



AMERICAN INTELLECTUAL PROPERTY LAW ASSOCIATION

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July 28, 2006

The Honorable Jon Dudas
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office
Box Comments - Patents
P.O. Box 1450
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Comments On Interim Patent Examination Guidelines Entitled "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" published at 1300 Off. Gaz. Pat. Office 142 (November 22, 2005)

Dear Mr. Under Secretary,

The American Intellectual Property Law Association (AIPLA) appreciates the opportunity to offer comments regarding the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published at 1300 Off. Gaz. Pat. Office 142 (November 22, 2005). Pursuant to the Request for Comments on the Interim Guidelines published at 70 Fed. Reg. 75451 (December 20, 2005), these comments are provided with respect to the five enumerated questions listed in the Request.

AIPLA is a national bar association whose more than 16,000 members are primarily lawyers in private and corporate practice, in government service, and in the academic community. AIPLA represents a wide and diverse spectrum of individuals, companies, and institutions involved directly or indirectly in the practice of patent, trademark, copyright, and unfair competition law, as well as other fields of law affecting intellectual property. Our members represent both owners and users of intellectual property.

Question 1: Is the distinction between physical transformation and data transformation appropriate in the context of the Patent Subject Matter Eligibility Interim Guidelines?

We do not believe that this distinction, as it is presented in the interim guidelines, is appropriate. In particular, we believe that, by differentiating between data transformation and physical transformation, many inventions that are currently statutory will be found by the examining corps not to be statutory and *vice versa*. The Interim Guidelines do not sufficiently protect inventions in which the data that is transformed represents physical objects or activities. For these inventions, there should be no distinction between a physical transformation and a transformation of data. AIPLA recommends reinstating the "safe harbor" for manipulation of data representing physical objects from the 1996 guidelines.

It is well established that a process is statutory if it requires that measurements of physical objects or activities, occurring outside of the computer, be transformed into computer data, and that the computer data itself be transformed (*In re Gelnovatch*, 595 F.2d 32, 41 n.7, 201

USPQ 136, 145 n.7 (CCPA 1979) (data-gathering step did not measure physical phenomenon); *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053 at 1056, 22 USPQ2d 1033 at 1036 (Fed. Cir. 1992)). This rule has been applied where the data comprises signals corresponding to or representing physical objects or activities external to the computer system, and where the process causes a physical transformation of those signals. *In re Schrader*, 22 F.3d 290 at 294, 30 USPQ2d 1455 at 1459 (Fed. Cir. 1994) citing with approval *Arrhythmia*; *In re Abele*, 684 F.2d 902 at 909, 214 USPQ 682 at 688 (CCPA 1982); *In re Taner*, 681 F.2d 787, 790, 214 USPQ 678, 681 (CCPA 1982); *In re Alappat* 33 F. 3d 1526, 31 USPQ2d 1545 (Fed. Cir. 1994).

The Interim Guidelines require the examiner to determine if a claim falls within one of the judicial exceptions to patentability: Law of Nature, Natural Phenomena or Abstract Idea. The Guidelines then set forth a two-step test to determine whether a claim recites a practical application of the § 101 judicial exception: (1) does the claimed invention transform an article or physical object to a different state or thing, or (2) does the claimed invention otherwise produce a useful, concrete and tangible result.

Using this analysis, claims in several of the cases listed above would not be found to be statutory. In addition, language in at least one of these cases is directly contrary to the position adopted in the Interim Guidelines. *Arrhythmia* concerned the analysis of heart signals provided by an electrocardiogram to determine certain characteristics of heart function immediately after a heart attack. In analyzing the process claims of this patent, the court stated, “[t]hese claimed steps of ‘converting,’ ‘applying,’ ‘determining,’ and ‘comparing’ are physical process steps that transform one physical electrical signal into another.” 958 F.2d at 1059, 22 USPQ 2d at 1038. The court repeated the position of *Taner*, which rejected the Board of Appeals view that “there is nothing necessarily physical about ‘signals.’”

Furthermore, the USPTO disregards the Federal Circuit’s guidance in *Schrader*. Although *Schrader*’s reliance on the *Freeman-Walter-Abele* test (*In re Freeman* 573 F.2d 1237, 197 USPQ 464 (CCPA 1978), *In re Walter* 618 F.2d 758, 205 USPQ 397 (CCPA 1980) and *In re Abele*) was later distinguished by the Court in *AT&T Corp. v. Excel Communications, Inc.* 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999), *Schrader* remains law. Thus, the guidelines at pages 40-41 are incorrect in failing to reflect the following passage from *Schrader*.

