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Note: Amazon.com: A Look at Patenting Computer Implemented Business Methods Following State Street

James E. Landis

I. Introduction

Patent law will always be a unique crossover of the legal field with scientific and engineering disciplines. As computer technology takes its place in the landscape of civilization, patent law has had an increasingly difficult time keeping pace with the revolution. The parallel development of internet technology, particularly e-business, has further compounded the problem by adding another non-legal field of expertise into patent law while at the same time, raising the monetary stakes. Only recently has software programming gained adequate recognition as patentable subject matter. With the relatively recent

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1 See Notice of Roundtable on Computer-Implemented Business Method Patent Issues, 65 Fed. Reg. 38811, 38812 (Dep't Commerce June 22, 2000). While the background of the notice does not explicitly admit problems in keeping up with technological demands, the notice does acknowledge exponential growth and includes reference to industry outreach and quality programs. Even the calling of a public roundtable on these issues addresses at least a perception of problems within the PTO in dealing with emerging E-Business patent issues. See William C. Smith, Patent This!, A.B.A. J., Mar. 2001, at 48, 52-54.

2 See supra note 1.

3 See infra note 25 and accompanying text.
collapse of the business method exception to patent subject matter and the curtailed application of the mathematical algorithm exception to software, what is to be done with e-business inventions and more importantly, why?

II. Legal Background

A. Deconstructing the Old Approach

In past years, challenges to business methods or computer programming relied on the lack of statutory subject matter as a basis for denying patents. The Patent and Trademark Office (PTO), however, requires only "that the subject matter sought to be patented be a 'useful' invention" and in explanation, "any new and useful process, machine, manufacture, or composition of matter under the sun that is made by man is the proper subject matter of a patent." The battle over statutory subject matter is limited to what is useful in a patent sense. The PTO limits exclusions to the three traditional exceptions of abstract ideas, laws of nature, and

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4 See infra note 26 and accompanying text.
5 See infra note 25.
6 At the district court level, State Street was decided on exactly these misconceived subject matter exclusion arguments. See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1370 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999).
natural phenomena. Business methods and mathematical algorithms are not statutorily excluded.

The mathematical algorithm exception has a clear but twisted path and cannot be attributed to misinterpretation and summarily dismissed. The algorithm exception was born in case law involving an elementary computer program used to convert between numeric codes. It was viewed as too basic a tool for patent because it would unfairly limit further use of computers. This was the case in 1972, because computer programming was limited to abstract mathematical concepts, properly viewed as mere abstractions. As computer programming became more complex, the algorithm exception was strained and revised by the Supreme Court. In 1978, the federal circuit court interpretations introduced new standards, which in turn were strained and revised. In 1994, the federal circuit court, sitting en banc, returned to a simpler statutory

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12 See King, supra note 9, at 1134-38 (citing In re Freeman, 573 F. 2d 1237 (C.C.P.A. 1978); In re Walter, 618 F. 2d 758 (C.C.P.A. 1980); and In re Abele, 684 F. 2d 902 (C.C.P.A. 1982)).
reading initially suggested by the Supreme Court. The \textit{Alappat} algorithm test requires processes, explicitly including computer programs, to be looked at as a whole. As for computer programs, "[s]uch programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." In relation to e-business software, the complexity and functionality prevents application of the mathematical algorithm exception.

The business method exception was born in dicta in 1908. While statutory subject matter differed by definition in that time, the \textit{Hotel Security} case relied on terms that were not confined to subject matter. The opinion rested on the idea that "if the [invention] described in the specification be old, the claims cannot be upheld because of novelty in the appliances used in carrying it out, -- for the reason that there is no novelty." Later in the opinion, the court commented that "[t]he essential features were old." In alternate justification, the court was "of the opinion that the improvements ... [were] such as would occur to anyone conversant in the business."

\begin{itemize}
\item \textsuperscript{13} See King, \textit{supra} note 9, at 1140 (citing \textit{In re Alappat}, 33 F. 3d 1526 (Fed. Cir. 1994) (en banc)); and Gibby, \textit{supra} note 11, at 326-330 (citing \textit{In re Alappat}, 33 F. 3d 1526).
\item \textsuperscript{14} Gibby, \textit{supra} note 11, at 328 (citing \textit{In re Alappat}, 33 F. 3d 1526).
\item \textit{In re Alappat}, 33 F. 3d at 1545 (citations omitted).
\item \textsuperscript{16} See State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1376 (citing \textit{Hotel Security Checking Co. v. Lorraine Co.}, 160 F. 467 (2d Cir. 1908) as "the case frequently cited as establishing the business method exception").
\item \textit{Hotel Security}, 160 F. at 469. It should also be noted that this quote lays a very strong foundation for both a method of analysis and a substantive basis of rejection for all pure automation claims.
\item \textit{Hotel Security}, 160 F. at 470.
\item \textit{Id.} at 471.
\end{itemize}
Squarely and certainly, the case was decided on novelty, and only in misinterpretation raised an idea of the business method exception. Interestingly, the words of the 1908 case implicate the issue of novelty in patenting computer automations. Business models must still meet statutory subject matter restrictions. A business concept shown to be a mere abstract idea remains unpatentable.

