar as is compatible with general advancement of expressive arts and the 'free use and development of non-protectable ideas and processes'."[140] But to overcome the *Baker v. Selden*[141] bias against protecting ideas and processes, the court subscribed to the *Lotus trial court*'s misapprehended interpretation of copyright law by allowing that the "command format and sequence structure in an original word processing or computer spreadsheet should be copyrightable because as a whole, the interface's structure and hierarchy constitute a high degree of original expression."[142] But users of Microsoft Word, Lotus Ami Pro and Novell WordPerfect, the leading word processing software in the 1990's, should be aware of the similar menu and command structure thereof, which comprises their respective user interfaces. Such commonality is driven by ease of learning and ease of use criteria, which, of course, is driven by functionality and efficiency, not originality. While there is no question that creativity and originality subsist in such software, copyright protectability should be foreign to elements which inhere on the basis of utilitarian considerations. Nevertheless, the Fifth Circuit instructed the district court to apply s*cenes a faire* limitations to prevent copyright protection being accorded plaintiff for input and output formats appearing in its user manual because of demands of the offshore engineering industry or because of being dictated by standard practices.[143]

This filtration analysis was contemplated by the court as being followed by an assessment of substantial similarity between protected expression appearing in plaintiff's copyrighted work and defendants'

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[140] Id. at 1345, citing *Computer Assoc. Int'l v. Altai*, 982 F.2d at 711.

[141] 101 U.S. 99 (1980). This prohibition is expressly incorporated into the copyright statutes. See 17 U.S.C. 102 (b).

[142] Id., citing *Lotus v. Paperback Software*, 730 F.Supp. at 65-65.

[143] Id. at 1346-47.

copying any aspect of such protected expression in the accused work.[144] Pertaining to the compilation of formats held to be possibly copyrightable, the Fifth Circuit articulated that the trial court should accumulate into a suspect "subset" all of defendants' data formats that individually are "substantially similar" to plaintiff's parallel copyright-protectable data formats, and then to assess whether this subset is sufficiently substantially similar, in view of, at best, a "thin" compilation copyright shield,[145] to constitute infringement.

But it should be noted that this substantial similarity analysis authorizing the trial court to reconcile for infringement purposes, the suspect subset against only a portion of plaintiff's compilation.[146] The Fifth Circuit inadvertently contradicted its own conclusion that "the ultimate focus [] should be on the input formats and output reports taken as a whole."[147] When analyzing substantial similarity of a work based upon a compilation copyright, the focus should be the compilation *en masse*. This anomaly was rectified in the court's supplemental decision in which the phrase "or a part thereof" was deleted.[148]

As further limitations upon this latter comparison analysis, the court cautioned that "the law is more protective of highly original and highly expressive works than it is of functional and nonfiction works."[149] Accordingly, protection accorded a computer user interface, if any, should be "thin" because works like data formats, "to the extent that they contain highly standardized technical information, they may lie very near the line of uncopyrightability."[150] On this important point of law, a string of video game and computer cases involving display screens was cited for which verbatim copying was a prerequisite for such thin

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[144] Id. at 1347, citing *Altai* at 710.

[145] Id. at 1348 (emphasis supplied).

[146] Id. at 1347 (authorizing suspect subset to be compared with only a part of the copyrighted work, to assess whether infringement of the compilation occurred).

[147] Id.

[148] _ F.3d _, 1995 U.S.App. Lexis ?

[149] Id. at 1348.

[150] Id., citing *Feist*, 499 U.S. at 349, 111 S.Ct. at 1289 ("thin" copyright protection for factual or technical works).

copyright protection to attach.[151] In the case of compilation copyright protection for a technical and utilitarian work, verbatim copying of the entire work should be a prerequisite for infringement liability.

Shortly after the Fifth Circuit issued a supplemental opinion in the *Engineering Dynamics* case[152], the First Circuit reversed the *Lotus v. Borland* decisions.[153] The First Circuit, noting that it was "navigating in uncharted waters" regarding the issue of the copyrightability of a menu command hierarchy,[154] rejected the trial court's findings that "the Lotus menu structure, organization, and first letters of the command names ... constitute part of the protectable expression found in [Lotus 1-2-3]," holding that the "Lotus command hierarchy is an uncopyrightable 'method of operation' [which] provides means by which users control and operate Lotus 1-2-3." [155]

The First Circuit construed "method of operation" under 17 U.S.C. § 102 (b) as meaning "means by which a person operates something, whether it be a car, a food processor, or a computer. Thus, a text describing how to operate something would not extend copyright protection to the method of operation itself; other people would be free to employ that method and to describe it in their own words."[156] This holding appears to be diametrically opposed to the *Engineering Dynamics* holding in which the Fifth Circuit not only stated that the text describing input-output data formats in the allegedly infringing user manual could function as the origin for possibly extending copyright protection to the input-output data formats, *per se*,[157] but also affirmed the trial court's finding of infringement based upon bare bones "text,

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[151] Id. at 29.

[152] _ F.3d _, 1995 U.S.App. Lexis ? (denying request for rehearing and for suggestion of *en banc* consideration, and granting, in part, SSI's motion to correct or amend the original opinion).

[153] *Lotus Dev. Co. v. Borland Int'l, Inc.*, 34 F.3d 1014, 1995 U.S.App. Lexis 4618.

[154] Id. at 15.

[155] Id. at 20.

[156] Id. at 20.

