Copyright Protection for Search Results: "Hiybbprqag," "Mbzrxpgjys," and "Indoswiftjobinproduction"

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I. INTRODUCTION

In early 2010, engineers at the search engine Google noticed that its search results began to more closely match those of Bing, a competing search engine backed by Microsoft.[1] When a user searched for something on either search engine, for example, Bing's top 10 results for a given search query matched Google's top 10 results for the same query with increasing frequency.[2] All search engines strive to generate results that are most relevant to what the user searches for but use different technical means for achieving this goal.[3] Google engineers, however, suspected that technical innovations were not responsible for the growing correlation between Bing and Google's search results, but that Bing was simply copying Google's results.[4] According to the blogger who broke the story, "Google liken[ed] it to the digital equivalent of Bing leaning over during an exam and copying off of Google's test."[5] To prove its

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1. Introduced in 2009, Bing has quickly risen to become the second most popular search engine used in the United States. While Bing still trails far behind in popularity to Google, many believe that Bing, given Microsoft's backing, is the only search engine that presents any meaningful competitive threat to Google. *See* Amir Efrati, *With Semantic Search, Google Eyes Competitors*, WALL ST. J. (Mar. 15, 2012, 2:53 PM), http://online.wsj.com/article/SB10001424052702303863404577281822057679682.html.

2. Danny Sullivan, *Google: Bing Is Cheating, Copying Our Search*, SEARCH ENGINE LAND (Feb. 1, 2011, 8:45 AM), http://searchengineland.com/google-bing-is-cheating-copying-our-search-results-62914.

3. *How Search Engines Work*, SEARCH ENGINE LAND (Mar. 13, 2007), http://searchenginewatch.com/article/2065173/How-Search-Engines-Work.

4. Sullivan, *supra* note 2.

5. *Id.*

theory, Google devised a digital trap.[6] For the first time in company history, Google manipulated its search engine so that a selection of gibberish search queries returned legitimate but completely unrelated results.[7] For example, the search term "hiybbprqag" returned the seating chart for the Wiltern Theatre, a concert venue in Los Angeles;[8] "mbzrxpgjys" yielded the website for Research In Motion, the maker of BlackBerry smartphones[9] and "indoswiftjobinproduction" returned an index of recipes by the Food Network chef Sandra Lee.[10, 11] Google believed it would prove that Bing had copied Google if Bing began to generate the same search results that corresponded to the nonsense search queries.[12]

This was not the first time a company tried to use dummy information to expose a suspected copier.[13] In 1982, a Kansas telephone company inserted fake listings, complete with fake names, addresses, and phone numbers, into the white pages of its phone book to prove that a competing phone book publisher had copied its listings.[14] The ruse worked, and the telephone company, Rural Telephone Service Company, Inc., sued the publisher for copyright infringement.[15] The Supreme Court, however, in the seminal case *Rural v. Feist*, dismissed Rural's claim and held that telephone listings lacked sufficient originality to merit copyright protection.[16]

Today, search engines have largely replaced phone books, yet the issue in *Feist* remains significant.[17] Since the digital revolution, the amount of information in the world has increased to staggering levels, and under current estimates the sum of all information in the world doubles every two years.[18] Yet information is only useful to the extent people can effectively access and employ the information they

6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. Sullivan, *supra* note 2.
12. *Id.*
13. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 344 (1991).
14. *Id.* at 344.
15. *Id.* at 340.
16. *Id.*
17. *See* Kevin Ryan, *Advertising With New Media*, FORBES MAGAZINE (Sep. 6, 2008, 3:55 PM), http://www.forbes.com/2008/09/06/google-yahoo-reachlocal-ent-sales-cx_kr_0906askanexpertkevinryanlocalad.html.
18. Josh Catone, *How Much Data Will Humans Create & Store This Year?*, MASHABLE (June 27, 2011), http://mashable.com/2011/06/28/data-infographic/.

need.[19] Search engines play a crucial role in addressing this challenge, but no two search engines are exactly alike.[20] The goal for each search engine is to attract the most users, and thereby attract the most advertising revenue.[21] According to research, a user's choice of search engine is most closely correlated with the relevance of the top four to seven search results.[22] Simply put, users are more likely to use a search engine that gives them the best answer to their question, as high up in the results section as possible.[23] This explains why Google, which believed that its search engine generated the most relevant results, became so concerned when Bing's top results began to more closely match its own.[24]