In the Telephone Cases, 126 U.S. 1, 8 S.Ct. 778, 31 L.Ed. 863 (1887), the Court upheld the validity of a claim directed to a method for transmitting speech by impressing acoustic vibrations representative of speech onto electrical signals. If there was a requirement that a physical object be transformed or reduced, the claim would not have been patentable. The point was recognized by our predecessor court in *In re Prater*, 415 F.2d 1393, 162 USPQ 541, 549 (CCPA 1969): “[The *Cochrane* passage] has sometimes been misconstrued as a ‘rule’ or ‘definition’ requiring that all processes, to be patentable, must operate physically upon substances. Such a result misapprehends the nature of the passage....” *Id.* at 1403, 162 USPQ at 549, modifying on rehearing, 415 F.2d 1378, 1387-88, 159 USPQ 583, 592 (CCPA 1968); see also *In re Musgrave*, 431 F.2d 882, 892, 167 USPQ 280, 289 (CCPA 1970). Thus, it is apparent that changes to intangible subject matter representative of or constituting physical activity or objects are included in the definition. See *Tilghman v. Proctor*, 102 U.S. 707, 728, 26 L.Ed. 279 (1881); *Corning v. Burden*, 56 U.S. (15 How.) 252, 14 L.Ed. 683 (1854).

(22 F.3d at 295 n.12. (emphasis added).

Although the Interim Guidelines discuss *Arrhythmia*, *Taner* and *Abele*, they give no indication as to how the claims in those cases would be analyzed under the proposed two-step test. The Examination Guidelines for Computer-Related Inventions issued in 1996, currently

published as MPEP §2106, include a “safe-harbor” for “Manipulation of Data Representing Physical Objects or Activities” (see MPEP §2106 IV B 2(b)(i)), which has been deleted from the Interim Guidelines. AIPLA urges that the Patent and Trademark Office, at a minimum, reinstate this safe harbor or otherwise provide a detailed explanation as to how claims of this type will be analyzed for statutory subject matter purposes.

Question 2. Must the claimed invention as a whole produce a concrete, useful and tangible result or merely be capable of doing so to satisfy 35 USC 101?

A patent satisfies Section 101 if it discloses a concrete, useful and tangible result or if one skilled in the art would recognize that such a result is well known in the field. The claim itself, however, read as a whole and in light of the specification, need not recite that specific result where the invention satisfies the Patent Act’s utility requirement.

The Interim Guidelines misread the Federal Circuit decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998), as defining two alternative categories of statutory subject matter: (1) inventions that carry out a physical transformation; or (2) inventions that produce a useful, concrete and tangible result. As the following *State Street* passage makes clear, the only inquiry is utility:

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an algorithm must be applied in a "useful" way. *Id.* at 1373, 47 USPQ2d at 1601.

The court described its holdings in *Alappat*, *Arrythmia*, and *State Street* itself as ultimately based upon the “useful, concrete and tangible” formulation – but did not restrict statutory subject matter to that formulation. Indeed, the Federal Circuit in *AT&T* characterized its holding in *State Street* as follows:

The *State Street* formulation [is] that a mathematical algorithm may be an integral part of patentable subject matter such as a machine or process if the claimed invention as a whole is applied in a "useful" manner.

The court then noted that *State Street* falls squarely within *Alappat*, and the inquiry set forth there:

Thus, the *Alappat* inquiry simply requires an examination of the contested claims to see if the claimed subject matter as a whole is a disembodied mathematical concept representing nothing more than a "law of nature" or an "abstract idea," or if the mathematical concept has been reduced to some practical application rendering it "useful." *Id.* at 1544, 31 USPQ2d at 1557.

As shown by the case itself and by subsequent Federal Circuit discussion of the case, the phrase “useful, concrete and tangible” is subsumed within “useful.” The law of section 101 utility does not require that the specific, substantial and credible utility be recited in the claim, especially if the claim is directed to a product. (See MPEP § 2107 II). For example, a new compound may be defined by its structure, and its use need not be recited in the claim. For similar reasons, subject matter eligibility does not require that the result be set forth in the body of the claim if it can be inferred from the description or is well established.

Thus, it is the position of AIPLA that the utility requirement for computer-related inventions should be the same as for inventions in other technical areas: that one of ordinary skill in the art, after reading the specification and the claim, can recognize a specific, substantial and credible utility for the invention.

Question 3. Are the terms defined in the interim guidelines for concrete, useful and tangible sufficient?

There is no indication in any Federal Circuit opinion that these terms were intended to have separate meanings, and in fact they are treated as fungible. It is the position of AIPLA that the separate definitions of these terms will do more harm than good, first because they are confusing and second because the analysis that assigns specific meaning to the terms is not well-grounded in the law.

