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Patentability Of Predictive Analytics Post-Prometheus

Law360, New York (June 12, 2012, 12:43 PM ET) -- As society collects more and more data regarding individuals, the market for products that evaluate this data, and particularly products that use the data to predict behavior (be it commercial or criminal), have exploded. Many of the companies and individuals developing these technologies seek to obtain patents to cover what they argue are new and inventive ways of evaluating data and making decisions based on that evaluation.

Courts have already begun to encounter such patents. In Cybersource Corp. v. Retail Decisions Inc., 654 F.3d 1366, 1367-68 (Fed. Cir. 2011), the Federal Circuit evaluated the patentability of a method for detecting credit card fraud in Internet commerce. The patented process compared databases comprising credit card transaction history to determine whether subsequent purchases were aligned with the card holders' purchasing habits. Id. at 1367. The Federal Circuit invalidated the claims as reaching unpatentable subject matter. It held that (in the context of these claims) use of the Internet was solely as a "source of data," and the claimed method was nothing more than collection and organization of data regarding credit card numbers, which could be performed in the human mind. Id. at 1373.

The U.S. Supreme Court's recent decision in Mayo Collaborative Services v. Prometheus may further call into question the patentability of such inventions.

The patentability of computer software has always had a somewhat tenuous place in the United States. While it has long been recognized that computer programs themselves can be the subject of patent protection (See, e.g., Diamond v. Diehr, 101 S. Ct. 1048, 1056 (1981)), that protection has been wedged between several competing tenants of U.S. patent law. Most notably, that neither abstract ideas nor principals of nature are patentable subject matter under 35 U.S.C. §101. Mathematical algorithms, without more, have been found unpatentable as both a law of nature and an abstract idea (See, e.g., Gottschalk v. Benson, 93 S. Ct. 253, 255 (1972); Cybersource, 654 F.3d at 1371).

Because software is, of course, always a collection of mathematical algorithms, the functionality provided by many (if not all) computer programs can always be, at some level, argued to be a kind of "abstract idea." Thus, patent protection for inventive progress in the computer science field has been scrutinized with a level of skepticism that other fields arguably have evaded.

Within this framework, the courts have gone about fashioning a set of guidelines in an attempt to determine when a claim involving software moves beyond § 101 subject matter. As to when a claim might be classified as an unpatentable "abstract idea," the Supreme Court's decision in Bilski provided the most recent guidance. The patent at issue in Bilski claimed the basic economic concept of risk hedging, and in subsequent claims reduced that concept to a mathematical formula or limited it to a field of use, i.e., the commodities and energy markets. Bilski v. Kappos, 130 S. Ct. 3218, 3231 (2010). The court held that "limiting an abstract idea to one field of use or adding token postsolution components did not make the [abstract idea] patentable." Id.

Prometheus and Software Patent Claims

One way to view the Supreme Court's recent decision in Prometheus is as a delineation of limiting principal — when and how an algorithm can be claimed (or incorporated into a claim). In Prometheus, the claim at issue — generally speaking — covered the administration of a drug to a patient, the measurement of the concentration of that drug in the blood of the patient, and then determining whether more or less of the drug should be subsequently delivered based on established thresholds. 132 S. Ct. at 1295.

From the Supreme Court's opinion, it appeared that the actual "discovery" that drove the patent was the discovery of a "natural law" that the drug was most effective when present in concentrations within the range bounded by the claimed thresholds. Id. at 1296-97. The court then turned to the question of whether the patent claims "add enough to their statement of the correlations to allow the processes they describe to qualify as patent-eligible processes that apply natural laws." Finding the claims devoid of such additional material, the Supreme Court invalidated the claims under § 101. Id. at 1297.

To those familiar with the basics of predictive analytics, the method at issue in Prometheus should sound somewhat familiar, at least in the abstract: taking samples to measure certain metrics and then extrapolating conclusions regarding future behaviors from that set of data. Or, in other words, analysis of a set of measurements to detect predetermined threshold levels thought to predict an effect (or a behavior).