In retrospect, neither exception appeared fundamentally defective in its time. The mathematical algorithm exception made perfect sense in the era where computer programming involved only simple number manipulation and demanded minimal inventive skill. Today, the programming in question requires the complex fusion of inventive design and creative logic manipulation. While historic inventions were honed in mechanical media, modern inventors are using software as their alternative media of choice. The algorithm exception has shown itself woefully inept at sorting "invention" from abstract ideas, laws of nature, and natural phenomena. While the exclusion of business methods as abstract ideas contained seeds of wisdom in Hotel Security in 1908, computer software as mere algorithms appeared analogously doomed in the early 1970's. It had been well established by the Supreme Court that abstract ideas alone were not patent worthy topics as early as 1874. While the patent subject matter statute provided patent protection only to "any new and useful art, machine, manufacture or composition of matter," the mere mention of business methods excited notions of a new exception. Alternatively, there was judicial discomfort in recognizing business methods as the fruit of invention, and even without an official recognition, business

20 See supra, notes 9-15 and accompanying text.
22 U.S. Comp. St. 1901, p.3382 (1897).
methods were continually rejected by the courts on other grounds. Today, the advent of electronic commerce has brought new attention to both failed exceptions. In particular, the PTO has had to directly address the means by which inventions of computer-implemented business methods are to be examined for patent. Rightfully, analytic focus is shifting away from the narrowly viewed subject matter tests to the more relevant questions of real claim scope, novelty, and obviousness.

B. Building the New Approach

In 1998 the court of appeals’s State Street opinion restricts use of the “mathematical algorithm exception” and generally allows software with practical utility. State Street also quashes the “business method exception.” Numerous

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24 Examination Guidelines for Computer-Related Inventions, supra note 7.
25 State Street, 149 F.3d at 1375. See Examination Guidelines for Computer-Related Inventions, supra note 7 at 7481 (allowing “functional descriptive material” consisting of data structures and computer programs which impart functionality when encoded on a computer-readable medium ... [and] it becomes structurally and functionally interrelated to the medium”); and King, supra note 9 (explaining the twisted evolution to the current test as formulated by In re Alappat). See, e.g., Indira Saladi, Computer Software: Patentable Subject Matter Jurisprudence Comes of Age, 18 J. MARSHALL J. COMPUTER & INFO. L. 113 (1999); Vincent Chiapetta, Patentability of Computer Software Instruction as a “Article of Manufacture:” Software as Such as the Right Stuff, 17 J. MARSHALL J. COMPUTER & INFO. L. 89 (1998); and Gibby, supra note 11.
26 State Street, 149 F.3d at 1377 (quoting Examination Guidelines for Computer-Related Inventions, supra note 7 at 7479). Several sources have identified and expounded upon the prominent removal of business method exclusions from the 1996 publication of the MANUAL OF PATENT EXAMINING PROCEDURE. See Rinaldo Del Gallo III, Are “Methods of Doing Business” Finally Out of Business as a Statutory Rejection?, 38 IDEA 403, 404 (1998). Furthermore, both cases and commentaries have noted the lack of business method exceptions in binding
articles have included the *State Street* case as a watershed case in computer-implemented business methods. In the three years since decided, the *State Street* decision has been included in six (6) citing decisions and 122 law reviews and periodicals.\(^\text{27}\)

For purposes of this note, it is important only to review the step-wise logic used in *State Street* to arrive at the modern state of computer-implemented business method law. First, the patent was claimed on a system of calculation and maintenance,\(^\text{28}\) not on the underlying investment tool. The system did rely on the basic economic concept of efficiency by aggregation of resources, but did not claim this abstract idea or law of nature as its invention. Second, the patent as issued involved only machine claims, with all method claims dropped.\(^\text{29}\) By claiming the system of calculations as a machine, the invention followed the theory and guidelines for claiming software programming.\(^\text{30}\) Third, “the Freeman-Walter-Abele analysis has limited application in determining the presence of statutory subject matter.”\(^\text{31}\) The court supported and used the precedent. (*State Street*, 149 F.3d at 1375 ("The business method exception has never been invoked by this court, or [it's predecessor], to deem an invention unpatentable," citing Del Gallo, supra note 11, at 435, then differentiating several cases and examples)); and King, supra note 9, at 1144-45 (citing and explaining a string of legal criticisms of the business method exception.).)

\(^{27}\) Lexis Shepardize® results as of April, 18, 2001 (on file with the NORTH CAROLINA JOURNAL OF LAW & TECHNOLOGY).

\(^{28}\) *State Street*, 149 F.3d at 1371.

\(^{29}\) Id.

\(^{30}\) Programming changes the general use machine to a special purpose machine. (Examination Guidelines for Computer-Related Inventions, supra note 7 at 7481 (“computer programs which impart functionality when encoded on a computer-readable medium ... [become] structurally and functionally interrelated to the medium”).)

\(^{31}\) *State Street*, 149 F.3d at 1374 (citing In re Freeman, 573 F.2d 1237, (C.C.P.A. 1978); In re Walter, 618 F.2d 758 (C.C.P.A. 1980); and In re Abele, 684 F.2d 902 (C.C.P.A. 1982)). This test is cited from *In re Pardo*, 684 F.2d 912, 915
Alappat test as embryonically envisioned by the language of Diehr. As a group, Diehr, Alappat and State Street permanently include software in patent subject matter. Fourth, subject matter must take into account the whole of what is claimed. Fifth, the examination of statutory subject matter claims should be foremost concerned with "the essential characteristics of the subject matter, in particular, its practical utility," and allow categorization to be a minor secondary concern. Finally, §101 does not exclude business methods, but §§102, 103, and 112 may.

(C.C.P.A. 1982) (further citations omitted) as articulated within that decision: "First, ... determine whether a mathematical algorithm is directly or indirectly recited. Next, ... the claim as a whole is further analyzed to determine whether the algorithm is 'applied in any manner to physical elements or process steps,' and if it is, it 'passes muster under §101.'"

State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1374-75. The Alappat subject matter test as refined, can be articulated as to allow a statutory subject matter claim on any invention which produces a "useful, concrete and tangible result" from its operation.