Yet despite Google's displeasure with Bing's alleged copying, and the immense financial implications at stake, it is an unsettled question whether search results have any legal protection.[25] Are search results the twenty-first-century equivalent of the phone listings in *Feist,* or do they possess enough originality to merit copyright protection? This comment answers that question by first describing the relevant copyright doctrines and the unique technological features of search engines. Next, the comment analyzes whether search results are currently protected under copyright. Lastly, the comment argues that search results are copyrightable and that they deserve continued protection.

19. *See* Quentin Hardy, *Just the Facts. Yes, All of Them.*, N.Y. TIMES (Mar. 24, 2012), http://www.nytimes.com/2012/03/25/business/factuals-gil-elbaz-wants-to-gather-the-data-universe.html.

20. Curt Franklin, *How Internet Search Engines Work*, HOWSTUFFWORKS, http://computer.howstuffworks.com/internet/basics/search-engine.htm (last visited Oct. 16, 2012).

21. *Id.*

22. Gord Hotchkiss, *Why Results Quality Is So Important to Search Engines*, SEARCH ENGINE LAND (May 20, 2011, 12:15 PM), http://searchengineland.com/why-results-quality-is-so-important-to-search-engines-77957.

23. *Id.*

24. Sullivan, *supra* note 2.

25. Google's success underscores the financial implications of search. Google's dominance of search has helped make it the nineteenth most profitable Fortune 500 Company and the fourth most profitable company in Silicon Valley. *20 Most Profitable Companies*, CNN (May 10, 2011, 8:38 AM), http://money.cnn.com/galleries/2011/fortune/1104/gallery.fortune500_most_profitable.fortune/19.html; *2011 Silicon Valley 150 Listings: Nos. 1-75*, SAN JOSE MERCURY NEWS (Apr. 17, 2011, 12:00 AM), http://www.mercurynews.com/sv150/ci_17861178.

II. Background

Of the four main divisions of intellectual property law, copyright, trademark, trade secret, and patent, copyright is the most relevant to this discussion. As described below, the technology that drives search engines is a combination of patented algorithms that utilize a selection of variables that are protected as trade secrets. It is possible, however, for search engines to display the same results as a competitor without utilizing the same patents or trade secrets. Trademark law is irrelevant to this analysis because this comment does not involve company misidentification or consumer confusion, but instead discusses the potential for one company to copy the work of another and pass it off as its own.

A. Copyright Law

Copyright laws are predicated on the notion that creative works benefit the public.[26] In order to stimulate the production of creative works, the framers of the United States Constitution believed that authors should be granted a limited exclusive right to use and profit from their creative works.[27] This belief is codified in Article I, Section 8, Clause 8 of the Constitution, which gives Congress the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[28]

Today, the Copyright Act of 1976 ("Copyright Act") is the foundation of copyright law in the United States.[29] The Copyright Act grants copyright protection for "original works of authorship fixed in any tangible medium of expression."[30] Embedded in this statute are three distinct requirements that deserve independent consideration: whether the work is original; whether it qualifies as a work of authorship; and whether the work is fixed in a tangible medium of expression.

26. 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 1.03 (2010).

27. *Id.*

28. U.S. CONST. art. I, § 8, cl. 8.

29. Copyright Act of 1976, Pub. L. No. 94-553, § 101, 90 Stat. 2541 (1976).

30. 17 U.S.C. § 102.

