In The
United States Court of Appeals
For The Federal Circuit

CLS BANK INTERNATIONAL,

Plaintiff – Appellee,

and

CLS SERVICES LTD.,

Counterclaim-Defendant Appellee

v.

ALICE CORPORATION PTY. LTD.,

Defendant – Appellant.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA IN CASE NO. 07-CV-0974, JUDGE ROSEMARY M. COLLYER.

CORRECTED BRIEF OF PROFESSOR LEE HOLLAAR AND PETER K. TRZYNA AS AMICUS CURIAE IN SUPPORT OF NEITHER PARTY

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Dated December 10, 2012

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

CLS Bank International & CLS Services LTD. v. Alice Corporation Pty. LTD.

No. 2011-1301

CERTIFICATE OF INTEREST

Counsel for the (petitioner) (appellant) (respondent) (appellee) (amicus) (name of party) Peter K. Trzyna, Esq. certifies the following (use "None" if applicable; use extra sheets if necessary):

1. The full name of every party or amicus represented by me is:

Lee Hollaar and Peter K. Trzyna

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

Lee Hollaar and Peter K. Trzyna

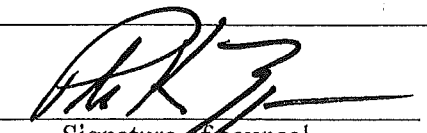
3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

None

4. ☑ The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

Peter K. Trzyna

Nov 30, 2012
Date


Signature of counsel

PETER K TRZYNA
Printed name of counsel

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Statement of Interest of *Amicus Curiae*[1]

Lee A. Hollaar is a professor of computer science in the School of Computing at the University of Utah, where he teaches courses in computer and intellectual property law and computer systems and networking. He has been programming computers since 1964 and designing computer hardware since 1969. He received his B.S. degree in electrical engineering from the Illinois Institute of Technology in 1969 and his Ph.D. in computer science from the University of Illinois at Urbana-Champaign in 1975. Dr. Hollaar was a Fellow with the Senate Committee on the Judiciary and technical advisor to its chair, Senator Hatch, and a visiting scholar with Judge Randall R. Rader at the Court of Appeals for the Federal Circuit.

As an inventor and patentee of computer-implemented technology, a Registered Patent Agent involved with the prosecution of patent applications since 1989, an expert witness and special master in patent litigation, the author of *Legal Protection of Digital Information* (BNA Books, 2002) and course material on computer-implemented patents, and teacher of that material, he is concerned that the decision in this case might continue the unclear lines of what is statutory

[1] In accordance with FRAP 29(c)(5), counsel listed on the cover states that this brief was authored by Professor Hollaar and himself, that counsel to a party did not author this brief in whole or in part, and that no person other than the amicus curiae made a monetary contribution to the preparation or submission of this brief.

subject matter by making distinctions not tied to real technological differences or may force inventors of computer-program-based inventions to claim them in ways that obscure the patentable advance over the prior art. Having taught patent law to computer science and engineering students for almost two decades, he has seen how the disconnect between the current computer statutory subject matter distinctions and the realities of technology make it difficult to understand the current tests.

Peter K. Trzyna has been a Registered Patent Attorney since 1984, and is a member of the Illinois, New York, D.C. and Federal Circuit bars. He has been doing patent prosecution for over 25 years, including as an attorney at Kenyon & Kenyon; Cadwalader, Wickersham & Taft; and Baker & McKenzie, where he was a partner in the Chicago office, prior to establishing a solo practice in 1997. Mr. Trzyna has a B.S., M.A., J.D., and M.S. in Engineering and Applied Physical Science, all from the University of Wisconsin. A joint inventor in nine patents and numerous pending patent applications, Mr. Trzyna also is the managing partner of a small business, Windy City Technology, a plaintiff in a successful patent infringement litigation. He has been extensively quoted in the *Wall Street Journal*, *New York Times*, *Economist*, *Washington Post*, and has co-authored

articles[2] directed to whether patent law makes technological sense. Having obtained hundreds of patents and had many enforced, he has seen technologically unsound USPTO rejections and courts mired in trying to make sense of the intersection of computer science and patent law.

The views expressed here are solely those of Professor Lee Hollaar and Peter K. Trzyna, who respectfully submit that this Court's opinion can draw clear Sec. 101 lines that are understandable and simple to apply because they are firmly supported by technology.