State Street, 149 F.3d at 1374 n.6 (citing Diehr, 450 U.S. at 192).

State Street, 149 F.3d at 1375.

This idea forces the analysis of computer automations of known processes out of the subject matter inquiry where they had been mishandled for years (see supra notes 6-24 and accompanying text for historic discussion of origins of business method and mathematical algorithm exceptions) and into investigation of novelty and obviousness. "Today, we hold that the transformation of data, ... by a machine through a series of mathematical calculations ... constitutes a practical application ... because it produces 'a useful, concrete, and tangible result.'" State Street, 149 F.3d at 1373.

The court is quite clear on this point. "The business method exception has never been invoked by this court, or [its predecessor], to deem an invention unpatentable." State Street, 149 F.3d at 1375 (citing Del Gallo, supra note 26, at 435). Procedurally, the court of appeals has review authority over questions of law, and as such, de novo review authority over claim and statutory construction. See
In all, *State Street* appears to follow the PTO’s 1996 Examination Guidelines for Computer-Related Inventions. Both decisively limit the mathematical algorithm exception as developed by *Freeman-Walter-Abele* to those claims falling outside of the *Alappat* functional-output test, while *State Street* points out that in most or even all cases, the inquiry is altogether unnecessary. So an early inquiry must be made whether “the subject matter sought to be patented [is] a useful invention” as a whole based on “its practical utility” and “a useful, concrete, and tangible result” without regard to particular exceptions.

*Also State Street*, 149 F.3d at 1370 (relating to similar authority in summary judgement). The court’s opinion relied on claim and statutory construction but remanded the case for proceedings at the district court. It seems that the court of appeals read the district court opinion as complete in regards to fact, but inaccurate in developing a coherent and logical basis for rejecting the patent. The court of appeals quotes and supports an important and essential finding of fact which points to the claim being overbroad. *State Street*, 149 F.3d at 1376-77. Then for the world to see, “[w]hether the patent’s claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103, and 112.” *State Street*, 149 F.3d at 1377 (referring to statutory sections of 35 U.S.C. (1996) revised (2001) (changing no relevant matter)). Admonishing further, “it has nothing to do with whether what is claimed is statutory subject matter.” *State Street*, 149 F.3d at 1377. *See State Street*, 149 F.3d at 1373-74; and Examination Guidelines for Computer-Related Inventions, *supra* note 7, at 7479.

*State Street*, 149 F.3d at 1373 n.4.

*Examination Guidelines for Computer-Related Inventions, supra* note 7, at 7481. Overall, the Guidelines couch this inquiry in terms of machine and process functionality, not the results as in *Diehr* and *State Street*. The Guidelines, (ironically in this comparison) have been criticized for following form over function in requiring that computer instructions must be encoded on physical media such as a floppy disk in order to avoid labeling as an abstract idea. *See* Chiappetta, *supra* note 25, at 113. If, however, this thin line provides the bright line of predictable separation, e-business inventors should be satisfied for a few years. Alas, this differentiation, too, seems to be doomed to antiquity.

*State Street*, 149 F.3d at 1375.

*Id.* at 1373.
The practical utility requirement will go hand in hand with the description and enablement requirements of 35 U.S.C. §112. In particular, the specification must “particularly [point] out and distinctly [claim] the subject matter which the applicant regards as his invention.” The tendency has been to write claims as broadly as possible either to make them easier to understand, or to broaden the scope of the claim as much as allowable.

The novelty condition for patentability is embodied in 35 U.S.C. §102. In summary, the invention must be something not already introduced. Computer programs have found this to be a problem, as a mere automation of a known process should be considered lacking in novelty. Anticipation requires identical elements found in the identical situation related in the same way all within one prior art reference.

The non-obvious condition for patentability is embodied in 35 U.S.C. §103. An invention not exactly embodied in prior art may not be patented “if the differences between the subject

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46 The automation of existing processes has long been peripherally recognized as either not novel or obvious. “If the [‘invention’] described in the specification [is not new], the claims cannot be upheld because of the novelty in the appliances used in carrying it out, -- for the reason that there is no novelty.” Hotel Security Checking Co. v. Lorraine Co., 160 F. at 469. Similarly, a system for “automatic record-keeping” was struck down in Dann v. Johnston, 425 U.S. 219 (1976). Recent law review articles point to Justice Stevens’s dissent in Diamond v. Diehr, 450 U.S. 175, to show that a mere automation should not be considered requisitely inventive. Gibby, supra note 25, at 316; and Saladi, supra note 25, at 139.
matter ... and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 48

Obviousness requires both factual and legal determinations. The factual inquiries include: "(1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the pertinent art; and (4) applicable secondary considerations," 49 including "commercial success, long felt but unsolved needs, [and] previous failures of others." 50

III. Attack of the Amazons (.com)

Amazon.com's original case requested preliminary injunctive relief enjoining Barnesandnoble.com (BN.com) from using the patented 51 "one-click" purchasing process ("one-click" patent). Plaintiffs presented their patent describing "[a] method and system for placing an order to purchase an item via the Internet" using a significantly streamlined process 52 and presented evidence regarding the allegedly infringing method of BN.com. BN.com's main defense questioned Amazon.com's likelihood of success at trial on the merits. BN.com argued 1) the "one-click" patent is invalid based on obviousness and

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49 Amazon.com, 73 F. Supp. 2d at 1241 (citing Weatherchem Corp. v. J.L. Clark, Inc., 163 F. 3d 1326, 1332 (Fed. Cir. 1998)).
52 Id. at 1.
anticipation, 2) BN.com's method did not infringe the patent, and 3) the patent was unenforceable. In the alternative, BN.com “argued that Amazon.com could not demonstrate irreparable harm, that the balance of hardships did not tip in Amazon.com's favor, and that the public interest” did not justify an injunction.

