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In The
Supreme Court of the United States

ALICE CORPORATION PTY. LTD.,

Petitioner,

v.

CLS BANK INTERNATIONAL
AND CLS SERVICES LTD.,

Respondents.

On Writ Of Certiorari To The
United States Court Of Appeals
For The Federal Circuit

**BRIEF OF THE JUHASZ LAW FIRM, P.C.
AS AMICUS CURIAE SUPPORTING CLS BANK
INTERNATIONAL AND CLS SERVICES LTD.**

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QUESTION PRESENTED

Whether claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?

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**BRIEF OF THE JUHASZ LAW FIRM, P.C. AS
AMICUS CURIAE SUPPORTING CLS BANK
INTERNATIONAL AND CLS SERVICES LTD.**

INTEREST OF AMICUS CURIAE¹

The author of this brief is a registered patent practitioner with law and science degrees and is a member of the patent firm The Juhasz Law Firm, P.C. Paul R. Juhasz has been practicing for 30 years and holds a B.S.Chem.E., a B.S.E.E., a J.D., and a P.E. Paul R. Juhasz deals with the issue of subject matter patentability for clients of the Firm on a regular basis. Mr. Juhasz has written extensively and is extensively published on the Supreme Court's *Bilski* and *Mayo* and *Myriad* decisions and subject matter patentability under 35 U.S.C. § 101. This brief is filed solely on behalf of the Firm and not on behalf of clients of the Firm. Amicus represents neither party in this action, and offers the following views based on extensive experience on this matter.



¹ Petitioners and Respondents each have filed and lodged with the Clerk a letter of consent to the filing of amicus curiae briefs in support of either party or of neither party. Pursuant to Sup. Ct. R. 37.6, amicus notes that no counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than amicus curiae made a monetary contribution to its preparation or submission.

SUMMARY OF ARGUMENT

The Federal Circuit correctly struck down four computer implemented business method patents under § 101 as patent-ineligible.

The message from the Supreme Court in *Bilski* and *Mayo* is that a claim, taken as a whole and excluding extra-solution activity, must be tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea) rather than to preempt the principle itself. So if claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – satisfy the foregoing guidelines, the Answer to the Question “Whether claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?” should be OF COURSE.

CLS Bank provides the Court with a good vehicle to answer the question that lower courts have been unable to address so far: where to draw the preemption-defining boundary line (*i.e.*, the line within which matter is patent-eligible and outside of which it preempts a fundamental principle, and is thus, patent-ineligible). There is close similarity in subject matter of managing risk between the *CLS Bank* and *Bilski* patent claims and unlike in *Bilski*, the patent claims in *CLS Bank* include system and product claims that recite computer structure. Hence,

CLS Bank will allow the Court to address the spill-over effect of *Bilski* to system and product claims (Beauregard claims in this case) wherein general computing structure is recited to implement a patent-ineligible process.

The challenge for the lower courts has been determining when an abstract idea in a computer implemented business method patent is limited to a particular application so as to not preempt the fundamental principle and when does a recited limitation such as computing structure amount to insignificant extra-solution activity. That is the guidance from the Court's decision in *CLS Bank* that the patent community seeks and needs.

The recited computing structure in all of the claims in the patents in *CLS Bank* are general purpose computers. As Judge Lourie explained, none of the recited limitations adds anything of substance to the claims. The recited computing structure in the claims in *CLS Bank* are extra-solution activities. They are insignificant limitations.

Each claim in *CLS Bank*, taken as a whole and excluding the recited computing structures which are extra-solution activity, are not tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea). Rather, the claims preempt the principle of reducing settlement risk by facilitating a trade through third party intermediation itself.

While the two-step approach of determining preemption and insignificant extra-solution activity is elegant, a simpler one-step test to determine whether a computer-implemented invention is a patent-ineligible “abstract idea” is whether steps that are central to the claim (*i.e.*, not token extra-solution activity) have a “physical” or “virtual” link to a specific real or tangible object.

Recited steps in the method claims of the U.S. 5,970,479 (“the ’479 Patent”) and U.S. 6,912,510 (“the ’510 Patent”); and the system and product (media) claims of U.S. 7,149,720 (“the ’720 Patent”); and U.S. 7,725,375 (“the ’375 Patent”) have neither a “physical” link nor a “virtual” link and so the ’479, ’510, ’720, and ’375 Patents are not subject matter patentable under 35 U.S.C. § 101.



ARGUMENT

- I. **The Answer to the Question “Whether claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?” should be OF COURSE.**

This Certiorari was granted on the following question: “Whether claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – are directed to

patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?”

The answer to this Question should be OF COURSE.