Summary of the Argument

Over four decades since this Court's predecessor held that a computer-implemented invention was statutory subject matter[3] and over three decades since the Supreme Court finally found an acceptable method claim for such an invention,[4] courts are still trying to find where to draw the line.

Most likely, this is because the line that has been attempted is not anchored to technological reality. Statutory subject matter tests should be technologically

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[2] James R. Goodman, Todd E. Marlette, and Peter K. Trzyna, "Toward a Fact-based Standard for Determining Whether Programmed Computers are Patentable Subject Matter, *Journal of the Patent and Trademark Office Society*, May 1995, Vol. 77, No. 5, 353-367; James R. Goodman, Todd E. Marlette, and Peter K. Trzyna, "The *Alappat* Standard for Determining That Programmed Computers are Patentable Subject Matter," *Journal of the Patent and Trademark Office Society*, October 1994, Vol. 76, No. 10, 727-802.

[3] *In re Benson and Tabbot*, 441 F.2d 682 (CCPA 1971).

[4] *Diamond v. Diehr*, 450 U.S. 175 (1981).

sound, with other patentability requirements (novelty, non-obviousness, commensurate disclosure) playing their roles, which solves many of the problems with patents on computer-implemented inventions. And though many consider the Supreme Court trilogy of decisions[5] contradictory, there is a simple, bright-line test for statutory subject matter that reconciles them and is technologically-sound.

Although the focus of this Court in this case is statutory subject matter, we will also discuss tests based on other relevant provisions of the patent statute to show how they collectively augment a simple test for statutory subject matter that does not require artificial, confusing, and technically-unsound tests for statutory subject matter.

Introduction

A clear test for whether a computer-implemented invention is statutory subject matter is important. Without such a clear test, inordinate time can be spent during the examination of a patent to the detriment of the time available for the more-important considerations of novelty, non-obviousness, and whether the disclosure fully supports the claim.

The prosecution history of United States Patent 4,344,142, the patent that issued as a result of the Supreme Court's decision in *Diehr*, is instructive. Before

[5] In addition to *Diehr*, these are *Gottschalk v. Benson*, 409 U.S. 63 (1972) and *Parker v. Flook*, 437 U.S. 584 (1978). The Supreme Court recently confirmed all three cases' continued applicability in *Bilski v. Kappos*, 561 U.S. ___ (2010).

the appeal, the examiner had rejected the claims only for statutory subject matter and enablement.[6] The prosecution history shows no examination for novelty or non-obviousness and, in fact, Diehr's attorney tried to goad the examiner on the point by saying that the "applicants infer" that there were no issues in light of the prior art.

Following the Supreme Court's decision on March 3, 1981, the application returned to the examiner. On September 28, 1981, Diehr slightly amended the claims so that they better matched the way the courts had interpreted them. On March 23, 1982, the examiner allowed the amended application.

Rather than a normal office action where the examiner cites prior art and indicates that the claimed invention would be obvious in light of that prior art, the office action reads more like a response from an applicant. Two patents are cited as prior art, and the examiner then points out how each patent differs from the claimed invention. The examiner does not discuss why those differences would not be obvious, particularly in light of other prior art that may teach those differences.[7]

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[6] The examiner questioned whether undue experimentation would be necessary for a person with ordinary skills to program the computer to control "a plurality of rubber-molding presses simultaneously." The applicant eventually overcame that rejection by submitting affidavits regarding how it would be possible to write the program based on the specification.

[7] One difference was that Diehr explicitly claimed determining the temperature "at a location closely adjacent to the mold cavity" and the other difference was that Diehr performed a continuous comparison, neither of which seems enough to distinguish the claims over the prior art.

Since the patent is essentially the implementation on a computer of a well-known equation first proposed in 1884, one would have expected at least some examination for obviousness, but the record shows none. This is especially true after Diehr submitted affidavits asserting that the programming of a computer to implement the claimed method would be straightforward, even for controlling a number of molds simultaneously.

The prosecution histories of early computer-implemented patents[8] show that when the examiner initially rejects the claims on statutory subject matter grounds, much of the subsequent prosecution of the application was spent finding claim language that would overcome the statutory subject matter rejection. When such language was found (usually not substantially different in scope from the original claim language), the application generally was allowed with only the slightest consideration of prior art.

A Great Opportunity

In its order, this Court asked (1) what test should the court adopt to determine whether a computer-implemented invention is a patent ineligible

[8] On June 2, 1995, the United States Patent and Trademark Office proposed examiner guidelines for determining when a computer-implemented invention is statutory subject matter, with final guidelines effective on February 28, 1996. In light of the guidelines, rejections based on lack of statutory subject matter substantially declined, both because applicants had a clear idea of how to claim their computer-implemented inventions to meet the statutory subject requirement and because examiners had a clearly-stated test for determining statutory subject matter.