Like the invention at issue in Prometheus, much of the novel and inventive components of predictive information analytics comes in the form of determining what threshold correlations are sufficient to accurately predict future behavior. The Supreme Court made it clear that when "[t]he upshot is that the three steps simply tell doctors to gather data from which they may draw an inference in light of the correlations" the claim does not address patentable subject matter. Id. at 1298. Arguably, almost all predictive information analytics relies on "gather[ing] data from which [you] may draw and an inference in light of the correlations."

That said, the Supreme Court's decision provides some — albeit scant — guidance.

Looking for More Guidance

The court's discussion of Diehr and Flook seems to suggest that, while simply having a novel algorithm for evaluating the data (Flook) is insufficient, if you perform the steps of collecting the data or actually claim doing something novel with the results of the analysis — what the court calls "an inventive concept" or "an inventive application" — then the method could be patentable (Diehr). Id. at 1294, 1299.

The court also reemphasized that "[a] patent, for example, could not simply recite a law of nature and then add the instruction 'apply the law,'" and that claiming steps "as an ordered combination adds nothing to the laws of nature that is not already present when the steps are considered separately." Id. at 1298. The claims must do more than "inform ... about certain laws of nature," and the addition of steps consisting of "well-understood, routine, conventional activity already engaged in by the scientific community" does not meet the requirements of § 101. Id.

In Parker v. Flook, the claimed method steps included measuring a variable such as temperature, using a novel mathematical algorithm to calculate alarm limits based on the variable, and making adjustments to the system using the new alarm limits. The court held the process unpatentable. 98 S. Ct. 2522, 2525 (1978). The computations of the mathematical formula in question could have been performed by "pencil and paper calculations," and the claim was substantially directed to the algorithm itself. Id. at 2527-28.

The court rejected the argument that the claimed post-solution activity distinguished this case from an unpatentable claim on an algorithm alone, and held that the additional limitations in the claims did not limit the claim to a particular application or add anything novel to the underlying algorithm. Id. at 2525. The claim was unpatentable not because it contained a mathematical algorithm, but because once the algorithm is taken out of the equation, the claim contained no inventive concept: the "claim is, in effect comparable to a claim that the formula 2pi(r) can be usefully applied in determining the circumference of a wheel." Id. at 2528. The court also stated that "a claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101." Merely improving or streamlining existing methods or calculations via a computer is not patentable.

In contrast, in Diamond v. Diehr, the Supreme Court held patentable a method of molding rubber, involving the steps of "installing rubber in a press, closing the mold, constantly determining the temperature of the mold, constantly recalculating the appropriate cure time through the use of [a well-known mathematical] formula and a digital computer, and automatically opening the press at the proper time." 101 S. Ct. 1048, 1057 (1981). Unlike Flook, the patent did not preempt use of the formula, but rather preempts use of the formula in conjunction with the other steps, at least some of which are novel. Id. Contrast this with mere "post-solution activity" found to be unpatentable in Flook. Flook, 98 S. Ct. at 2525. The Diehr Court held this claim patentable as "a novel and useful structure created with the aid of knowledge of scientific truth."

These guideposts from Flook, Diehr and Prometheus were applied in Smartgene Inc. v. Advanced Biological Labs. SA, No. 08-00642, 2012 U.S. Dist. LEXIS 44138 (D.D.C. March 30, 2012). In Smartgene, the patent-in-suit claimed a method for inputting patient information into a computer which correlates that information with treatment regimens and expert rules, which are stored in memory, and then generates available treatments and advisory information based on the patient information, the regiments and expert rules.

Relying heavily on Prometheus, the district court held that the claims were invalid because they added nothing "specific" to the abstract idea of choosing a therapy "other than what is well-understood, routine, conventional activity, previously engaged in by those in the field." The court went on to hold that the steps "mirror the mental processes that a physician performs," and simply claiming the method of having a computer assist in those mental processes is not patentable. 2012 U.S. Dist. LEXIS at *35. Thus, Smartgene is another example of a situation where a process for gathering data, evaluating the data and making predictions about behavior (or in this case, a diagnosis or therapy) was held unpatentable.

So whatever other mechanism might exist, it seems from Prometheus that the inclusion in the claim of some element — itself novel — will place an invention within §101. The challenge then is to find such elements. This may be particularly difficult in the field of predictive analytics, where much of the technology is directed to improving the predictive capabilities themselves — not other related aspects of their use or application.

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