1. Originality

The Copyright Act does not define what makes a work of authorship "original." The Supreme Court, in *Feist Publications, Inc. v. Rural Tel. Serv. Co.,* stated the following:

> Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity. . .to be sure, the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, "no matter how crude, humble or obvious" it might be.[31]

Feist held that the alphabetized listings in a phone book's white pages did not contain the "modicum of creativity necessary" for copyright protection.[32] The notion that a person's name and phone number is not creative seems commonsensical. The issue, however, is complicated by section 103 of the Copyright Act, which protects compilations of facts "arranged in such a way that the resulting work as a whole constitutes an original work of authorship."[33] In this case, Rural, the party that claimed copyright protection, argued that while the listings themselves were non-copyrightable facts, the way Rural arranged these listings transformed the white pages into a copyrightable compilation.[34] The Court rejected this argument and declared "there is nothing remotely creative about arranging names alphabetically in a white pages directory."[35] The Court then held that while "[f]acts, whether alone or as part of a compilation, are not original . . . [a] factual compilation is eligible for copyright if it features an *original selection or arrangement of facts*, but the copyright is limited to the particular selection or arrangement. In no event may copyright extend to the facts themselves."[36]

Since *Feist*, several courts have ruled on when a compilation of facts deserves copyright protection. The Ninth Circuit held in *CDN Inc. v. Kapes* that a price guide for wholesale collectible coins was

31. *Id.* at 345.
32. *See* Feist 499 U.S. at 340.
33. 17 U.S.C. §§ 101, 103.
34. *Feist*, 499 U.S. at 363.
35. *Id*.
36. *Id.* at 350–51 (emphasis added).

copyrightable because the estimated prices represented "compilations of data chosen and weighed with creativity and judgment."[37]

The Second Circuit held copyrightable a collection of used car valuations in *CCC Information Services, Inc. v. Maclean Hunter Market Reports, Inc*.[38] The court explained that the collection of prices "displayed amply sufficient originality to pass the low threshold requirement to earn copyright protection."[39]

In *Atari Games Corp. v. Oman*, the D.C. Court of Appeals stated the following:

> An audiovisual work is analogous to the compilation of facts discussed in *Feist* in this critical respect: both involve a choice and ordering of elements that, in themselves, may not qualify for copyright protection; the author's *selection* and *arrangement,* however, may "entail [the] minimal degree of creativity" needed to bring the work within the protection of the copyright laws.[40]

The key factor that determines whether a collection of facts is copyrightable, following *Feist* and its progeny, is that if the facts are selected and arranged with even minimal creativity, the collection of facts is original enough to be copyrightable.

2. Works of Authorship

Section 102 of the Copyright Act lists eight distinct categories of works of authorship, ranging from literary works and sound recordings, to pantomimes and architectural works.[41] For purposes of copyright, computer programs are classified as literary works of authorship. [42] More specifically, the lines of computer code that drive how a computer program works are considered analogous to the lines of text that drive the plot of a novel.[43] This analogy fails, however, when one considers that while the novel reader actually reads the novel's copyrighted text, the program user does not read the program's copyrighted code.[44] In most cases the computer code

37. *Id*. at 1260

38. 44 F.3d 61, 67 (2d Cir. 1994).

39. *Id*.

40. Atari Games Corp. v. Oman, 979 F.2d 242, 245 (D.C. Cir. 1992).

41. 17 U.S.C. § 102.

42. *See* NIMMER, *supra* note 26 at §2.04[c][2].

43. *Id*. at §2.04[c][1].

44. *See* Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222, 1230–31 (3d Cir. 1986).

functions completely outside of the user's knowledge, while the user interacts instead with whatever the code outputs on his or her computer screen.[45] A computer program's output, however, need not be produced by a certain version of computer code.[46] Instead, there are numerous ways of writing code to produce the same output on a user's screen.[47] If copyright protection were limited to the code itself, competing program designers could blatantly copy the look and function of a program simply by adjusting the lines of code that drive the program.[48]

The Third Circuit considered this issue in *Whelan Associates, Inc. v. Jaslow Dental Laboratory Inc.*, where the developer of dental laboratory record keeping software sued a competing developer for copyright infringement.[49] The program at issue, Dentalab, was structurally similar to the plaintiff's program but was written using a different computer programming language.[50] The defendant argued that the use of different computer code made Dentalab immune to any claims of copyright infringement.[51] This required the court to determine "whether mere similarity in the overall structure of programs can be the basis for a copyright infringement, or, put differently, whether a program's copyright protection covers the structure of the program or only the program's literal elements, *i.e.,* its source and object codes."[52] The court first compared software to other literary works and noted that copyright infringement does not require literal copying of the text of a work.[53] "One can violate the copyright of a play or book by copying its plot or plot devices."[54] By analogy, the court stated that there was no reason this should not apply to software programs.[55]

45. *Id*.

46. Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982) ("Such replication is possible because many different computer programs can produce the same 'results,' whether those results are an analysis of financial records or a sequence of images and sounds.")

47. *Id*.

48. *Id*.; *see also* Midway Mfg. Co. v. Strohon, 564 F. Supp. 741, 749 (N.D. Ill. 1983) ("It is quite possible to design a game that would infringe Midway's audiovisual copyright but would use an entirely different computer program.")

49. *Whelan*, 797 F.2d at 1222.

50. *Id*. at 1226.

51. *Id*. at 1229.

52. *Id*. at 1234.

53. *Id*.

54. *Id*.

55. *Id*.

The defendants next argued that software deserved unique consideration from other literary works because the structure of a computer program represented an idea rather than an expression of an idea.[56] Under §102(b), "In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery."[57] This provision codified the rule articulated in *Baker v. Selden*,[58] that copyright does not protect ideas, but only expressions of ideas.[59] In *Baker* the Supreme Court held that the author of an accounting system could not copyright the idea behind the system but rather could only copyright his expression of the idea.[60] This meant that the blank forms that Mr. Selden published were not copyrightable because they were "necessary incidents" to the idea behind Mr. Selden's accounting system.[61] Based on the *Baker* holding, the *Whelan* court adopted the following rule for distinguishing between the idea and expression of a work:

> *[T]he purpose or function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea* . . .[w]here there are various means of achieving the desired purpose, then the particular means chosen is not necessary to the purpose; hence, there is expression, not idea.[62]

The court applied this rule to the facts of the case and found that the idea behind Dentalab "was to aid in the business operations of a dental laboratory."[63] The structure of the software was protected because it was not essential to the idea.[64] "[T]here are other programs on the market, competitors of Dentalab and Dentcom, that perform the same functions but have different structures and designs."[65] Accordingly, the court held that "copyright protection of computer

56. *Id*. at 1235.
57. 17 U.S.C. § 102(b).
58. 101 U.S. 99 (1879).
59. *Whelan,* 797 F.2d at 1234.
60. *Baker*, 101 U.S. at 107.
61. *Id*. at 104.
62. *Whelan*, 797 F.2d at 1236.
63. *Id*. at 1238.
64. *Id*.
65. *Id*.

programs may extend beyond the programs' literal code to their structure, sequence, and organization."[66]

Competing software companies, therefore, cannot merely adjust their computer code to avoid infringement of a copyrighted software program, but must also respect the broader nonliteral elements of the program.[67]

3. Fixed in a Tangible Medium

An author's original work is not copyrightable until it is "fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[68] As defined by § 101, "[a] work is 'fixed' in a tangible medium of expression when its embodiment in a copy . . . is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."[69] Fixation is required by the U.S. Constitution, which only grants copyright protection to "writings."[70] While it may be easy to envision a movie fixed on film, a painting fixed on canvas, or a novel fixed on paper, technological developments have made the fixation requirement more difficult to determine. For example, is a computer program or video game ever "fixed" if its functions and outputs vary in response to its user's actions?

The Second Circuit considered whether a video game could satisfy the fixation requirement, in *Stern Electronics, Inc. v. Kaufman*.[71] The plaintiff had an exclusive sublicense to distribute a popular video game in North and South America called "Scramble."[72] The plaintiff sued for copyright infringement after the defendant began selling a "Scramble" knockoff that was "virtually identical in both sight and sound."[73] The defense argued that copyright protection only existed in the game's written code, and that the

66. *Id*. at 1248.

67. *See* Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 68 (D. Mass. 1990) (holding a menu command structure of the computer program, including choice of command terms, the structure and order of those terms, their presentation on the screen, and the long prompts, was copyrightable).

68. 17 U.S.C. § 102.

69. 17 U.S.C. § 101.

70. U.S. CONST. art. I, § 8, cl. 8.

71. 669 F.2d 852, 853 (2d Cir. 1982).

72. *Id*. at 854.