"abstract idea," and when, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea; and (2) should it matter whether the invention is claimed as a method, system, or storage medium for Section 101 purposes?

Because the appeal is being heard en banc, this Court is not held to the language of past decisions that may have been misconstrued. And because this Court has asked about the questions outside of the facts of a particular case, the Court's decision presents the opportunity to state a rule that can be clearly understood by patent applicants and applied by examiners and courts because the rule is pinned to the reality of computer technology.

Going to this Court's second question first, what is being claimed should determine whether it is statutory subject matter. Otherwise, the decision is being made based on a caricature of the invention rather than on the invention itself.

For example, the invention in *State Street Bank*[9] was claimed as a machine, not a method. The method claims were cancelled during prosecution of the application, even though they were a clearer description of the invention, because the examiner questioned whether they were statutory. But through some legerdemain, the district court transformed the machine claims into method claims (much like the ones that had been dropped by Signature during the prosecution of

[9] *State Street Bank v. Signature Financial*, 149 F.3d 1368 (Fed. Cir. 1998).

the application), and then said the claimed subject matter was an abstract idea or, alternatively, a business method, and therefore not patentable. But the claimed invention *was not* either an idea or a method of any type, and the court's decision was not anchored to either technology or the claims of the patent, causing more confusion over when something is statutory subject matter and short-circuiting consideration of whether the patented invention was novel, non-obvious, and adequately disclosed.

While this Court used *State Street Bank* to condemn the "business matter exception" as "ill-conceived," a better response to the district court would have been to point out that the claims were clearly to a machine, and therefore were statutory subject matter.

As discussed below, whether the invention is claimed as a machine, a method, or an article of manufacture storing a computer program strongly influences whether the claimed invention should be considered "abstract," as well as when it should be considered unpatentable because it lacks novelty or is obvious. We will discuss this Court's first question in light of each of the three classes, showing how they are fundamentally different and how recognizing that difference helps find clear lines that are a good match to technology.

"Abstract" Ideas

One of the problems with the Supreme Court's use of the term "abstract" to describe when an invention is not patentable is that "abstract" is not a term used in computer technology.[10] However, there *is* a bright line that can be drawn between "abstract" and statutorily patentable that is a clear distinction in computer technology as well as being in complete accord with the past Supreme Court decisions.

Besides "abstract ideas," the Supreme Court has held that "laws of nature [and] physical phenomena" are judicially-made exceptions to the broad statutory subject matter categories. However, laws of nature and physical phenomena can be considered unpatentable because they are not new, as required by Section 101. One argument the opponents of patents for computer-implemented inventions make is that software is mathematics, and mathematics is not patentable, presumably because it is a "law of nature."[11]

But in most instances, the correspondence between computer programs and mathematics is merely cosmetic. For example, Einstein's equation $E=mc^2$ expresses a relationship between energy and matter, while the computer program

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[10] Professor Hollaar has taught computer software and hardware design since receiving his Ph.D. in computer science in 1975, and does not remember ever seeing the term used in the context the Supreme Court used the term.

[11] *Benson*, 409 U.S. 63 (1972) is generally cited for this proposition.

statement E=M*C**2 represents the calculation of M times C raised to the second power and then assigning the result to a storage location named E. The program statement E=M*C**3 is equally valid in a program, but would be simply wrong as a natural law.

Unfortunately for the purposes here, early developers of programming language made their calculation-and-assignment statements look like mathematical equations to seem familiar to scientists and engineers.[12] However, a computer program is a series of statements that are processed sequentially, not a set of simultaneous mathematical equations that are solved for their variables.

Even if we assume that a computer program includes a series of mathematical equations, that ignores how computer-implemented inventions are usually claimed. Claims that include data structures in random-access memories, input devices such as keyboards or mice, screen display devices, clocks and time-outs, and computer networks (common in computer-implemented patents) are no longer equivalent to pure mathematics.

[12] Perhaps recognizing the confusion between assignment statements and mathematical equations, the 1960 ALGOL programming language used ":=" for assignment rather than "=", as does the Pascal programming language.

