PATENT LAW — PATENTABLE SUBJECT MATTER — FEDERAL CIRCUIT APPLIES NEW FACTORS IN DECIDING PATENTABILITY OF A COMPUTER PROGRAM. — *Ultramercial, LLC v. Hulu, LLC*, 657 F.3d 1323 (Fed. Cir. 2011), *reh'g and reh'g en banc denied*, No. 2010-1544, 2011 U.S. App. LEXIS 25055 (Fed. Cir. Nov. 18, 2011).

The patentable subject matter test serves an initial screening function in patent law. It renders certain kinds of inventions unpatentable even before inquiry into more involved patentability requirements, such as novelty and nonobviousness, begins. Although the patentable subject matter test is generally lenient,[1] the Supreme Court has stated that three specific categories of things absolutely cannot be patented: "laws of nature, physical phenomena, and abstract ideas."[2] In the realm of computer programs, the distinction between what is patentable and what is unpatentable lies in whether a computer program is an *application* of an abstract idea, which may be patentable, or instead an abstract idea *itself*, which is not.[3] To implement this distinction, the Federal Circuit developed a rigid "machine-or-transformation"[4] test of computer program patentability.[5] Under that test, a computer program was patentable if and only if "(1) it [was] tied to a particular machine or apparatus, or (2) it transform[ed] a particular article into a different state or thing."[6] The Supreme Court, in *Bilski v. Kappos*,[7] held that the machine-or-transformation test was a guide to patentability but was not the exclusive test.[8] It stated that the patentable subject matter test had to be flexible enough to encompass developing technologies, particularly information-age technologies, and that an exclusive machine-or-transformation test was more appropriate for the industrial age.[9] The Court, however, did not provide further guidance on other tests for abstractness, leaving potential patentees to wonder what inventions might fail the machine-or-transformation test and yet still be patentable.[10]

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[1] The classic formulation is that one can patent "anything under the sun that is made by man." Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) (quoting S. REP. NO. 82-1979, at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952)) (internal quotation mark omitted).

[2] Bilski v. Kappos, 130 S. Ct. 3218, 3225 (2010) (quoting *Chakrabarty*, 447 U.S. at 309) (internal quotation marks omitted).

[3] Diamond v. Diehr, 450 U.S. 175, 187 (1981).

[4] *Bilski*, 130 S. Ct. at 3226.

[5] *See id.* at 3225–26.

[6] *In re* Bilski, 545 F.3d 943, 954 (Fed. Cir. 2008), *aff'd on other grounds sub nom.* Bilski v. Kappos, 130 S. Ct. 3218 (2010).

[7] 130 S. Ct. 3218.

[8] *Id.* at 3226–27.

[9] *Id.* at 3227.

[10] *See id.* at 3228.

Recently, in *Ultramercial, LLC v. Hulu, LLC*,[11] the Federal Circuit put some flesh on *Bilski*'s vague gestures toward greater patentability of computer programs by identifying and applying two new factors: (1) the programs' requiring complex computer programming and (2) the programs' use of the internet and of a cybermarket environment.[12] The court weighed the factors in favor of patentability but did not hold that either factor was necessary or sufficient.[13] Problematically, the court's approach still fails to establish a clear doctrinal distinction between abstract and nonabstract programs. First, a requirement of complex programming is not a useful indicator. Programming complexity does not separate out abstract from nonabstract programs, it changes over time, and it is difficult for courts to evaluate. Second, although considering use of the internet and a cybermarket environment will help stabilize the law in favor of patentability regarding the many computer-program patents that facilitate e-commerce,[14] the court should have gone further. It should have recognized that the internet is a "specific machine" under the machine-or-transformation test, and that the use of special features of the internet, such as its e-commerce abilities, should be per se patentable. In addition to the doctrinal difficulties the test creates, it is unclear that these new factors substantially accomplish the policy goals of initial screening of patents and preventing the monopolization of fundamental knowledge.