The message from the Supreme Court in *Bilski* and *Mayo* is that a claim, taken as a whole and excluding extra-solution activity, must be tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea) rather than to preempt the principle itself. *Mayo Collaborative v. Prometheus Labs.*, 132 S. Ct. 1289, 1294 (2012); *Bilski, v. Kappos*, 130 S. Ct. 3218, 3231 (2010); *Gottschalk v. Benson*, 409 U.S. 63, 72 (1972); *Parker v. Flook*, 437 U.S. 584, 593, 594 (1978); *Diamond v. Diehr*, 450 U.S. 175, 187 (1981).

Hence, if claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – taken as a whole and excluding extra-solution activity, are tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea) rather than to preempt the principle itself; then those claims to computer-implemented inventions are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court. To hold otherwise is contrary to this Court’s precedents.

The answer to the Question “Whether claims to computer-implemented inventions – including claims

to systems and machines, processes, and items of manufacture – are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?” should thus be OF COURSE.

II. *CLS Bank* provides the Court with a good vehicle to answer the question that lower courts have been unable to address so far: where to draw the preemption-defining boundary line (*i.e.*, the line within which matter is patent-eligible and outside of which it preempts a fundamental principle, and is thus, patent-ineligible).

On December 6, 2013, the Supreme Court granted certiorari in *CLS Bank Intl. v. Alice Corporation*, 717 F.3d 1269 (Fed. Cir. 2013), placing the issue of patent-eligible software, recited computer structure, and business method claims before the Supreme Court, once again.

For more than two years, the Supreme Court has provided guidance through its major decisions on § 101, the appropriate analysis to use in determining whether or not a claim covers patent-eligible matter. The message from the Supreme Court in *Bilski* and *Mayo* is that a claim, taken as a whole and excluding extra-solution activity, must be tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea) rather than to

preempt the principle itself. *Mayo, supra*, at 1294; *Bilski, supra*, at 3231; *Benson, supra*, at 72; *Flook, supra*, at 593, 594; *Diehr, supra*, at 187.

For perhaps the first time, the Federal Circuit en banc *CLS Bank* decision embraced that message in the concurring opinion written by Judge Lourie.

While perhaps not getting the decision entirely right, for the reasons discussed below, the en banc court decision appeared to be a step in the right direction. Yet, instead of embracing and building upon this decision, the patent community and the dissenting judges of the Federal Circuit have responded to the decision with heavy criticism.

Five concurring judges (out of 10 on the panel) agreed with the analytical tools provided by the Supreme Court: first identify the abstract principle and its scope and then determine whether the recited steps that manipulate the abstract principle preempt the abstract principle. *CLS Bank, supra*, at 1282. Once the general computing structure was stripped away from the claims as insignificant extra-solution activity, all that remained was the abstract principle, which is not enough.

Applying these analytical tools, these five judges struck down four computer implemented business method patents under § 101 as patent-ineligible, affirming the lower court and effectively reversing an earlier panel decision of the Federal Circuit.

CLS Bank provides the Court with a good vehicle to answer the Question; “Whether claims to computer-implemented inventions – including claims to systems and machines, processes, and items of manufacture – are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?” Both are directed to the subject matter of hedging – to manage commodity risk in *Bilski* and financial risk in *CLS Bank*. Further, unlike in *Bilski*, the patent claims in *CLS Bank* include system and product claims that recite computer structure. In effect, *CLS Bank* is *Bilski* with a recited computer. Hence, *CLS Bank* will allow the Court to address the spill-over effect of *Bilski* to system and product claims (Beauregard claims in this case) wherein general computing structure is recited to implement a patent-ineligible process. As the Court in *Diehr* stated “insignificant post-solution activity will not transform an unpatentable principle into a patentable process. To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.” *Diehr, supra*, at 192, 193 (1981). *CLS Bank* may have provided the Court with the perfect opportunity to put this dicta to the test.

CLS Bank may also allow the Court to heal the rift between the judges on the Federal Circuit by providing guidance behind which the Federal Circuit judges can hopefully unite in charting a pathway forward for addressing § 101 questions.

CLS Bank thus provides the Court with a good vehicle to answer the question that lower courts have been unable to address so far: where to draw the preemption-defining boundary line (*i.e.*, the line within which matter is patent-eligible and outside of which it preempts a fundamental principle, and is thus, patent-ineligible).

III. The challenge for the lower courts has been determining when an abstract idea in a computer implemented business method patent is limited to a particular application so as to not preempt the fundamental principle and when a recited limitation such as computing structure amounts to insignificant extra-solution activity. That is the guidance from the Court's decision in *CLS Bank* that the patent community seeks and needs.

For guidance on what makes a “process” claim subject matter patentable, the *Bilski* Court pointed to the definition of the term “process” in 35 U.S.C. § 100(b) and the *Benson*, *Flook*, and *Diehr* precedent. *Bilski*, *supra*, at 3229.