A. Relief at the District Court

The District Court for the Western District of Washington began with a finding that the patent only applied to single-action ordering, and in particular, without a “shopping-cart” model. Evidence regarding non-obviousness included uncontested testimony that the method was highly innovative, addressed a long felt, “unsolved need,” and met with commercial success. Dr. Lockwood, a key expert for the defense, had never thought to streamline the purchasing process. The commercial value and competitor response compounded by difficulties in measuring the impact of infringement and the value of customer loyalty supported the finding of irreparable harm.

Next, the district court acknowledged the numerous relevant legal guidelines. “To obtain a preliminary injunction, ... a party must establish a right thereto in light of four factors: (1) reasonable likelihood of success on the merits; (2) irreparable

53 Amazon.com, 73 F. Supp. 2d at 1241.
54 Id. at 1231-32.
55 Id. at 1233.
56 Id. at 1236-37.
57 Id. at 1237.
58 Id.
59 Id. at 1235-36.
60 Id. at 1237-38.
harm; (3) the balance of hardships tipping in its favor; and (4) the impact of the injunction on the public interest. The likelihood of success, in turn, depends on the defenses. In this case, the defenses are non-infringement and invalidity.

"Analysis of patent infringement involves two steps: (1) claim construction to determine what the claims cover, i.e., their scope, followed by (2) determination of whether the properly construed claims encompass the accused structure." The statutory presumption of validity, ... applies to all patents and is meant ‘to contribute stability to the grant of patent rights.'

This presumption holds unless the patent opponent raises a “substantial question” against validity and the patent proponent “fails to show the defense lacks ‘substantial merit.’” BN.com’s invalidity defense is further based on anticipation and obviousness. Anticipation requires identical elements found in the identical situation related in the same way all within one prior art reference. Obviousness “is based on several factual inquires,” focusing on questions of prior art, ordinary skill in the art, and other considerations.

Finally, the holdings are revealed throughout the opinion. As for infringement, the scope of the claim and the questioned use overlapped, with the single-action requirement

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62 Amazon.com, 73 F. Supp. 2d at 1243 (quoting Cole v. Kimberly-Clark Corp., 102 F.3d 524, 528 (Fed. Cir. 1997)).
63 Amazon.com, 73 F. Supp. 2d at 1239 (quoting Manivision, Inc., v. Bonneau Co., 115 F.3d 956, 958 (Fed. Cir. 1997)).
64 Amazon.com, 73 F. Supp. 2d at 1239 (quoting New England Braiding co. v. A.W. Chesterton Co., 970 F. 2d 878, 883(Fed. Cir. 1992)).
65 Amazon.com, 73 F. Supp. 2d at 1239 (citing Perkin-Elmer Corp. v. Computervision Corp., 732 F. 2d 888, 894 (Fed. Cir. 1984)).
66 Amazon.com, 73 F. Supp. 2d at 1241. See discussion supra notes 49-50 and accompanying text.
crucial in finding an infringement. The likelihood of success inquiries also favored Amazon.com. The legal standard used by the court for anticipation challenges presented a very high hurdle. As a result, the court summarily dismissed all prior art references as not individually anticipating the claimed invention. For obviousness, the court pointed out several items of fact. Mainly through rehashing the inferences of prior art and secondary considerations, the court showed that BN.com may have raised questions of validity bordering on substantial, but Amazon.com was able to show that they were without serious merit. Also critical to the obviousness inquiry was the testimony of Dr. Lockwood, defendant’s expert witness, “that it had never occurred to him” to modify existing purchasing methods in the manner of the “one-click” invention. BN.com dropped arguments relating to enforceability. In the end, the district court granted the preliminary injunction.

B. Review at the Court of Appeals

BN.com adjusted its positions for the appeal. BN.com asserted that the scope of the claim may have only one interpretation for both the infringement finding and for the validity finding. BN.com asserted that under such a reading, the “one-click” claim is either too broad to be valid, or too narrow to include the BN.com method. In short, BN.com claimed its method was more like prior art than the patent. BN.com argued their method was either outside the scope of the

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67 Id. at 1244.
68 Id. at 1241-42.
69 Id. at 1241.
70 Id. at 1242.
"one-click" patent, or alternatively within the scope of an invalid patent because of the teachings of prior art. BN.com also asserted that the district court's error was compounded by its misunderstanding of the teachings of prior art.\textsuperscript{72}

The Court of Appeals for the Federal Circuit followed a very different approach in its opinion – at times showing potential contradictions in the controlling case law. First, the court restates a preliminary injunction rule very similar to the district court.\textsuperscript{73} The court points out “[t]hese factors, taken individually, are not dispositive; rather, the district court must weigh and measure each factor against the other factors and against the form and magnitude of the relief requested.”\textsuperscript{74} The next paragraph supports the presumption of irreparable harm in patent infringement cases.\textsuperscript{75} This is the last mention of presumed irreparable harm. The next paragraph following, the court relies on case law and logic, which is never expounded or explained, to require the movant to establish the first two factors, i.e., likelihood of success at trial and irreparable harm.\textsuperscript{76} The court continues to put the burden of showing likely success on the movant, even thought the movant has an examined and issued patent. Very quickly the injunction test transforms from balancing to threshold, disregards the presumption of irreparable harm, and shifts and increases the burden of proof to the holder of an officially obtained patent.\textsuperscript{77}

\textsuperscript{72} Id. at 1352.
\textsuperscript{73} Id. at 1350.
\textsuperscript{74} Amazon.com, 239 F.3d at 1350 (quoting Hybritech, Inc. v. Abbott Labs., 849 F.2d at 1451).
\textsuperscript{75} Id.
\textsuperscript{76} Id.
\textsuperscript{77} See Amazon.com, 239 F.3d at 1351. See discussion infra notes 110-114 and accompanying text.
Next, the court of appeals shifts its terminology from likelihood of success and irreparable harm to new standards comprising only some of the crucial elements of the old. The court begins to discuss the analysis in terms of infringement and validity (previously sub-parts of the likelihood of success element). The reworking and regrouping of the law then follows a very logical and streamlined approach, recognizing the similar elements of the inquiries and condensing the standards. The court’s analysis focuses exclusively on the likelihood of success, without regard for the procedural context. The most important individual inquiry for both the infringement and validity analyses is the scope of the claim.