Ultramercial filed suit against Hulu and WildTangent for alleged infringement of U.S. Patent No. 7,346,545, covering a method of distributing copyrighted material over the internet by first requiring users to watch an advertisement.[15] The steps of the method were essentially:

> (1) [R]eceiving media products from a copyright holder, (2) selecting an advertisement to be associated with each media product, (3) providing said media products for sale on an Internet website, (4) restricting general public access to the media products, (5) offering free access to said media products on the condition that the consumer view the advertising, (6) receiving a request from a consumer to view the advertising, (7) facilitating

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[11] 657 F.3d 1323 (Fed. Cir. 2011), *reh'g and reh'g en banc denied*, No. 2010-1544, 2011 U.S. App. LEXIS 25055 (Fed. Cir. Nov. 18, 2011).

[12] *See id.* at 1328.

[13] *Id.*

[14] In this comment, "cybermarket" and "e-commerce" are used interchangeably to refer to electronic commerce over the World Wide Web (a definition that seems to comport with what the Federal Circuit meant by "cyber-market environment," *id.*). E-commerce can also be used to refer to electronic transactions over smaller networks or over direct links, but it is most commonly used to refer to transactions over the internet and World Wide Web. *See* A DICTIONARY OF COMPUTING (John Daintith & Edmund Wright eds., 2008), *available at* http://www.oxfordreference .com/views/ENTRY.html?subview=Main&entry=t11.e6050 (defining "e-commerce").

[15] Ultramercial, LLC v. Hulu, LLC, No. CV 09-06918 RGK (PLAx), 2010 WL 3360098, at *1 (C.D. Cal. Aug. 13, 2010).

the display of advertising and any required interaction with the advertising, (8) allowing the consumer access to the associated media product after such display and interaction, if any, (9) recording this transaction in an activity log, and (10) receiving payment from the advertiser.[16]

The defendants moved to dismiss on the ground that the patent did not claim patentable subject matter.[17] The district court stayed the case until after *Bilski* was decided,[18] and when it issued its opinion, it followed *Bilski* closely.[19] It first applied the machine-or-transformation test, holding that the claims were not tied to a particular machine because they did not recite the use of any machines[20] and that they did not transform any articles because the only alleged transformations were transfers of data from one computer memory to another, which do not count.[21] Aside from the machine-or-transformation test, the court believed the patent was abstract, like the *Bilski* patent, because it covered "the basic idea that one can use advertisement as an exchange or currency."[22] The court granted the motion to dismiss, and Ultramercial appealed.[23]

The Federal Circuit reversed and remanded.[24] Writing for a unanimous panel, Chief Judge Rader[25] held that the patent claims were not so abstract as to be unpatentable.[26] The court stressed the broadly permissive nature of the patentable subject matter test.[27] It noted that "[i]nventions with specific applications . . . to technologies in the marketplace are not likely to be so abstract" that they are unpatentable.[28] It rejected the district court's characterization of the patent as covering the basic idea of using advertising as a form of currency.[29] Instead, it viewed the patent as covering "a particular method for monetizing copyrighted products."[30] In determining that the method was patentable, it explicitly recognized two new factors: first, "[m]any of [the]

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[16] *Ultramercial*, 657 F.3d at 1328.

[17] *Ultramercial*, 2010 WL 3360098, at *2.

[18] *Id.*

[19] *See id.* at *2–6.

[20] *Id.* at *4–5. Although the claims recited use of the internet, the court opined that the internet was only an "abstraction" and not a machine at all. *Id.* at *4 (quoting CyberSource Corp. v. Retail Decisions, Inc., 620 F. Supp. 2d 1068, 1077 (N.D. Cal. 2009) (internal quotation mark omitted)).

[21] *Id.* at *5.

[22] *Id.* at *6.

[23] *Ultramercial*, 657 F.3d at 1325.

[24] *Id.* at 1330.

[25] Judges Lourie and O'Malley joined the opinion.

[26] *Ultramercial*, 657 F.3d at 1330.

[27] *Id.* at 1326.