73. *Id*. at 855.

game's audio and visual displays were not fixed because they "vary depending upon the actions taken by the player."[74] The court disagreed with the defense, and found that "[t]he audiovisual work [was] permanently embodied in a material object, the memory devices."[75] When a user played the game, the user did not create a new audiovisual work, but merely accessed previously created works stored in the game's memory.[76]

Computer programs that users can manipulate to display various audiovisual elements still satisfy the §101 fixation requirement because the elements are fixed in memory and the user is merely dictating which fixed elements will be displayed at any given time.

B. Search Engines

Properly placing search results within the realm of copyright law requires consideration of the different types of search results as well as the technology and engineering choices that drive search engines.

1. How Do Search Engines Work?

Search engines typically do not search the Internet in real time, but instead comb through a "harvested" collection of web page copies.[77] Search engines accomplish this by employing automated computer programs called web crawlers that methodically catalog the Internet.[78] Each website a crawler visits is typically copied, processed, and indexed by the search engine so that the website's contents become searchable.[79] This information is stored in databases on the search engine's servers so that the user can search the database "by keyword and whatever more advanced approaches are offered, and the page will be found if your search matches its content."[80] A search

74. *Id*. ("No doubt the entire sequence of all the sights and sounds of the game are different each time the game is played, depending upon the route and speed the player selects for his spaceship and the timing and accuracy of his release of his craft's bombs and lasers.").

75. *Id*. at 856.

76. *Id.* ("The repetitive sequence of a substantial portion of the sights and sounds of the game qualifies for copyright protection as audiovisual work.")

77. *Recommended Search Engines*, BERKELEY.EDU (May 8, 2012), http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/SearchEngines.html.

78. *Id*.

79. Although beyond the scope of this comment, courts have consistently held that it is a noninfringing fair use of copyright for search engines to collect copies of websites for the transformative and publicly beneficial purpose of making them searchable. *See Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1160 (9th Cir. 2007).

80. *Recommended Search Engines*, *supra* note 77.

engine's web crawlers are constantly scouring the Internet attempting to create the most comprehensive and up-to-date map of the Internet as possible.[81]

2. What Role Does Relevance Play With Search Results?

There are two different types of search results—organic and non-organic.[82] Organic search results are listings that appear because of their relevance to a user's inputted search terms.[83] Nonorganic search results, by contrast, appear because an advertiser has paid the search engine to include the search results whenever the user inputs a given search term.[84] Most search engines, including Google and Bing, feature a mixture of organic and nonorganic search terms on their results pages.[85]

The relevance between a user's search query and the organic results, or the likelihood that the user gets the information he or she is looking for, largely dictates the likelihood that the user will use the search engine in the future.[86] Google rose to prominence largely as a result of an algorithm called PageRank, which greatly increased the relevance of its organic search results compared to existing competitors.[87] As more users began to rely on Google for their search engine needs, advertisers willing to pay for nonorganic search results quickly followed.[88] Thus, for search engine companies, profits lie in attracting users who themselves are attracted largely by the relevance of the search engine's results.[89]

81. *Id*.

82. *What are organic search results?*, ELEVATESEM.COM (Dec. 12, 2011), http://www.elevatesem.com/news/what-are-organic-search-results/.

83. *Id*.

84. *Id*.

85. *Id*.

86. Hotchkiss, *supra* note 22.

87. Previously, search engines relied primarily on the presence of keywords in a given webpage, with search results deemed more relevant based on the amount of times it contained the searched for term. Google's PageRank was based on an algorithm that essentially ranked websites based on their relative popularity. *See* Franklin, *supra* note 20.

88. In 2011, search advertising generated 69 percent of Google's 36.5 billion in revenues. *2011 Financial Tables*, GOOGLE.COM, http://investor.google.com/financial/tables.html (last visited Mar. 29, 2012).