The court interprets the scope of the claim in a way similar to the district court’s method, resulting in a similar finding of likely infringement. The court of appeals reaches a very different conclusion from the obviousness inquiry. In the end, the court of appeals found that “one of ordinary skill in the art could fill in the gaps in the asserted references given, the opportunity to do so at trial.” The district court misread and misinterpreted the teaching of the prior art references, and BN.com had gone far enough in challenging the validity to overcome the motion for a preliminary injunction. The most important prior art seemed to be a description of an “Instant Buy Option” briefly noted in an appendix of Magdalena Yesil’s Creating the Virtual Store e-business how-to book.

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78 Amazon.com, 239 F.3d at 1350-51.
79 Id. at 1350-52.
80 Id.
81 Id. at 1352-1355.
82 Id. at 1358.
83 Id. at 1359.
84 Id. at 1358.
85 Id. at 1360.
Some or even most of Amazon.com's assertions concerning non-obviousness are 
addressed and dismissed by the court. Perhaps the most 
important of the dismissed bases is the conclusion that 
individuals skilled in the art could not have invented the “one-
click” invention. While the district court did use Dr. 
Lockwood's testimony in deciding the obviousness issue, it did 
ot use his testimony exclusively. The district court used the 
cross-examination admissions mainly in impeaching prior 
inconsistent testimony regarding “conclusory statements that 
prior art references teach to one of ordinary skill in the art.” 
Further, at least one other expert (from a very limited number of 
testifying experts) testified that those skilled in the art would 
not have discovered this invention.

The overall methodology looks perfectly reasonable at 
first glance. This analysis, however, forces a focused review on 
the substance of the patent, disregarding the procedural context. 
Ironically, the court of appeals points out that the district court 
used terms indicating a legal conclusion on infringement instead 
of the substantial likelihood of infringement necessary for an 
injunction. The two cases resolve the conflict by placing 
burdens on opposite parties and using different methods and

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86 See infra, note 127 and accompanying text.
87 Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1360-66. The 
court addresses each of the prior art references, but addresses all of the “secondary 
considerations” in two conclusory paragraphs at 1366.
88 Id. at 1364.
89 See supra note 69 and accompanying text.
91 See Amazon.com, 73 F. Supp. 2d at 1231.
92 Id. at 1241.
93 Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1356.
standards for preliminary injunctions. The differences raise very general questions regarding expectations of patent protections.

IV. The Harbinger of Bad News

A. “Functionality” and “Utility”

The first problem, although not arising within the Amazon.com context, underscores the glaring and inevitable vagueness of the functionality inquiry. Some mathematical algorithms are still not within statutory subject matter. Section 101 still hinges on the §112 requirement that the claimed invention must be usable as explained within the claim description. Between theorems and working machines, rests the line to be drawn for patent worthiness. Everything we comprehend has abstract and concrete elements. Somewhere between the purely abstract and the purely concrete, lay all patent applications. Somewhere in that range is a division between concepts of multiple and general use and those of independent utility. Mr. Gibby’s article adeptly explores this problem in developing the concept of a continuum in the scope and utility analyses. Currently, PTO Examination Guidelines for Computer-Related Inventions develop only a partly workable guideline as to sorting the “functional descriptive material” from the “non-functional descriptive material.”

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95 See Gibby, supra note 11, at 299-355.
96 Examination Guidelines for Computer-Related Inventions, supra note 7, at 7481-82.
A real standardized test for functionality must be inferred from the utility test provisions finalized in January of 2001. The Computer-Related Guidelines require the claim to provide only one practical application to pass the utility requirement. Examiners are to focus on finding statements in the specification which lead to practical applications, providing no real threshold for the subject matter or the scope of claims. With such a loose standard the current iteration of §§112 and 101 would provide too easy an access to the patent examination process. To what level of reality must a postulated application rise to pass the practicality test? In particular, the real practicality of software applications will vary widely. Conversely, the Utility Guidelines are a great improvement, allowing a "well-established utility" to meet a "specific, substantial, and credible" standard. The Utility Guidelines strengthen the link between §§101 and 112.

The problem still exists, however, because the Computer-Related Guidelines and the Utility Guidelines are comparing apples and oranges. The Computer-Related Guidelines never address the issue of utility where the invention is claiming non-functional descriptive material. Without a criterion for determining the functionality, the standard is very subjective and will allow claims to slowly creep from the overly restrictive business method and algorithm exceptions toward truly "anything under the sun." The judgement of

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98 Examination Guidelines for Computer-Related Inventions, supra note 7, at 7479-80.
99 Utility Examination Guidelines, supra note 97, at 1098.
100 Id.
“functional utility” will have a strong impact on determining the “practical application” and will, in turn, impact the statutory subject matter finding - while “utility” has new found meaning, “functionality” has not. The real possibility exists that e-business inventions will show utility to pass §112 (and presumably §101) under the Utility Guidelines and yet not show the level of operative functionality truly contemplated by §101 but not standardized in the Computer-Related Guidelines.