Claiming as a Machine

The answer to whether a computer-implemented invention is statutory subject matter when claimed as a computer[13] should be clear. Of course, it is a machine. Babbage's analytical engine, perhaps the first programmable computer, was designed using gears and similar mechanisms, reading its instructions off a set of cards particular to a given problem. Nobody would question whether it was a "machine," even though what it did could be changed by supplying a new program.

This Court had it exactly right in *Alappat*:

> We have held that such 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.[14]

This continues to be an excellent description of the role of software in the control of a computer-implemented machine.

The computer program running on the embedded processor on an appliance such as a washing machine turns that embedded processor into a special-purpose washing machine controller, replacing the mechanical controller of past washing machines. Because the power and flexibility of the embedded controller allows the washing machine to perform functions that would be impractical using a

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[13] While the term "computer" once meant a person who carried out calculation by hand, few today know that old meaning and instead think of it as short for an electronic digital computer.

[14] *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994).

conventional controller with motors and gears, the embedded controller would be patentable if novel and non-obvious. Babbage's analytical engine, impractical to implement given the mechanical technology of his day, has become today's computer, practical because the gears have been replaced by electronic circuits.

It is always possible to implement the technique of a computer as special-purpose hardware, although for any but the most simple techniques, it is impractical. This is why as more functionality is desired, programmed embedded general-purpose processors are replacing specialized electronic circuitry, just as such circuitry replaced mechanical devices.

The idea that a general-purpose computer becomes a special-purpose computer when it is programmed also mirrors the language of, and finds strong support in, computer science. It is common to regard a computer system as a series of layers, each regarded as a particular "machine" based on the programming in lower layers. For example, a microprocessor running the Microsoft Windows operating system can be regarded by the applications programmer as a "Windows" computer, since it is programmed using a subset of the machine instructions of the microprocessor and new "instructions" in the form of the Windows Application Program Interfaces (APIs). If the application program is a Java bytecode interpreter, then the "Windows" computer becomes a Java Virtual Machine, with its own instruction set and APIs.

Thus, the "general-purpose computer plus program equals special-purpose computer" formulation of this Court is good computer science and should be continued. Not following such a well-accepted formulation simply leads to playing tricks with the claims to make them statutory.

A computer-implemented invention claimed as a machine, especially in "means for" language, is often unclear on its face. One has to read through the specification and guess what structure corresponds to each functional element and what may be equivalent to the structure in the specification. A recent book[15] posits that a major problem with patents is that it is difficult to determine what is covered by a patent, and this lack of a predictable property right produces uncertainty for developers and costly disputes that detract from the positive incentives of the patent system. The authors' research found that only in some sectors of technology, such as the pharmaceutical industry, do patents act as advertised, with their benefits outweighing their costs, while for software, the lack of clear claiming has had a definite negative effect.

Note that a computer-implemented invention claimed as a machine does *not* mean that the claim is patentable. Rather, it only means that the claim has passed the statutory subject matter hurdle, and the requirements of novelty, non-obviousness, and sufficient disclosure must still be considered. Having a simple

[15] James Bessen and Michael J. Meurer, *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovation at Risk*, Princeton University Press, 2008.

test, well-grounded in technology, such as "a computer is a machine and therefore statutory subject matter" will shift the time spent trying to determine whether the claim is statutory to better examining the application to assure that patent claims are not granted on something that is obvious or outside of what is taught in the patent application.

Claimed as a Method

There is a strong appeal for claiming a computer-implemented invention as a process or method.[16] Method steps are often the clearest way to describe the scope of the invention, making the claim easier for the examiner or a court to determine the applicable prior art and for someone to determine infringement. Claimed method steps also make it easier to try to advance technology by developing an alternative method for accomplishing the results of claims that follow different steps. Also, unlike machine or article-of-manufacture claims, method claims can combine steps performed by one or more users, such as providing an input, with the steps performed by computer at the user's direction, again making it clearer what the invention is. And claiming a computer-implemented technique as a method or process matches well with the way a technologist would view the invention, with both terms common in computer technology.

[16] The terms "process" and "method" are interchangeable. See 35 U.S.C. § 100(b).

When tied to a computer, a method claim is definitely *not* the transformation of an abstract idea, law of nature, or physical phenomena into a patented process by merely having a draftsman attach some form of post-solution activity to a mathematical formula, as the Supreme Court warned about in *Flook*. Instead, claiming a process may be the best way to meet the statutory requirement of a claim "particularly pointing out and distinctly claiming"[17] the computer-implemented invention.