89. Franklin, *supra* note 20.

3. What Differentiates Search Results Between Competing Search Engines?

Today's search engines employ numerous variables, or signals, to algorithmically generate search results.[90] "Each commercial search engine has a different formula for assigning weight to the words in its index."[91] The breadth of available signals and the infinite ways these signals can be incorporated into an algorithm creates a vast range of possible search outcomes.[92] "This is one of the reasons that a search for the same word on different search engines will produce different lists, with the pages presented in different orders."[93]

The exact signals and formulas used by each search engine are closely guarded trade secrets for two reasons.[94] First, if webmasters knew exactly how and why a search engine returned and ranked its results, they could alter their websites to better match what the search engine found most important.[95] This would allow webmasters to artificially inflate the relative importance and resulting exposure of their website.[96] Second, the competitive importance of result relevance motivates companies to keep secret any method they use to enhance result relevance.[97]

III. Analysis

A. Are Search Results Copyrightable?

Search engines, like all computer programs, present various challenges to copyright analysis. As one judge described it, "[a]pplying copyright law to computer programs is like assembling a jigsaw puzzle whose pieces do not quite fit."[98]

90. For example Bing claims it uses over a thousand signals, while Google claims it uses 200 signals with each signal having over 50 variations. Danny Sullivan, *Dear Bing, We Have 10,000 Ranking Signals To Your 1,000. Love, Google*, SEARCHENGINELAND.COM (Nov. 11, 2011, 1:20 PM), http://searchengineland.com/bing-10000-ranking-signals-google-55473.

91. Franklin, *supra* note 20.

92. *Id*.

93. *Id*.

94. *Id*.

95. *Id*.

96. *Id*.

97. *Id*.

98. Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807, 820 (1st Cir. 1995) (Boudin, J., concurring).

1. Originality

Search results represent a collection of facts that are selected and arranged creatively, and thus satisfy the originality requirement for copyright. *Feist* and its progeny instruct that so long as a collection of facts are selected and arranged more creatively than an alphabetical list or its equivalent, the collection of facts meets the originality requirement for copyright.[99] A search engine's facts are the individual webpages that the search engine's web crawlers discover.[100] What makes a search engine useful is that it does not display these webpages randomly or alphabetically, but instead it selects and arranges the results in a useful way.[101] The Economist magazine summed up a search engine's contributions as follows:

> In order to be useful, the cornucopia of information provided by the Internet has to be organi[z]ed. . . . The raw material for [a] search engines comes free: web pages on the public internet. Where [the search engine] adds value . . . is by structuring the information, ranking it in order of its relevance to the query.[102]

Additionally, the fact that variation exists among search engines demonstrates that the creation of search results is not "so mechanical or routine as to require no creativity whatsoever," as the phone listings were in *Feist*.[103] These facts, when considered with the statutory definition for compilations as well as *Feist* and its progeny, indicate that search results satisfy the originality requirement for copyright protection.

2. Work of Authorship

Congress explicitly granted copyright protection for computer code by classifying it as a literary work.[104] The code behind a computer program, however, represents a small part of how the user experiences the program.[105] If computer code were the sole element

99. *Feist Publ'ns,* 499 U.S. at 358 ("To that end, the statute dictates that the principal focus should be on whether the selection, coordination, and arrangement are sufficiently original to merit protection.").

100. *See* Franklin, *supra* note 20.

101. Hotchkiss, *supra* note 22.

102. *Needle in a Haystack: The uses of information about information*, ECONOMIST (Feb. 25, 2010), *available at* http://www.economist.com/node/15557497.

103. *Feist*, 499 U.S. at 362.

104. NIMMER, *supra* note 26, at § 2.04[2].

105. *See* Whelan, 797 F.2d at 1231 (3d Cir. 1986) (explaining the key technology involved, the court noted that in software development "the coding process is a

of a computer program to hold copyright protection, competitors would be free to copy one another's programs simply by making inconsequential alterations to a program's code.[106] Following *Whelan*, "copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization."[107] The "structure, sequence, and organization" of a search engine encompasses the algorithms, signal selections, and information discovered by its web crawlers, which together generate a ranked list of search results unique to the search engine.[108] A list of search results is merely the final manifestation of a search engine's structural and sequential elements. Given Congress's intent to grant copyright protection to software, and that several courts have extended protection beyond literal computer code, search results represent a copyrightable literary work of authorship.[109]

3. Fixed in a Tangible Medium

Search results are fixed within a search engine's servers, and are thus fixed in a tangible medium of expression. In *Stern*, the court found that a user's ability to interact with and influence a videogame does not mean that the audiovisual elements of the game are not fixed.[110] "No doubt the entire sequence of all the sights and sounds of the game are different each time the game is played, depending upon the route and speed the player selects for his spaceship and the timing and accuracy of his release of his craft's bombs and lasers."[111] This process is analogous to how search results are displayed in response to a user's query. When a user enters a search query and a list of results is generated, the search engine has not created something new, but has merely led the user down a carefully calibrated and predetermined path.[112] While this process is instantaneous, it is not spontaneous, and more closely resembles discovery than creation. In

comparatively small part of programming" and that much of the effort spent in creating a program includes research of the problem that the program is supposed to solve, as well as "the development of the structure and logic of the program, and to debugging, documentation and maintenance.")