Currently, the inference is that if the claimed invention has a postulated practical application and is on a disk, it passes §§101 and 112. Admittedly, part of this observation relies on a reading of State Street which virtually abandons the F-W-A test. The abandonment of the F-W-A test, however, is supported by the Utility Guidelines which do not address those algorithms that meet process definitions and showing specific, substantial and credible utility, but still remain pure abstract ideas or natural laws. If e-business invention claims move slowly toward the abstract as mentioned, the F-W-A test stands a real chance of being erroneously undermined and lost. In the Amazon.com cases, both courts interpreting the scope of the claims came to similar conclusions.102 Because no significant differences arose in interpreting the scope of the claims and the matter concerned business software with both clear practical application and true functional utility, the greater problem continued unrecognized.

B. Computer Terminology and the Unwary

Computer based retailing appears to have become independent from traditional business methods. With that separate life has come an assumption that traditional and virtual

retailing are unrelated. Especially in cases of emerging technology, other sources of prior art must be included in evaluating obviousness and anticipation. Perhaps Amazon.com's legal team achieved their greatest success when focusing the terminology for the single, key claim term: "one-click." While applicants have the general freedom to define their own terms in claims, other terms can and should be used if arising in prior art. Here, "one-click" was compared to the "shopping cart" model exclusively and apparently without challenge. Barnesandnoble.com contentedly and narrowly-mindedly limited its obviousness showing by relying entirely on computer based prior art. Would real-world shopping carts have been used as prior art against the "shopping cart" model? Does even the act of comparing of the "one-click" method to the "shopping cart" model imply that "one-click" is a mere automation?

If the "one-click" model had been challenged as a mere automation of a real-world "room service" model, or a restaurant "tab" model, perhaps the district court would have reached the obviousness conclusion later found at the court of appeals. After all, it's a pretty sure bet that someone among the court personnel can call in pre-selected lunch items to the local deli, which fulfills orders based on its method of recognizing certain customers. From here, the "servers" and "clients" and "cookies" all fall into their respective analogous places. The introduction of non-computer precedents may have demystified the claims of computer-wizardry, and expanded the realm of prior art to achieve the obviousness showing more efficiently.

103 See Gibby, supra note 11, at 353.
C. Who Is an “E-Commerce Expert” and How Is the Job Market?

The most dramatic difference in the opinions centered on the obviousness issue. The court of appeals raised and left unanswered an interesting and specific legal issue when noting the district court’s reliance on a single expert in its anticipation analysis. The observer must ponder the question of which skills and what level of skill should be assigned to “a hypothetical ordinarily skilled artisan” working to implement internet business methods by developing computer programs.

Simply, who is an ordinary skilled artisan for e-commerce? Computer-implemented business methods require the combination of individually esoteric skills into a single, modern, skilled internet business-expert and computer-programmer. What about inventions which would only be anticipated by a combination of artisans skilled in different fields? For “one-click”, one artisan skilled in business dreamt up the idea, and other artisans skilled in programming diligently reduced it to practice. Neither would have succeeded independently.

As for Dr. Lockwood, the “typical” expert, he is a programmer, not accustomed to generating business strategy. As for Magdalena Yesil, the critical business developer, she is

104 Amazon.com, 239 F.3d at 1364. “[T]he district court apparently based its conclusion of nonobviousness on Dr. Lockwood’s ‘admission’ that he personally never thought of combining or modifying the prior art to come up with the claimed ‘single action’ invention.”

105 Id.

106 See infra note 128 and accompanying text.


108 See Amazon.com, 239 F.3d at 1364-65.
an author and business artisan. She did not have the capacity to describe her “Instant Buy Option” invention to any greater technical expertise. So to find the properly skilled artisan, we must first look to the relevant business artisan in asking whether (given the prior art and current circumstances), the business solution was obvious and the invention was therefore taught by previous reference. Then we may ask if (given the relevant predetermined business need), would a software engineer have anticipated the means of execution. If it can be said that computer programmers can program virtually anything given enough time, the act of reducing a process to computer instruction becomes irrelevant, as the creative expression rests entirely with the business person. That is not to say, however, that no situation may exist in which the method of execution of the process provides a level of uniqueness warranting the attention and protection of patent. These questions are appropriate at the examiner level and the claims should be rejected or modified accordingly. Dealing with the compound-skilled-artisan and the broad range of expertise presents a formidable task for PTO examiners.

D. The Injunction Balancing Act

Injunctive relief requires the application of a balancing test. If instead, the court of appeals decides the case based entirely on two of the four factors, what inferences can be drawn? It should already be clear that problems arise where the court of appeals moves from review of the injunction to the

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109 “Given enough time, a skilled programmer should be able to program a computer to do anything that has been done before mechanically.” Gibby, supra note 11, at 316.

110 See supra notes 61 and 73-74 and accompanying text.
substantive matter of the patent. Even if the court of appeals has de novo review authority of both legal and factual issues,\textsuperscript{111} it may still defer to the district court\textsuperscript{112} if logic, justice, or another strong reason dictates. Such is the case here, where BN.com was able to manipulate the system by trying the merits of the patent at the appeal level first, while still preserving a direct attack of the patent at the district level.

Where the court of appeals has determined the impropriety of injunctive relief based solely on the validity question, little remains to litigate. This effectively undermines the patent. Normally, injunctive relief should protect the patent until a full hearing on the merits can be fairly litigated. Such injunctive relief must favor patent-holders in order to protect the validity and potency of the entire patent system. While the court of appeals decision can be interpreted to mean only that the non-movants had met an initial burden to be further tested in a trial on the merits, the court was not explicit when it could have been and precedent\textsuperscript{113} dictates another conclusion. Because absolutely no weight is given to the possibility of irreparable harm, the balance of hardships, or the impact of the injunction on the public interest, the decision infers that the patent should not withstand later judicial scrutiny.