Not all processes are statutory subject matter. As the Supreme Court reminds us in *Bilski*, "laws of nature, physical phenomena, and abstract ideas" are not patentable. The "abstract ideas" exception is particularly relevant to method claims. Unfortunately, as mentioned above, "abstract" is not a term used in computer technology, at least not as used by the Supreme Court. But a reasonable interpretation of the term not only provides a clear rule that can be understood by technologists, examiners, and those involved in patent litigation, but also reconciles the three Supreme Court cases on when a computer-implemented method is patentable.

[17] 35 U.S.C. § 112(b).

The first non-archaic definition for "abstract" in *Webster's Third New International Dictionary* is:

> considered apart from any application to a particular object or specific instance; separated from embodiment.[18]

This definition is in accord with all the Supreme Court cases.[19] In *Flook*, the claimed method held to be unpatentable is not tied to any particular embodiment, and particularly is not limited to performing the method using a computer. The computation of the alarm limit could be done, albeit inconveniently, by hand. In contrast, the patentable method in *Diehr* is explicitly tied to a digital computer, both in the preamble and in the claim element that requires "providing said computer with a data base for said press." Similarly, the claims found unpatentable in *Bilski* do not require that they be embodied on a computer.

Benson appears to contradict this clear test, because while claim 13 is not tied to any embodiment, claim 8 requires a "reentrant shift register" and yet was found unpatentable. The answer to this seeming-divergence can be found in the prosecution history of the Benson application,[20] which disclaimed a computer

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[18] The third definition seems more fitting for all the confusion that has resulted from using a non-technical term: "difficult to understand."

[19] This Court's law is also in accord. "[A]bstract ideas constitute disembodied concepts or truths which are not 'useful' from a practical standpoint standing alone, i.e., they are not 'useful' until reduced to some practical application." *In re Alappat*, 33 F.3d at 1542 n.18 (Fed. Cir. 1994).

[20] Because a patent did not issue from Benson's application, the prosecution history is not public. However, the complete prosecution history was filed with the

limitation. On page 7 of Benson's response to the first office action (page 23 of the prosecution history), Benson's attorney states "Finally, the method represented by these claims can also be carried out by hand, the shifting and adding being manual." (The claims include both 8 and 13 in essentially the same form as considered by the Supreme Court.) Further, on page 25 of the prosecution history, Benson's attorney reiterates

> Concededly, applicants' methods *can* be implemented by a set of instructions which are used to control the operation of a computer. As noted above, they can also be implemented by circuitry which is wired to perform the function. They can even be practiced by hand.[21]

In light of the prosecution history, what was claimed in *Benson* is a abstract method like the one in *Flook*, not tied to any embodiment and certainly not to a digital computer. The test, grounded in technology and simple to determine as well as reconciling all the Supreme Court decisions, is that a method is abstract, and therefore not patentable, when it is "separated from embodiment" or "apart from" a particular implementation such as on a digital computer.

CCPA as a "Transcript of Record" in the case. That was also forwarded by the CCPA to the Supreme Court when cert was granted. A copy of the Transcript of Record stored with other Supreme Court documents at the National Archives, is available at http://digital-law-online.info/papers/lah/BensonAppendix.pdf.

[21] Emphasis in the original. Benson's attorney made those critical admissions because he felt the law at the time was that if a method could be carried out by hand, the invention was no longer "mental steps" and was therefore statutory subject matter. To the extent that that this was the law at the time, the Supreme Court's "abstract idea" exception now controls.

That Benson's claims *could* be performed by a digital computer should not make them statutory subject matter. When a claim encompasses both statutory and non-statutory subject matter, the claim should be non-statutory, lest a person be able to get a patent that covers impermissible things, such as abstract or disembodied methods.

Claim 33 of Alice's '479 is just such a disembodied claim. It is not tied to any particular implementation, much like the claim in *Flook*. In contrast, claim 18 is limited to a "data processing apparatus," making it no longer a disembodied method that can be performed by hand.

Again, because a method explicitly embodied in a computer is no longer an "abstract idea" but statutory subject matter does not mean that it is patentable – the claim must also be novel, non-obvious, and commensurate with what is disclosed in the specification. A problem with patents on computer-implemented inventions is *not* that they are claimed as a method, but that they may claim more than what was disclosed in their patent applications.[22]

While an old method implemented on a computer is statutory subject matter under the "abstract" definitional rule just discussed, the claim cannot be patented

[22] This goes to the heart of the "patent bargain" – an inventor getting a patent in trade for disclosing how to make and use the claimed invention. In *O'Reilly v. Morse*, 15 How. 62 (1854), claim 8, the use of "electro-magnetism, however, developed for marking or printing intelligible characters, signs, or letters, at any distance" went well beyond what was disclosed in the application, and was properly rejected.

because today it is well-known how to program a computer to implement a specified method. And as noted, giving the examiner a simple definitional rule for the initial determination of statutory subject matter gives more time for the important determination of whether an invention is obvious or not, particularly in light of well-known methods.