[28] *Id.* at 1328 (quoting Research Corp. Techs. v. Microsoft Corp., 627 F.3d 859, 869 (Fed. Cir. 2010)) (internal quotation mark omitted).

[29] *Id.*

[30] *Id.*

steps are likely to require intricate and complex computer programming," and second, some of the steps "require specific application to the Internet and a cyber-market environment."[31] The court stated that these factors weighed in favor of patentability but that neither would be necessary or sufficient in every case.[32]

Although the Federal Circuit has an important role to play in clarifying the patentable subject matter test from *Bilski*'s vague outlines,[33] it gave little justification for its choice of factors. The Federal Circuit explicitly recognized two new factors: the program's requiring complex computer programming and the program's use of the internet and of a cybermarket environment. However, these factors fail to establish a clear doctrinal line between abstract and nonabstract programs.[34]

First, the complexity of computer programming required is not a good indicator of patentable subject matter: it does not distinguish abstract from nonabstract programs, it changes over time, and it is difficult for courts to evaluate. Complexity of programming does not get at "abstractness." The purely mathematical aspects of many algorithms can be difficult to program, while the algorithm remains entirely abstract.[35] If complexity of programming were the test, one could choose a complicated mathematical function and claim its implementation on a computer. Such a result violates the rule against monopolization of pure mathematical functions.[36]

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[31] *Id.*

[32] *Id.*

[33] Historically, the Federal Circuit has tended to fill in the Supreme Court's vague standards with tighter and more formalistic rules. *See* Peter Lee, *Patent Law and the Two Cultures*, 120 YALE L.J. 2, 25–41 (2010). This practice gives district courts more guidance in applying doctrines and creates more predictability for litigants. *Id.* at 25–41, 62–74.

Recent, post-*Bilski* cases in which the Federal Circuit has developed new patentable subject matter guidelines include *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375–77 (Fed. Cir. 2011), holding that a computer program invention was too abstract because it could be performed in the human mind, and *Research Corp. Technologies*, 627 F.3d at 869, holding that a computer program invention was not abstract because it had application to existing technologies.

[34] In addition, the court's choice to use a balancing test rather than a hard rule will likely cause district courts difficulty in application and litigants difficulty in predicting results. *See* Antonin Scalia, *The Rule of Law as a Law of Rules*, 56 U. CHI. L. REV. 1175, 1179–81 (1989). Hard rules are especially helpful in the field of patent law, where district courts often lack expertise. *See* Lee, *supra* note 33, at 62–64.

[35] *See, e.g.*, Diego Gutierrez et al., *Modeling Light Scattering for Virtual Heritage*, ACM J. ON COMPUTING & CULTURAL HERITAGE, Oct. 2008, at 8:4–8:5 (discussing the complexity of solving certain formulas modeling the behavior of light).

[36] *See* Gottschalk v. Benson, 409 U.S. 63, 71–72 (1972). The Federal Circuit was likely thinking of "complexity" as a proxy for how "applied" a computer program is. One might think that more programming means that a computer program is more tightly tied to a specific device, though that assumption is not necessarily true, as noted above. To accomplish its goals, the Federal Circuit would have done better to consider only complexity of the computer program that was unrelated to the pure algorithm itself. For example, there may be complexity in the computer interface, in using programming techniques to make the computer program run faster, or in tailor-

Another problem is that computer programming complexity changes over time. Programming difficulty is fluid as changes in technology result in better programming tools. Years ago, it was a challenge to write even the simplest programs because high-level programming languages did not exist. Code had to be written in individual bytes and bits, a truly aggravating experience.[37] Similarly, many of the programming problems that remain "difficult" today are likely to become "easy" in the future.[38]

Further, courts are likely to be bad judges of programming difficulty. The vast majority of federal judges are not computer programmers, and few even have technical degrees.[39] Even on the Federal Circuit, less than half of the judges have technical degrees, and less than half of those are in a computer-related area.[40] A lay judge has little idea of what programs are easy or hard to implement.[41] Most likely, issues of programming complexity would become battles of experts, with each side arguing that the program was very hard or very easy to implement.[42] The issue is particularly fraught because programming difficulty is subjective even among computer programmers. What

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ing the algorithm to specific hardware. Such extra-algorithmic complexity suggests significant work was done to *apply* the algorithm. However, such an approach would still be problematic for the reasons discussed below.