106. *Id*.; *see also* Stern Elecs., 669 F.2d at 856; *Midway*, 564 F. Supp. At 749.

107. *Whelan*, 797 F.2d at 1248; *see* Lotus, 740 F. Supp. at 68.

108. *See* Franklin, *supra* note 20.

109. *Whelan*, 797 F.2d at 1248; *see Lotus Dev. Corp.*, 740 F. Supp. at 68.

110. Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 856 (2d Cir. 1982).

111. *Id*.

112. *See Recommended Search Engines, supra* note 79.

Stern, the videogame's audiovisual elements were fixed in the game's memory, for search engines the results are fixed in its servers.[113]

Search results likely satisfy each of the Copyright Act's requirements for copyright protection, as "original works of authorship fixed in any tangible medium of expression."[114]

B. Should Search Results Be Copyrightable?

The ultimate goal of copyright law is not to reward the labor of authors, but "[t]o promote the Progress of Science and useful Arts."[115] Copyright law is not concerned with the welfare of companies, or more specifically, whether companies like Google would be hurt if their search results could be freely copied. Instead, what matters is whether copyright protection for search results would promote or hinder the progression of society. As noted above, search engines help address the ever-growing challenge of making the world's information useful.[116] Copyright protection is therefore an appropriate means of encouraging search engine companies to continue to innovate. There may, however, be a limit to the usefulness of copyright protection for search results.[117] Companies like Bing and Google are constantly striving to generate the most relevant search results possible.[118] As search engines continue to improve, is there a point at which search results will reach a level of relevancy where they can progress no further? If search engine "X" discovered how to generate the perfect results for a search query of "U.C. Hastings," for example, would search engine "Y" be legally required to generate an inferior list of results? Such a scenario would effectively merge the idea behind the search results (the queried search term) with the expression of the search results.[119] Suppose search results A, B, and C were the undisputed most relevant results for search query X. Granting copyright protection for results A, B, and C would risk creating a monopoly over all searches for X because competing search engines would be barred from generating the best search results.[120] As the Supreme Court warned in *Baker*, the

113. *Id*.; *see also Stern,* 669 F.2d at 856.

114. 17 U.S.C. § 102.

115. *See* U.S. CONST. art. I, § 8, cl. 8..

116. *See Needle in a Haystack: The uses of information about information, supra* note 104.

117. *See* Dan L. Burk, *Method and Madness in Copyright Law*, 2007 Utah L. Rev. 587, 592 (2007).

118. *See* Efrati, *supra* note 1.

119. *See* Burk, *supra* note 117.

120. *Id*.

protection of ideas "is the province of letters-patent, not of copyright."[121] "Unlike a patent, a copyright gives no exclusive right to the art disclosed; protection is given only to the expression of the idea-not the idea itself."[122] If search engines ever achieved perfection, copyright protection for search results would be highly problematic and contrary to one of the core foundations of copyright law.[123]

Developments in search engine technology, however, are more likely to diversify rather than standardize search results.[124] One recent innovation, for example, is the incorporation of data from social networks into search results.[125] Bing and Google are now incorporating social data gleaned, respectively, from the social networks Facebook and Google+.[126] Information a user has posted on a social network can enable search engines to deliver search results tailored to the user.[127] When searching for "Giants tickets," for example, a search engine user who has posted on a social network about his or her love of the New York Giants football team would get a different list of search results than a fan of the San Francisco Giants baseball team.[128] Personalized search results have the potential not only to improve search engine relevance, but also to differentiate a search engine's results from competitors.[129] As search engines adopt more creative features and strategies to improve search relevance and attract users from competitors, the level of creativity and diversity between search results will increase. Such a result will elevate the need for copyright protection to incentivize continued innovation.[130]

IV. Conclusion

Roughly two weeks after Google set its trap of fake search queries and fake results, seven to nine of the approximately 100 fake

121. *See* Baker, 101 U.S. at 102.