Imagine Amazon.com defending a preliminary injunction and relying on a traditional balancing test. It would

\textsuperscript{111} See supra note 38.
\textsuperscript{112} Such a situation was presented in \textit{State Street Bank & Trust Co. v. Signature Financial Group, Inc.}, 149 F.3d 1368, to the same court, only three years earlier. That decision was remanded to the district court for a trial on the merits.
\textsuperscript{113} Both the district court and the court of appeals acknowledge the assumption of validity where a patent has been issued. (See supra notes 63 and 75 and accompanying text.) Such an issued patent and the examination process it has undergone should be accorded some weight in both the irreparable harm and likelihood of success elements of the injunctive relief balancing test.
make sense to advocate the injunction by distributing precious legal resources to elements other than the likelihood of success. Amazon.com relied on the intrinsic weight of patent examination to help bolster its validity argument and the court of appeals used a different standard. Amazon.com expected a certain procedural context but was ambushed by a trial on the merits of the patent.

Even if there is a reasonable question of patent validity due to obviousness at a hearing for preliminary injunction (or even blatantly obvious to the court of appeals), policy dictates protecting the expectation of validity of issued patents. Some patent applications will pass the PTO’s obviousness investigation and be issued, only to be proven later to be obvious and cancelled. This truth comes to the front at times when old standards are broken down, and the prior art on file at the PTO proves inadequate for some interval. Recently, the business-method and mathematical algorithm exceptions have become defunct, and there is a real issue regarding the PTO’s ability to update its information for the proper examination of computer implemented business method invention applications.  

The proper method of addressing this temporal deficiency, however, is not to change the judicial standard, or repeal long-standing presumptions regarding elements of major guidelines. The PTO will very quickly correct the problem, and substantive challenges to patents will serve justice appropriately. In fact, complete and proper challenges at the district level arguably provide the best way to protect the patent system against infirm and unconvincing claims until the PTO has recovered.

114 See Smith, Patent This!, supra note 1.
E. The Sands of the Hourglass

In law, changes are measured in decades. In e-business, changes are measured by the flickering fractions on Wall Street. So how does change affect patent law decisions? Professor Dreyfuss’s policy arguments\(^{15}\) provide insightful keys with which to evaluate the changed landscape between the two Amazon.com decisions.

“The general lesson here is this. What judges don’t understand, they think is patentable – there is a kind of ‘gee wiz’ [sic] factor that is hard to overcome. In contrast, what judges do understand (or think they should pretend they understand), appears obvious.”\(^{16}\) As much as Dr. Lockwood cannot be considered the relevant skilled artisan because he is only one person, patent validity cannot rest on the knowledge of individual members of the court. Everyone has witnessed the greater than exponential growth numbers for PC sales and internet subscriptions and users. All things considered, there is no accurate way to determine the improvement in general computer knowledge between May of 1997\(^{17}\), and February 14, 2001\(^{18}\). As for the judges on the court of appeals, however, the district court opinion was cited in at least eight (8) law review articles in 2000.\(^{19}\) This number does not account for the public

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\(^{16}\) Id. at 270.

\(^{17}\) Date before which the “one-click” patent was conceived according to finding of fact at the district court Amazon.com, Inc. v. Barnesandnoble.com, Inc., 73 F. Supp. 2d 1228, 1232.


\(^{19}\) Lexis Shepardize® results as of April 18, 2001 (on file with the NORTH CAROLINA JOURNAL OF LAW & TECHNOLOGY).
outcry or the numerous newspaper, magazine and other media expositions of the “one-click” technology. The court of appeals developed interest in computer-related knowledge. In particular, the district court never uses the term “cookie” but does take time to carefully explain “client” and “server” systems. In contrast, the court of appeals shows much greater ease with the related terminology. Obviousness is to be judged at the time of invention, and not at application, trial, or appeal. For common inventions in the mechanical field (for example, a mousetrap), the state of the art does not change much in four years to have any real impact. The growth of computer knowledge in the general and judicial communities, however, begs questions concerning the impact of such growth on the obviousness inquiry, especially when the answer changes from the injunction ruling to the appeal ruling.

The Dreyfuss article describes another change. “Sticky business methods” are those that foster loyalty and return shopping. In particular, Dreyfuss uses the Amazon.com “one-click” system as an example of consumers developing a bias for one of two highly similar and competing businesses based on style and convenience. “[O]nce a book buyer has entered information at Amazon, there is no reason to go elsewhere ... shoppers will not likely visit a site that is less informative and requires more work.” In recognition that the typical shopper

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120 Amazon.com, 73 F. Supp. 2d at 1231.
121 The court of appeals uses the terms “cookie” and “menu” at 1363, “link” several times, including at 1354, and general (if only basic) comprehension of server and client systems. See Amazon.com, 239 F.3d 1343.
122 “The law is clear that the time period for any obviousness determination is ‘at the time the invention was made.'” Amazon.com, 73 F. Supp. 2d at 1241 (citing 35 U.S.C. § 103(a), further citations omitted).
123 Dreyfuss, supra note 115, at 270-273.
124 Id. at 271.
will not recognize proprietary or patented conveniences, "[b]uyers ... will not care if the patent is invalidated." Amazon.com, however, would certainly not agree that this cavalier attitude should apply to its patent. The underlying common sense and clearly appropriate application of the idea to the Amazon situation presents a problem in defending a patent injunction. The passage of time during an injunction may soothe the sting of irreparable harm for the court system, but such rationalization is little comfort for the owners of the overturned patent. The truth is that there is an opposite of "stickiness" - the effect of non-stickiness must be considered. Buyers not offered the ease of the patented system do have reason to shift buying elsewhere from their current retailer. The company whose patent is deemed to have done its job by "sticking" existing customers quickly loses an attractive incentive to competitors' customers considering switching brands. This argument further buttresses the presumption of irreparable harm in regards to this type of patent.