[157] 26 F.3d at 1342, n.9.

pictures, diagrams, illustrated examples, and flow charts [].”[158] The Court articulated that “[u]sers must use the command terms to tell the computer what to do. Without the menu hierarchy, users would not be able to access and control, or indeed make use of, Lotus 1-2-3 functional capabilities.”[159]

Clearly, the actions described by “access and control” and “make use of” indicate the inherency of the menu and its command terms to the fundamental operation of this spreadsheet. As stated by the court, “[t]he Lotus menu command hierarchy does not merely explain and present Lotus 1-2-3's functional capabilities to the user; it also serves as the method by which the program is operated and controlled.”[160] Thus, unlike a user manual or help-screen which explains and presents the various components of a menu command hierarchy as a template for communicating with the underlying computer program, the menu is part of the method of operation thereof.

Similar to the gear shift analogy used by the *Synercom Court*[161] to rationalize that input data formats were uncopyrightable, the First Circuit analogized a menu command structure to VCR buttons, wherein the VCR is operated by pressing a series of buttons.[162] In spite of being arranged in a particular order and being labeled, VCR buttons are not “expression” for copyright purposes.[163] Indeed, these “buttons are themselves the ‘method of operating’ the VCR.”[164] Ergo, a menu command hierarchy functions like buttons on a VCR: in its absence, 1-2-3 or Quattro Pro cannot be operated. The court accordingly arrived at a conclusion which should guide district courts and appellate courts to properly

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[158] Id. at 1348.

[159] *Lotus v Borland*, _ F.3d _, 1995 U.S.App. Lexis 4618 at 21.

[160] Id.

[161] *Synercom Technology, Inc. v University Computing Co.*, 462 F. Supp. 1003, 1013 (N.D. Tex 1978).

[162] Id. at 25.

[163] Id.

[164] Id.

decide copyright infringement issues: [165]

> If specific words are essential to operating something, then they are part of a "method of operation" and, as such, are unprotectable. This is so whether they must be highlighted, typed in, or even spoken [].

Putting to rest the district court's "inverted scenes a faire" theory, the First Circuit articulated that any " 'expressive' choices" presumably made by Lotus to name and arrange command terms "do not magically change the uncopyrightable menu command hierarchy into copyrightable subject matter."[166]

Unfortunately, the First Circuit perceived the *Altai-Gates Rubber* analysis as being limited to cases in which non-literal expression is copied from one computer program to another.[167] The Court, regarding the primary issue as being whether the literal presence of the 1-2-3 menu command hierarchy in Quattro Pro constituted copyright infringement,[168] observed that beyond being unnecessary in this case, could cause misleading conclusions to be reached. This is because the Abstraction step "seems to encourage" finding a "base level" in which copyrightable subject matter subsists and for which verbatim copying would constitute infringement.[169] This, of course, is a pessimistic view of the efficacy of the Filtration and Comparison steps of the *Altai-Gates Rubber* analysis. In practice, this three-prong approach is designed to compel an understanding of the underlying elements of a copyrighted work, and then to subject them to a cascade of copyright filters which ostensibly isolate the protectable elements from the unprotectable elements. This analysis actually focuses upon the alleged infringing elements which are similar to "filtered" protectable elements in the copyrighted work.

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[165] Id. at 23.

[166] Id. at 24.

[167] Id. at 17-18.

[168] Id. at 18.

[169] Id. at 19.

The *Gates Rubber* construction of the analysis contemplates a precursor step which establishes whether sufficient probative similarity is present to justify proceeding with the three-prong analysis.[170] In the Lotus case, sufficient probative similarly was present to proceed with a detailed Abstraction-Filtration analysis. The element in issue — the menu command hierarchy — would fail to pass through a *Baker v. Selden* or § 102 (b) filter. Thus, the rationale for the First Circuit's concerns for misapplication of this approach is unclear. Further adaptations of this analytical tool to help make copyright-protectability determinations for computer software will indubitably occur throughout the circuits.

VI. Conclusions

The copyrightability and consequent substantial similarity analysis articulated by Judge Learned Hand has proved to weather the sands of time, albeit with adaptations to entertain a diversity of fact situations and to entertain rapid developments in creative, utilitarian works authorized by Congress to receive protection under the copyright statutes. Since Congress has elected to shoe-horn computer software into the formerly quiescent copyright regime, courts have grappled with articulating tests suitable for improving scope of copyright-protectability assessments and related criteria for establishing infringement. Such attempts particularly during the 1980's and 1990's have delivered uneven decisions and concomitant uncertainty to the computer industry and desktop computer marketplace.

Since *sui generis* protection for computer programs and the like is still not available, and since courts occasionally accord virtual patent protection to plaintiffs based upon copyright claims, it is incumbent upon the court system to augment its judicial wisdom with knowledge and experience available from legal experts. Clearly with rapidly developing technologies inherent in the computer industry and the like, courts — district and appellate courts alike — should draw upon the expertise of those skilled in the relevant art to judiciously apply the law to the facts to reach even, predictable and equitable decisions. What better way to assure active and productive competition and to avoid traumatic perturbations to the marketplace?

Ergo, by using such experts, the courts may routinely decide copyright cases by applying the

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[170] *Gates Rubber Co. v. Bando Chemical Industries, Ltd.* 9 F.3d 823, 832-833 (10th Cir. 1993).

Nichols-Altai-Gates Rubber analysis, in conjunction with the doctrine of probative similarity, to regularly achieve a constitutionally mandated balance between protecting an author's creativity and promoting the development of the useful arts. Scope of copyrightability issues must be properly decided: a decision that accords the equivalent of patent rights to an individual inflicts a serious penalty cost on the public. Not only is innovation and development inhibited, but also competition is stifled.

The courts are charged with the profound task of applying statutory instrumentation to navigate the contours of the computer copyright landscape; the Rosetta Stone to deliver predictability and quiescence thereto should be nearby. So should be my winning lottery ticket.