Using a method claim, rather than a machine claim, coupled with this Court's developing law on full-scope enablement,[23] discourages the use of overly-broad claim language, lest their patent claims be invalid for lack of enablement. Claiming as a method makes it easier to determine whether the claim is commensurate with the disclosure. And unlike claiming the invention using functional elements, claiming as method steps should avoid having to guess at what structure in the specification defines each claim element, how broadly that structure should be read, and what are its equivalents.

Claimed as a Manufacture

A tangible storage medium is clearly a statutory article of manufacture, just like a machine, even if the medium stores a computer program. They are "made by man"[24] and not a law of nature, physical phenomena, or abstract idea.

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[23] See, for example, *Sitrick v. Dreamworks*, 85 U.S.P.Q.2d 1826 (Fed. Cir. 2008).
[24] *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing S. Rep. No. 82-1979, at 5 (1952) and H.R. Rep. No. 82-1923, at 6 (1952)).

Whether something is an article of manufacture would not be a question with respect to computer-implemented inventions, except for patent owners concerned that those causing the infringement of a computer-implemented patent would not be direct infringers if the invention were claimed as either a machine or a method. Only the end users who receive and install the distribution media (originally, floppy disks) would directly infringe when they load the program to create the claimed machine or when they actually run the program to practice the claimed method. While the company supplying the media containing the infringing program should be liable either as a contributory infringer under 35 U.S.C. § 271(c) or for inducing infringement under § 271(b), there were concerns about whether those provisions would be applicable.

There was concern, for example, that proving inducement or contributory infringement would require bringing an end user into the suit. But in *Moleculon Research v. CBS*, this Court held that circumstantial evidence of infringement was sufficient.[25]

Also, because a computer program is most likely capable of doing things that do not infringe as well as performing the patented method, it might be

[25] "If CBS is arguing that proof of inducing infringement or direct infringement requires *direct*, as opposed to *circumstantial evidence*, we must disagree. It is hornbook law that direct evidence of a fact is not necessary. 'Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence.'" 793 F.2d 1261, 1272 (Fed. Cir. 1986), quoting *Michalie v. Cleveland Tankers, Inc.*, 364 U.S. 325, 330 (1960).

considered as having a "suitable non-infringing use" and therefore the sale of the computer program may not be contributory infringement even though the program was "especially made or especially adapted for use in an infringement" as required by § 271(c) for contributory infringement.

Finally, contributory infringement is limited to sales, offers for sale, or importation while most computer software is "licensed" rather than sold.[26]

It would have been better if those concerned had given this Court the opportunity to clarify the laws of inducement and contributory infringement with respect to computer-implemented inventions, or had asked Congress to make it clear that selling or licensing a computer program that infringes a patent when it is loaded or run by a user is contributory infringement or inducing the infringement of the patented machine or method.

The problem with this article-of-manufacture "trick" is that it sweeps more than is wanted into statutory subject matter. Just as a compact disk containing a computer program is a statutory article of manufacture, so would be a compact disk of music. Former Chief Judge Archer warned about this in his dissent in *Alappat*.[27] And because patent law does not contain copyright law's fair use and

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[26] Possibly to get around the "first sale" provision of copyright law, 17 U.S.C. § 109, or the special provisions for computer programs tied to ownership of a copy, 17 U.S.C. § 117.

[27] 33 F.3d 1526, 1554 (Fed. Cir. 1994, Archer, C.J., dissenting).

independent creation defenses, that person would have a lock on the expression stored on the disk for the length of a patent.

The USPTO, recognizing this problem, issued examiner guidelines[28] trying to draw a line in light of this Court's past opinions, none of which directly addressed the issue. The guidelines referred to the data stored on the media as "descriptive material" and drew the following distinction:

> Descriptive material can be characterized as either "functional descriptive material" or "non-functional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when encoded on a computer-readable medium. "Non-functional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.[29]

Unfortunately, the guidelines draw a distinction where none exists, both in technology and in patent law. A compact disk is an article of manufacture, no matter what the disk holds and how its contents are eventually used. It is a man-made object, storing data in the same fashion (in a simple view, as "zeros and ones"), regardless of whether the data will eventually be used to program a computer, show a movie, or play a song. The only difference in the data stored on the disk is how it is later used, not anything related to either the data or the medium.