The definitions of “concrete” and “tangible” presented in the Interim Guidelines are confusing. The term “tangible” is defined as being the opposite of “abstract.” This definition goes against the ordinary understanding of the word. In the American Heritage dictionary, the first definition of the word “abstract” is “[c]onsidered apart from concrete existence: *an abstract concept.*” Thus, according to this definition, the opposite of “abstract” is “concrete,” not “tangible.”

The first definition of “tangible” in the same dictionary is “[d]iscernible by the touch; palpable: *a tangible roughness of the skin.*” This is clearly not the appropriate definition under U.S. patent law as the Federal circuit has found many inventions to be statutory that are not “discernible by the touch.” Examples of these inventions are found in *Arrhythmia* and *Alappat*, described above. The most appropriate definition of “tangible” is the third definition: “[p]ossible to be treated as fact; real or concrete: *tangible evidence.*” According to this definition, “tangible” and “concrete” are synonyms.

The Interim Guidelines define the term “concrete” as “repeatable,” based on the Federal Circuit’s opinion in *In re Swartz* 232 F3d 862, 864, 56 USPQ2d 1703, 1704 (Fed Cir. 2000). This opinion, however, is not the best basis for such a definition as it is a *per-curiam* opinion concerning a patent application for cold fusion that was argued by a *pro-se* appellant. Furthermore, in its decision, the court does not even mention the word “concrete.” The case, instead, concerns the operability requirement of 35 U.S.C. § 101 or the enablement requirement of 35 U.S.C. § 112, first paragraph.

Thus, the proper way to construe the phrase “useful, concrete and tangible” under U.S. patent law is “useful and not abstract.” Section 101 requires that any invention be useful and the case law dealing with statutory subject matter forbids patent claims directed to abstract ideas that have no practical application. Utility is a well-understood concept in U.S. patent law. As explained above, the Federal Circuit has recognized that an abstract idea has no utility. Thus, a useful invention is also concrete and tangible.

Based on the above analysis, one way of determining whether an invention produces a “useful, concrete and tangible result” may be to apply the utility guidelines stated at MPEP § 2107. Indeed, MPEP § 2107.01 provides definitions for “substantial utility” and “credible utility” that encompass the definitions of “concrete” and “tangible” presented in the Interim Guidelines. In particular, “substantial utility” requires that the invention have a “real-world” use. This is the same as saying that the invention is not abstract. “Credible utility” as defined in MPEP § 2107.01 addresses the requirement in the Interim Guidelines that the invention be repeatable. Indeed, *Swartz* is cited in MPEP 2107.01 as an example of an invention that lacks credible utility.

Question 4. What role should preemption play in section 101 determinations?

Preemption should not play a significant role in a section 101 determination. Instead, it should be reserved for scope of enablement determinations under 35 USC 112, first paragraph. See *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853).

The use of the preemption test to determine statutory subject matter was explicitly overruled in *Parker v Flook* 437 U.S. 584, 198 USPQ 193 (1978). In *Flook*, the Court of Customs

and Patent Appeals reversed the rejection by the Board of Appeals on the ground that the claims at issue did not entirely pre-empt a mathematical formula or algorithm:

The present claims do not preempt the formula or algorithm contained therein, because solution of the algorithm, *per se*, would not infringe the claims. Thus, Benson's holding does not render the claims before us unpatentable. (437 U.S. at 587, 198 USPQ at 196, footnote omitted; see, also, *In re Flook* 559 F.2d 21 at 23, 195 USPQ 9 at 11 (CCPA 1977)).

Before the Supreme Court, the respondent distinguished his invention from the mathematical algorithm of *Benson* by stating that he did not seek to "wholly pre-empt the mathematical formula" because the claim recited post solution activity that limited application of the formula to the petrochemical and oil refining industries. In dismissing this argument, the Court stated:

The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance. A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean Theorem could not have been patentable or partially patentable, because a patent application contained a final step indicating that the formula, when solved, could be usefully applied to surveying techniques. The concept of "patentable subject matter under §101 is not "like a nose of wax which may be turned and twisted in any direction." (437 U.S. at 590, 198 USPQ at 197, footnotes and cites omitted).

Thus, preemption, by itself, is not a proper test of statutory subject matter.

The only exclusions of statutory subject matter are for laws of nature, natural phenomena and abstract ideas. The burden is on the examiner to prove by a preponderance of the evidence that the claimed invention, taken as a whole, fits at least one of these exclusions. The examiner should not focus on whether there is a practical application of the law, phenomenon or idea. The examiner must show that the claimed invention as a whole is nothing more than a law of nature, natural phenomenon or abstract idea.