F. Policy - the Good, the Bad, and the Unfinished

Essentially, Amazon founder and CEO, Jeff Bezos, developed an abstract idea (which had possibly been previously discovered), which was reduced to functional utility

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125 Id.
126 The abstract idea being that quicker online sales make consumers feel safer, or at least less likely to be dissuaded before completing online purchases.
127 Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1364-65 (citing MAGDALENA YESIL, CREATING THE VIRTUAL STORE, App. F (1996)). The material encompassing the idea was apparently not fully discovered and developed before the presentation to the district court and dismissed without being adequately addressed by the district court. Amazon.com, 239 F.3d at 1364. There were under four weeks from the filing of the complaint to the beginning of the trial.
using several known computer sub-processes presumably by an in-house software developer, and implemented as "one-click." In this case, the idea was described in various testimonies as "a major innovation in on-line retailing," and "a huge leap from what was done in the past." An abstract idea as such is not patentable even if showing inventiveness, and is further weakened if anticipated. The "one-click" arrangement of several known processes had not been done before, and raises a new and genuine issue. Where inventive novelty applies only to a ripened abstract idea (because the best embodiment is anticipated, obvious, or a mere automation), should the resulting embodiment be protected by patent? If so, the patentability of business methods has come full circle, overcoming even the established and fundamental obstacle of abstract ideas as subject matter. If not protected, has the patent system failed to secure the discoveries of inventors and stifled the "progress of science and useful arts" by letting down the entrepreneur and the public? Should new and useful combinations of known sub-processes be patentable?

Amazon.com, Inc. v. Barnesandnoble.com, Inc., 73 F. Supp. 2d 1228, 1231. Compared to the Bezos idea, this idea can be differentiated as a mere observation of the possibility of quicker checkouts, without the implication that such a process would have practical utility. The court of appeals, however, points out "that a reasonable jury could find that this passage provides a motivation" and in the total light of other facts, "raises a substantial question of validity." Amazon.com, 239 F.3d at 1365 (emphasis added).

128 The patent (U.S. Patent No. 5,960,411 (issued Sept. 28, 1999)) lists Peri Hartman, Jeffrey P. Bezos, Shel Kaphan, and Joel Spiegel as inventors while only Bezos testified as to conceiving the idea. Amazon.com, 73 F. Supp. 2d at 1232. Shel Kaphan was also called to testify. Amazon.com, 73 F. Supp. 2d at 1231.

129 Amazon.com, 73 F. Supp. 2d at 1236-37 (omitting citations).

130 Contrary to U.S. CONST. art. I §8, cl. 8.
V. Conclusion

The "one-click" patent should not have been issued because it did not meet the required non-obvious standard. Once issued, however, the "one-click" patent should have been supported by preliminary injunctions enjoining infringing uses such as that of Barnesandnoble.com. While the court of appeals did not use language causing drastic changes to major precedent, it has unnecessarily and inappropriately widened the use of appeal in future litigation. Injunctions are destined to be appealed more frequently and will become the dispute of choice. The correct suit brings challenge to the validity of the patent, not the wisdom of the injunction. By allowing the merits of the patent to be tried at the injunction appeal, the court of appeals has provided infringing users a double chance to test the merits of their claims.

The district court presumed irreparable harm when issuing injunctions related to valid patents, but the court of appeals did not. Moreover, the court of appeals took considerable time and effort in trying and analyzing the validity of an issued patent. By not recognizing the weight behind an examined and issued patent and shifting the burden to the patent holder (who has already shown validity to the satisfaction of the PTO), the court undermined the protection and validity of all issued patents. The court of appeals adopted an analysis structure ignoring the weight of the patent process and virtually ignoring irreparable harm as a factor in injunctions. As a result,

131 Amazon.com, 73 F. Supp. 2d at 1245-46.
132 Amazon.com filed suit on October 21, 1999 and the district court opinion was released on December 1, 1999 (under six weeks). The court of appeals decision was released on February 14, 2001 (well over fourteen months after the injunction was granted, and almost sixteen months after the original suit was filed).
the presumptions of irreparable harm and the validity of all issued patents are questionable. Compared to (1) the undermining of every existing patent, (2) abuse of the appeals system, and (3) the tilting of the field to favor infringing users; the erroneous granting of an injunction is certainly the least of the competing evils.

The above discussion of problems in the post-subject-matter-test standards support different conclusions, but basic policy questions should have carried the day. There was little reason for the court of appeals to overturn a mere injunction. There are better ways to show the court’s authority in validity rulings. How can we enforce patents if injunctions cannot be dependably relied on to protect patents until they are properly litigated? The court of appeals did not apply the accepted injunction standard but instead allowed the patent litigation to proceed out of turn. The case became a challenge to the patent, instead of a challenge to the injunction. For the sake of efficiency and patent authority, Barnesandnoble.com should have taken the pure validity and infringement arguments to the district court instead of the court of appeals. Instead, by appealing the injunction, Barnesandnoble.com was allowed to litigate the merits of the patent through the back door. Barnesandnoble.com should have gotten a stiff slap on the wrist for wasting the court’s time, and been forced to litigate the case at the district court. If greater deference had been shown to the district court and the issued patent (and a less interested ear turned to the public outcry over a mere injunction), the case could have been decided properly on its merits – invalidating the patent while validating the system.