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[28] 61 Fed. Reg. 7478 (1996).
[29] 61 Fed. Reg. at 7481.

A simple thought-experiment illustrates the problem with the guidelines. A person hands you a compact disk that contains both a computer program and a song, and asks whether the disk is an article of manufacture. Rather than answer "yes" because the disk is clearly a man-made object, under the guidelines you would have to say that the answer depends on what portion of the data recorded on the media you are looking at. And that defies all common sense of what an article of manufacture is: something man-made.

A computer technologist has a different problem with the distinction that the guidelines try to make: the distinction is not tied to any technological reality. There is no difference between music and a computer program as they are stored on a compact disk. Both are simply stored data, waiting to be read and put to some use, for a song by a player program and for a program by another program that loads the data into the computer's memory and starts execution of the program. One of the great advances that led to the modern digital computer is the ability to treat a computer program just like any other data, allowing a loader program to read the program (stored on a medium) and process it, just as music player would with its data.

As a technical matter, the guidelines are wrong when they talk about "functional descriptive material" as "impart[ing] functionality when encoded on a computer-readable medium, at least in most cases. The programs stored on a disk

in *Beauregard* do not impart any "functionality" beyond being capable of being read by the loader program. A program does not impart functionality until it has been loaded into the memory of the computer and execution of the program commences. A technologist, strictly applying the test of the guidelines, would have to say that Beauregard's claims, and those of other patents that followed (including Alice's), do not meet the functionality test.

Another illustration that a computer program stored on a disk is simply data, indistinguishable from music or a document, is duplicating the disk for backup purposes. The backup program reads the information stored on the original disk and writes it without change to the backup disk. This doesn't differentiate between "functional descriptive material" and "non-functional descriptive material," because from the backup program's point of view, there is absolutely no difference.

Adding to the confusion, what the guidelines classify as "non-functional descriptive material," like music and literary works, can be stored on the medium as computer programs. For example, a MIDI file is a sequence of instructions on how to produce a particular song, technically indistinguishable from any other computer program.

Not only does the test try to draw a line unsupported by law or technology, but in today's computer environment Beauregard's "trick" to make program

suppliers direct infringers fails in what are now the most common situations: downloading the program over the Internet, such as today's smartphone apps, although increasingly true for personal computer software. The USPTO suggested a claim for "a computer data signal embodied in a carrier wave," but in *Nuijten*,[30] this Court held that intangible signals were not articles of manufacture (or any other statutory category).

Like trying to determine whether machine or method claims are statutory, the effort in determining whether an article of manufacture claim is statutory detracts from the more important effort in determining novelty, non-obviousness, and commensurate disclosure. Little additional effort is required if the claim were something like "a non-transitory computer-readable medium storing a computer program implementing a method, the method comprising" and then listing exactly the same steps as in a method claim in the application. But Beauregard instead claimed "a computer usable medium having computer readable program code means embodied therein," with the article of manufacture comprising a number of "computer readable program code means" elements. The examiner must (or, at least, should) go through the specification to locate the "corresponding structure, material, or acts"[31] for each of these elements, and attempt to determine what is

[30] 515 F.3d 1361, 1553-1554 (Fed. Cir. 2008).
[31] 35 U.S.C. § 112, sixth paragraph.

equivalent to what is described in the specification before trying to determine if the claim is novel and non-obvious.

This problem can be better addressed by this Court restating its requirement that information have some non-obvious functional relationship to the claimed medium for it to receive any patentable weight. That would exclude music CDs and software distributions in a way that is technically sound and easy to understand.

As this Court has repeatedly said,

> Where the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability. Although the printed matter must be considered, in that situation it may not be entitled to patentable weight.[32]

Furthermore,

> [T]he critical question is whether there exists any new and unobvious functional relationship between the printed matter and the substrate.[33]

This should not be understood as a blanket ignoring of information when determining patentability, as some characterized past decisions.

> A "printed matter rejection" under Section 103 stands on questionable legal and logical footing. Standing alone, the description of an element of the invention as printed matter tells nothing about the differences between the invention and the prior art or about whether that invention was suggested by the prior art.... [The Court of Customs

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[32] *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983), citing *In re Miller*, 418 F.2d 1392, (CCPA 1969).
[33] *Gulack*, 703 F.2d at 1386.