Question 5. Is the USPTO position of signal claims reasonable and consistent with the case law?

The statement in the Guidelines that "claims that recite nothing but the physical characteristics of a form of energy ... define energy or magnetism *per se*, and as such are nonstatutory natural phenomena" is neither consistent with the case law nor with the past practice of the USPTO.

A man-made signal can be sensed, recorded, displayed, measured, analyzed, and applied to useful purposes. Such a signal is a manufacture and is statutory subject matter under 35 U.S.C. § 101 when it satisfies the utility requirement. The USPTO position is incorrectly based on the premise that signals are entirely non-physical and non-statutory because they are "mere energy." As discussed above regarding the *Arrhythmia* decision, the Federal Circuit recognizes that signals are manufactures, "[t]he view that 'there is nothing necessarily physical about 'signals' is incorrect." (958 F2d at 1059, 22 USPQ 2d at 1038). Moreover, the MPEP currently recognizes that signal claims may be statutory. MPEP § 2106 IV B 1 (c) states:

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, *per se*, and as such are nonstatutory natural phenomena. However, a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature. (Cites omitted).

There is no indication that this “practical application” needs physical structure. Instead, it may be a process.

In fact, signal claims have been recognized since the mid 19th century. In *O’Reilly v. Morse*, for example, claim 5 recited, “I claim, as my invention, the system of signs, consisting of dots and spaces, and of dots, spaces and horizontal lines, for numerals, letters, words or sentences, substantially as herein set forth and illustrated for telegraphic purposes.” (56 U.S. at 86). The Court found this claim to be statutory, stating, “[t]he fifth, is a claim to the system of signs, composed of dots, spaces and horizontal lines, (susceptible of being variously combined, representing numerals, words and sentences,) for telegraphic purposes; being an improved instrumentality in the art of telegraphing by electricity or galvanism.” (56 U.S. at 101). The Court recognized the utility of the subject matter by its application to the process of telegraphing. The subject matter of claim 5 is statutory because it has a real-world value and is specific to that process.

Currently, the MPEP recognizes that signal claims may be statutory. MPEP § 2106 IV B 1 (c) states:

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, *per se*, and as such are nonstatutory natural phenomena. However, a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature. (Cites omitted).

There is no indication that this “practical application” needs physical structure. Instead, it may be a process.

There are two basic categories of signal claims, either of which must be tied to a practical application of electromagnetic energy in order to comply with 35 USC §101. The first type is based on structure, and the second type is based on function (although hybrids of the two are equally suitable). Structural signal claims typically recite an arrangement and/or the content of data segments, not unlike the subject matter of *In re Beauregard*. However, instead of being tangibly fixed in a computer readable medium, the signal is manufactured to be propagated from one location to another before being received and processed. For example, U.S. Patent No. 6,052,150 is directed to a baseband (no carrier) data structure. It defines subcomponents of a video data signal that contain different types of data segments arranged in a linear fashion (streamed) that are useful in computer-to-computer or network communications that communicate at baseband. U.S. Patent No. 5,500,739 includes claims (see, e.g., Claim 109) that define a frequency-multiplexed signal in which different types of information are contained within the different spectral components. U.S. Patent No. 5,991,330 claims the structure of a pilot channel for code division multiple access signal that includes an arrangement of synchronization slots, a pilot code and a framing synchronization code.

In contrast, functional signal claims are an alternative to method claims and describe a mechanism for accomplishing a result. The function can be combined with structure to limit its field of use. For example U.S. Patent No 5,534,933 claims TV signals performing certain functions. Claim 1 of U.S. Patent No. 6,923,653 is directed to a computer data signal that is embedded in a carrier wave and represents a program for execution by a processor. The elements of the claim essentially describe the steps performed by the processors once the signal is received and executed by the processor. U.S. Patent No. 6,306,033 claims a computer data signal embodied in a carrier wave for causing a computer to execute a video game.

An example of a hybrid structure/function signal claim is found in U.S. Patent No. 6,505,032, which claims a carrierless ultrawideband (UWB) signal that uses a certain type of wavelet shape to avoid interference with aircraft communication systems. In this case, it is the

structure of the signal (certain UWB wavelet shapes) that provides a desirable end goal (avoiding interference with aircraft communication systems).

We appreciate the opportunity to provide comments on the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility and are available to assist the Office in their implementation.

Sincerely,

A handwritten signature in black ink that reads "Michael K. Kirk". The signature is written in a cursive style with a large, stylized initial "M".

Michael K. Kirk
Executive Director
AIPLA