[37] *See, e.g.*, JEAN E. SAMMET, PROGRAMMING LANGUAGES 1–11 (1969).

[38] For example, as of this writing, setting up a server back-end for mobile applications is an arguably "difficult" process that involves interfacing with many different web services, but a new startup called Kinvey aims to integrate multiple web services into a single product, thereby making the process "ridiculously easy." KINVEY, http://www.kinvey.com (last visited May 3, 2012).

Thus, the risk is that valid computer program patents will slip out of patentable subject matter over time as their programming complexity decreases. Even if the doctrine set a particular time for when programming complexity was evaluated, such as the patent filing date, the system would punish inventors who waited to file patents because programming complexity would decrease until ultimately the invention became unpatentable.

[39] Lee, *supra* note 33, at 10 & n.32.

[40] It appears that seven out of fifteen judges on the Federal Circuit have technical degrees. Three appear to hold a degree relevant to computer programming: Judges Arthur J. Gajarsa, Richard Linn, and Kimberley A. Moore. *See Judges — Biographies*, U.S. COURT APPEALS FOR FED. CIRCUIT, http://www.cafc.uscourts.gov/judges (last visited May 3, 2012).

[41] *Cf.* Joan Shertz & Mark Weiser, *A Study of Programming Problem Representation in Novice and Expert Programmers*, 18 PROC. ANN. COMPUTER PERSONNEL RES. CONF. 302, 311–15 (1981) (showing that novice programmers tended to group programming problems by superficial application areas rather than deep features of how the problem had to be solved).

[42] The problems stemming from a lack of judicial technical expertise have already been observed in other areas of patent law. In the claim construction process, which is quite technical, district court judges are reversed a large portion (thirty-three percent) of the time. Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 6–8, 11 (2001). Professor Peter Lee argues that the technical subject matter underlying a patent dispute can cause lay judges anxiety and impose cognitive burdens. *See* Lee, *supra* note 33, at 9–17.

seems easy to one computer programmer can be very difficult to another.[43]

Even though courts have succeeded in addressing questions like novelty and obviousness,[44] which appear technical, those questions are actually matters of law decided according to a legal standard.[45] While "complexity of programming" could be turned into a legal standard, there would be little benefit. There is no guarantee that the legal standard would stay moored to the underlying factual question of *actual* complexity of programming.[46] Creation of additional legal standards adds burdens to courts, in the forms of longer briefs, longer arguments, and more issues to fight over.

Regarding the second factor, considering the program's use of the internet and of a cybermarket environment will help stabilize the law in favor of patentability for the many computer programs that facilitate e-commerce.[47] However, the court should have gone further and recognized that the internet is a "specific machine" under the machine-or-transformation test, and that use of special features of the internet, such as its e-commerce abilities, should be per se patentable.

Many of the most valuable computer program patents are for inventions applied to the internet or e-commerce.[48] Because these computer programs usually do not transform any articles and are not tied to a specific computerized device, it is questionable whether many would pass the machine-or-transformation test. However, as a policy

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[43] *See* Brian de Alwis et al., *Creating a Cognitive Metric of Programming Task Difficulty*, 2008 PROC. INT'L WORKSHOP ON COOPERATIVE & HUM. ASPECTS SOFTWARE ENGINEERING 29, 29–32 (describing the researchers' inability to predict how difficult a programming problem would be for subjects to solve). Computer programmers have a range of skill sets. To people with the relevant skill sets the task may seem easy, but to people without the relevant skill sets the task may seem very hard. Also, sometimes individuals think in a certain way that makes solving particular problems easy for them, while those problems may be hard for people who think in a different way. *See A Conversation with Alan Kay*, QUEUE, Dec./Jan. 2004–2005, at 20, 27–28 (describing how different programming languages appeal to different people based on how they think).