> and Patent Appeals], notably weary of reiterating this point, clearly stated that printed matter may well constitute structural limitations upon which patentability can be predicated.[34]

The real test for an article-of-manufacture claim, then, is not whether a tangible medium is a statutory article of manufacture, because the medium clearly is, but whether there is some non-obvious relationship between the information and the claimed medium. In most cases, there isn't. For a given machine and operating system, all programs are stored on compact disks with the same structure regardless of what they do. The programs are simply input data for the operating system's loader program which expects a particular format. It is hard to think of anything more obvious, with respect to a claimed compact disk, than a program stored on that compact disk in exactly the same format as every other program stored on the compact disk.

In Alice's patents, there is *not a single word outside of the claims* mentioning the article of manufacture or how it is made, presumably because creating the article of manufacture would be obvious to anybody with ordinary skill in the computer art.

Looking to obviousness, rather than whether a medium is an article of manufacture, would clearly make compact disks whose only novelty is in the music they store obvious or lacking novelty. When compared to how past songs

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[34] *Gulack*, 703 F.2d at 1385 n.8.

were stored, there is nothing functionally different. It must be in an established format to be played. But this would not preclude a patent on a new way of storing music on a medium, perhaps one giving better fidelity or using less storage.

As an example of information that *does* have a functional relationship with its storage medium, consider the data structures in *Lowry*.

> Lowry does not claim merely the information content of a memory. Lowry's data structures, while including data resident in a database, depend only functionally on information content. While the information content affects the exact sequence of bits stored in accordance with Lowry's data structures, the claims require specific electronic structural elements which impart a physical organization on the information stored in memory. Lowry's invention manages information.[35]

Summary

The law of statutory subject matter regarding computer-implemented inventions will remain muddled unless it is firmly anchored in computer technology. Experience shows that time spent on trying to determine whether a claim recites statutory subject matter takes away from the more-important determination of whether the claimed invention represents the novelty and unobviousness and the adequacy of disclosure that is the heart of the patent bargain.

Unfortunately, not looking at the particular claims that define the invention, and instead considering only a caricature of that invention, precludes a

[35] *In re Lowry*, 32 F.3d 1579, 1583 (Fed. Cir. 1994).

technologically-sound determination of whether a particular claim recites statutory subject matter. Rather than simply observe that a claim is to, for example, a machine and then proceed to determining whether that machine is new and non-obvious, for computer-implemented inventions the machine is often viewed as a method and then after separating the method from the machine, determining whether it is "abstract," a term not used in computer science in that context. It is not surprising that we are here after over four decades of opinions on when and how computer-implemented inventions are patentable.

But this Gordian knot is easy to cut by, first, not lumping all computer-implemented inventions into the method category. Computers are clearly man-made objects, and machine claims for them recite statutory subject matter. But that doesn't mean that a computer-implemented invention is patentable just because it is claimed as a machine. The implementation of an old technique on a computer using standard techniques is clearly obvious, even if the technique has never been computerized before. Other statutory requirements for patentability must be considered.

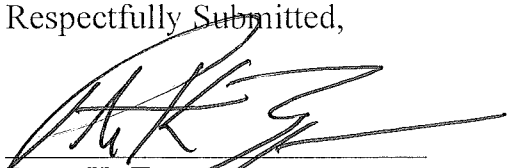
Similarly, compact disks or similar media are man-made, and article of manufacture claims for them recite statutory subject matter, although they should not be found patentable over the art merely based on the nature of the data stored thereon. Disks store simply 1's and 0's as data whether for a computer program,

music, pictures, or any other information. The only time the contents of a storage medium should be given patentable weight is when there is some non-obvious relationship between the data and the medium. The content of the data on the disk should not be relied on to determine patentability over the art since this data is not useful or operable when resident on the disk.

If the computer-related invention is claimed as a method, then the test from the Supreme Court opinions is whether it is "abstract." The method cannot be some technique disembodied as claimed, for example, not tied to some machine. And even if it is a statutory method, simply tying it to a machine does not make it patentable. As with machines and manufactures, method claims must be new, non-obvious, and adequately disclosed, the other key tests for granting or invalidating a patent.

This Court can restore proper emphasis on when something should be patentable – when an adequately-disclosed invention is a non-obvious advance over the prior art – by adopting a clear and simple test for when a claim to a computer-implemented invention is to statutory subject matter. And one that draws distinctions supported by the underlying technology.

Respectfully Submitted,



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