122. Mazer v. Stein, 347 U.S. 201, 217 (1954).

123. *See* Burk, *supra* note 117.

124. *See* Danny Sullivan, *Google's Personalized Results: The "New Normal" That Deserves Extraordinary Attention*, SEARCHENGINELAND.COM (Dec. 7, 2009, 10:20 AM), http://searchengineland.com/googles-personalized-results-the-new-normal-31290; *see also* Shane Snow, *How Social Media Affects Content Relevance in Search*, MASHABLE.COM (Sept. 9, 2011), http://mashable.com/2011/09/09/seo-social-media/.

125. *Id*.

126. *Id*.

127. *Id*.

128. *Id*.

129. *Id*.

130. *See* Sullivan, *supra* note 124.

entries began appearing on Bing's search engine.[131] This was enough for Google to release the results to the public, which prompted a contentious exchange of press releases between the two companies.[132] Bing contended that it had not copied Google's results but had merely watched and learned from the search behavior of users of its "Bing Bar."[133] The Bing Bar is a toolbar for users of the Internet Explorer web browser that claims to "improve [users'] online experience . . . by allowing [Bing] to collect additional information about . . . the searches [the users] do, [and] websites [they] visit."[134] This allows Bing to record what a user searches for and which results the user clicks on, across multiple search engines, including Google's.[135] For example, the Bing Bar recorded when Google engineers used Google's search engine to search for the term "hiybbprqag" and click on the fake top result—the Wiltern Theatre's seating chart.[136] Bing claimed that information obtained from the Bing Bar is merely one of numerous signals the Bing search engine uses to rank its results.[137] For popular search terms, Bing can combine information from several signals, but when the search terms are uncommon, Bing must rely disproportionately on whatever information signals are available.[138] Since the Bing search engine had no other references for "hiybbprqag," it had to rely disproportionately on the information signal from the Bing Bar.[139] This led Bing to display the information it learned from watching the fake Google searches, which gave the appearance that it copied Google rather than learned from the behavior of its Bing Bar users.[140] The fact that only seven to nine of the 100 fake entries appeared on Bing lends credence to Bing's argument that it does not copy Google.[141] It also demonstrates that the Bing Bar signal is one of

131. Throughout the experiment, the number of fake entries that showed up in Bing's results fluctuated daily between seven and nine. Sullivan, *supra* note 2.

132. Danny Sullivan, *Bing: Why Google's Wrong In Its Accusations*, SEARCHENGINELAND.COM (Feb. 4, 2011, 1:39 PM), http://searchengineland.com/bing-why-googles-wrong-in-its-accusations-63279.

133. *Id*.

134. *See* Sullivan, *Bing Is Cheating*, *supra* note 2.

135. *Id*.

136. *Id*.

137. *See* Sullivan, *Why Google's Wrong*, *supra* note 132.

138. *Id*.

139. *Id*.

140. *Id*.

141. *Id*.

many signals Bing uses to rank search results.[142] Since Bing incorporated a small percentage of the fake Google entries, it indicates that other signals likely drowned out the information Bing received from the Bing Bar.[143]

Reasonable minds could disagree whether Google's experiment was merely "a hack [designed] to confuse and manipulate some of [Bing's] signals," or proof that Bing copied Google.[144] What matters for the purposes of this comment is that search results are copyrightable and that this protection is justified. Search results satisfy each of the Copyright Act's requirements for copyright protection, as "original works of authorship fixed in any tangible medium of expression."[145] Search engines undeniably contribute to the "Progress of the "Science and useful Arts" and their continued growth should be incentivized under Copyright law.[146]

142. *See* Sullivan, *Why Google's Wrong*, *supra* note 132.

143. *Id*.

144. *Id*.

145. 17 U.S.C. § 102.

146. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 349 (1991) (quoting U.S. CONST. art. I, § 8, cl. 8).