[44] However, some commentators dispute that courts have succeeded at applying these requirements. *See, e.g.*, Rebecca S. Eisenberg, *Obvious to Whom? Evaluating Inventions from the Perspective of PHOSITA*, 19 BERKELEY TECH. L.J. 885, 886–89 (2004).

[45] *See* Microsoft Corp. v. i4i Ltd. P'ship, 131 S. Ct. 2238, 2242–43 (2011).

[46] Similarly, commentators have observed that the legal "obviousness" standard does not match up with what scientists and engineers would commonly call "obvious." Eisenberg, *supra* note 44, at 885–93. At least one difficulty is that judges lack technical expertise and so are bad judges of technical "obviousness" or, in this case, "complexity." *See id.* at 887. If judges cannot even determine what is "complex programming" from a factual standpoint, it is hard to see how they could keep it in line with a legal determination of "complex programming."

[47] For the definition of "e-commerce," see *supra* note 14.

[48] *See, e.g.*, Tom Hals, *Courts OK Nortel Patent Sale to Apple/RIM Group*, REUTERS, Jul. 11, 2011, *available at* http://www.reuters.com/article/2011/07/11/us-nortel-patents -idUSTRE76A51Y20110711 (describing the sale of 6000 patents and patent applications on wireless technologies from Nortel to a consortium led by Apple and RIM for $4.5 billion).

matter, judges and officials have not wanted to invalidate all of these patents given large companies' massive investments in them and the fact that some are quite innovative.[49] Weighing the use of the internet and cybermarkets in favor of patentability helps resolve this issue.

The Federal Circuit has avoided making a pronouncement on the matter,[50] but in a formal sense, the internet is arguably a specific machine. There is only one of it, so one is certainly being *specific* when referring to "the internet."[51] Furthermore, although a layman might consider the internet to be a network of machines, rather than a single machine,[52] in a technical sense there is little distinction. Modern supercomputers have multiple processors, and just about everyone would consider them to be a "machine."[53] Some of the fastest modern supercomputers consist of thousands of consumer computers that coordinate and share information over a network in order to complete some task.[54] If each of those supercomputers is a "machine," the internet is no different except in scale: it is larger and more dispersed than any other supercomputer.[55]

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[49] For example, Professor John F. Duffy has argued that Google's PageRank patent fails the machine-or-transformation test. John F. Duffy, *The Death of Google's Patents?*, PATENTLY-O PAT. L.J. 3–7 (July 21, 2008), http://www.patentlyo.com/patent/law/googlepatents101.pdf. Yet even prior to *Bilski*, officials at the United States Patent and Trademark Office insisted that they believed Google's PageRank technology was patentable. *Id.* at 3.

[50] *See* CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1370 (Fed. Cir. 2011) (declining to address the district court's holding that "the Internet" was not a specific machine).

[51] *See* REGIS J. (BUD) BATES & DONALD W. GREGORY, VOICE AND DATA COMMUNICATIONS HANDBOOK 362–69 (1997).

[52] CyberSource Corp. v. Retail Decisions, Inc., 620 F. Supp. 2d 1068, 1077 (N.D. Cal. 2009) (concluding that the internet is not a specific machine because it "is a network of millions of individual machines").

[53] Philip Papadopoulos et al., *Beyond Beowulf Clusters*, ACM QUEUE, Apr. 2007, at 36, 37–40.

[54] *Id.*

[55] In some cases, supercomputers are located in a single physical location to reduce communication latency, but in many other cases supercomputers are dispersed. These dispersed supercomputers are termed "distributed systems." Like the internet, they may consist of autonomous computing systems that are affiliated by a protocol. *See* David P. Anderson et al., *SETI@home: An Experiment in Public Resource Computing*, COMM. ACM, Nov. 2002, at 56, 56 (describing distributed system for finding extraterrestrial life); Michael Shirts & Vijay S. Pande, *Screen Savers of the World Unite!*, 290 SCIENCE 1903, 1903–04 (2000) (describing distributed system for computing protein folding); Ashish Thusoo et al., *Data Warehousing and Analytics Infrastructure at Facebook*, 2010 PROC. INT'L CONF. ON MGMT. DATA 1013, 1013–15 (describing distributed system for analyzing user data from Facebook).

One might try to distinguish the internet from other supercomputers by saying that a "machine" has to be directed toward a single task, and the internet is not. However, the internet *is* directed toward a single task: facilitating the sharing of files from one user on the network to another. BATES & GREGORY, *supra* note 51, at 366. For example, suppose a network of pneumatic tubes were installed in an office building that facilitated the transfer of papers from one office to another. *Cf.* Ed Felten, *Taking Stevens Seriously*, FREEDOM TO TINKER (July 17, 2006, 7:21 AM), https://freedom-to-tinker.com/blog/felten/taking-stevens-seriously (describing the late Senator Ted Stevens's use of the term "series of tubes" to describe the internet (internal quotation mark

Doctrinally, the Federal Circuit does not require that a "specific machine" be a single device. It has followed the Supreme Court's definition of machine as "a concrete thing, consisting of parts, or of certain devices and combination of devices."[56] This definition encompasses "every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result."[57] The Federal Circuit has regularly upheld claims on systems containing multiple devices.[58] Thus, a system must be a "process, machine, manufacture, or composition of matter,"[59] and among those four categories, a system's being a machine seems the most likely one.[60]

If one recognizes that the internet is a specific machine, the dispositive issue becomes whether the computer program is "tied" to it.[61] The Federal Circuit has said that, for a "tie" to exist, the machine must "play a significant part in permitting the claimed method to be performed" rather than just allowing one to do the method faster than by hand.[62] Thus, since many computer programs that run on the internet could also run on other networks, the existence of a "tie" becomes a serious issue.[63]

The "tie" is achieved by observing that the internet is unique among networks in facilitating communication between billions of people across the globe. A computer program that takes advantage of that unique characteristic would effectively be "tied" to the internet. An e-commerce computer program uses the unique features of the internet to allow the general public to access it in order to buy things.[64] Otherwise, it would be like building a shop with no door. In contrast, one can imagine certain point-to-point applications that do not leverage the unique features of the internet. For example, an application to

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omitted)). The sole purpose of such a device would be to transfer files, yet most people would consider it to be a "machine."

 [56] *In re* Nuijten, 500 F.3d 1346, 1355 (Fed. Cir. 2007) (quoting Burr v. Duryee, 68 U.S. (1 Wall.) 531, 570 (1863)) (internal quotation marks omitted).

[57] *Id.* (quoting Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1853)) (internal quotation mark omitted).

[58] *See, e.g.*, Fujitsu Ltd. v. Netgear Inc., 620 F.3d 1321, 1333 (Fed. Cir. 2010).

[59] 35 U.S.C. § 101 (2006).

[60] *See Nuijten*, 500 F.3d at 1354–57.

[61] SiRF Tech., Inc. v. Int'l Trade Comm'n, 601 F.3d 1319, 1332 (Fed. Cir. 2010).

[62] *Id.* at 1333.

[63] *See* Ultramercial, LLC v. Hulu, LLC, No. CV 09-06918 RGK (PLAx), 2010 WL 3360098, at *5 (C.D. Cal. Aug 13, 2010).

[64] The Federal Circuit may have been thinking of the e-commerce factor as evidence of a "specific application" rather than evidence of a "tie" to a specific machine. It has previously noted that an invention with "specific applications or improvements to technologies in the marketplace" is more likely to be patentable subject matter. Research Corp. Techs. v. Microsoft Corp., 627 F.3d 859, 869 (Fed. Cir. 2010). Being "applied" can help keep a program invention concrete and narrow, without necessarily being "tied" to a machine. The e-commerce factor can do work there as well.

turn on the stove from one's cell phone does not require that billions of other people be on the network. It is hypothetically possible that a two-computer network (or, rather, one phone and one stove) would suffice.[65]

The distinction between mass communication and point-to-point communication also solves the potential policy problems in recognizing the internet as a "specific machine." Soon, as the internet becomes more pervasive, nearly all computer programs may use the internet. It would probably be a bad idea to per se qualify all these computer programs as patentable subject matter. By applying a limiting factor of use of the internet's mass communication properties, only a small subset of computer programs will qualify for per se patentability.

The *Ultramercial* factors may just turn the patentable subject matter test into a confused jumble. They are difficult to apply and are not clearly the best for getting at nonabstractness. Oft-cited policy rationales behind the test are (1) initial screening[66] and (2) preventing monopolies on fundamental knowledge.[67] However, the *Ultramercial* factors make the test more substantive, requiring more analysis than may be appropriate for a screening test, and harder to predict, also a negative attribute for a mere threshold check.[68] Professor Peter Menell has argued that predictability is one of the most important considerations of the patentable subject matter test.[69] Uncertainty discourages investment in cutting-edge areas where patentability is unclear and encourages investment in patents in some areas that would be better left in the public domain.[70] Furthermore, *Ultramercial*'s consideration of the internet prevents patenting of fundamental knowledge only in a

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[65] One important aspect of the difference is that a person could know the network address of his phone and his stove and thereby directly connect them with modems. The internet is useful in allowing people to find and connect to others whom they do not have any way of accessing in real life. Programs that facilitate connecting to the general universe of people in the world would be "tied" to the internet. For example, email is tied to the internet because one is able to contact essentially anyone.

[66] Bilski v. Kappos, 130 S. Ct. 3218, 3225 (2010).

[67] *Id.*

[68] *Ultramercial* provides a more specific test than *Bilski*, though it is unclear whether the test actually provides greater predictability in the sense of allowing one to forecast what is patentable subject matter and what is not. For example, one commentator argues that the United States Patent and Trademark Office has applied *Bilski* to mean that the machine-or-transformation test is still the exclusive test unless there is a "clear indication" that the invention is not directed to an abstract idea. Ebby Abraham, Note, Bilski v. Kappos*: Sideline Analysis from the First Inning of Play*, 26 BERKELEY TECH. L.J. 15, 48 (2011) (quoting Memorandum from Robert W. Bahr, Acting Assoc. Comm'r for Patent Examination Policy (June 28, 2010)) (internal quotation marks omitted). Such a test is clear, setting aside considerations of its substantive correctness.

[69] Peter S. Menell, *Forty Years of Wondering in the Wilderness and No Closer to the Promised Land:* Bilski*'s Superficial Textualism and the Missed Opportunity to Return Patent Law to Its Technology Mooring*, 63 STAN. L. REV. 1289, 1305 (2011).

[70] *Id.*

limited way: the fundamental knowledge could still be claimed in a specific application to the internet. However, a monopoly on fundamental knowledge applied to the internet could be powerful given that the internet is becoming increasingly pervasive.

A real danger of a poorly tuned patentable subject matter test is the loss of good patents at the threshold stage.[71] For example, many innovative internet patents, like that on Google PageRank, seem to fail the machine-or-transformation test and would therefore be invalid under pre-*Bilski* precedent.[72] Post-*Bilski*, the Federal Circuit should change course from the strict and hard-to-apply tests of its past. The patentable subject matter test should be more lenient and clear and provide breathing space for innovative technologies to be evaluated on their merits at later stages of litigation.

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[71] Edward Van Gieson & Paul Stellman, *Killing Good Patents to Wipe Out Bad Patents:* Bilski*, the Evolution of Patentable Subject Matter Rules, and the Inability to Save Valuable Patents Using the Reissue Statute*, 27 SANTA CLARA COMPUTER & HIGH TECH. L.J. 403, 403–04, 412 (2011).

[72] *Id.* at 412; *see also supra* note 49.