Unlike the algorithm in *Benson*, the mathematical formula used for monitoring conditions during the catalytic conversion process in the petrochemical and oil-refining industries in *Flook* was limited so that it could still be freely used outside the petrochemical and oil-refining industries. *Id.* at 589, 590.

Nevertheless, the *Flook* Court rejected “[t]he notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process.”

“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 would 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 existing surveying techniques. [Footnote 11] The concept of patentable subject matter under §101 is not ‘like a nose of wax, which may be turned and twisted in any direction. . . .’ *White v. Dunbar*, 119 U.S. 47, 119 U.S. 51.” *Id.* at 590.

As the Court later stated in *Diehr*, *Flook* stands for the proposition that the prohibition against patenting abstract ideas “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment” or adding “insignificant post solution activity.” See *Diehr*, *supra*, at 191-192. Significantly, the Court noted that “[w]e were careful to note in *Flook* that the patent application in *Flook* did not purport to explain how the variables used in the formula were to be selected, nor did

the application contain any disclosure relating to chemical processes at work or the means of setting off an alarm or adjusting the alarm limit. *Ibid.* All the application provided was a “formula for computing an updated alarm limit.” *Id.* at footnote 14.

The claims in *Diehr*, however, are not limited to the isolated step of “programming a digital computer,” the Court found; rather, they describe a process of curing rubber beginning with the loading of the mold and ending with the opening of the press and the production of a synthetic rubber product that has been perfectly cured – a result heretofore unknown in the art. *Id.* at footnote 15. As the *Diehr* Court explained, “[w]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of 35 U.S.C. §101.” *Id.* at 192. Because the Court did not view respondents’ claims as an attempt to patent a mathematical formula, but rather to be drawn to an industrial process for the molding of rubber products, the *Diehr* Court affirmed the judgment of the Court of Customs and Patent Appeals. *Id.* at 192, 193.

In finding the commodity claims in *Bilski* to be non-statutory subject matter, the *Bilski* Court explained that:

“Petitioners’ remaining claims are broad examples of how hedging can be used in commodities and energy markets. *Flook* established that limiting an abstract idea to one field of use or adding token post solution components did not make the concept patentable. That is exactly what the remaining claims in petitioners’ application do.”

Bilski, supra, at 3231.

Finally, as this Court explained in *Mayo*:

Those cases warn us against interpreting patent statutes in ways that make patent eligibility “depend simply on the draftsman’s art” without reference to the “principles underlying the prohibition against patents for [natural laws].” *Flook, supra*, at 593. They warn us against upholding patents that claim processes that *too broadly preempt the use of a natural law*. *Morse, supra*, at 112-120; *Benson, supra*, at 71-72. And they insist that a process that focuses upon the use of a natural law also contains other elements or a combination of elements, sometimes referred to as an “inventive concept,” sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself. *Flook, supra*, at 594; see also *Bilski, supra*, at ___, 130 S. Ct. at 3230 (“[T]he prohibition against patenting abstract ideas ‘cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’ or adding ‘insignificant postsolution activity’”

(quoting *Diehr, supra*, at 191-192)). (*Emphasis added.*) *Mayo, supra* at 1294.

Simply put, limiting an abstract idea to one broad field of use or insignificant extra-solution activity will not transform an unpatentable principle into a patentable process. *Diehr, supra*, at 191, 192. To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection. *Id.* at 192.

The challenge for the lower courts is thus twofold. The first is determining when an abstract idea in a computer implemented business method patent is limited to a particular application so as to not preempt the fundamental principle. The second is determining when a recited limitation (even if it is an apparatus or structural limitation), such as computing structure is insignificant – *i.e.*, the equivalent of insignificant extra-solution activity in a method claim. That is the guidance from the Court’s decision in *CLS Bank* that the patent community seeks and needs.

IV. The recited computing structure in all of the claims in the patents in *CLS Bank* are general purpose computers. As Judge Lourie explained, none of the recited limitations adds anything of substance to the claims. The recited computing structure in the claims in *CLS Bank* are insignificant limitations.

The first challenge for the lower courts has been determining when does a recited limitation such as

computing structure amount to insignificant extra-solution activity. A published journal article which surveys the jurisprudence on this point can be found in *“How to Patent Business, Software, and Medical Diagnostic Methods in the Aftermath of the Bilski Decision – Part 2, Business and Software Methods,”* P. Juhasz, IP Litigator, Vol. 17, Number 1 (Aspen Publishers, January/February 2011), available at <http://patenthorizon.com/main/wp-content/uploads/2011/10/2011-IP-Litigator-Jan-Feb-How-to-Patent-Business-Software-and-Medical-Diagnostic-Methods-in-the-Aftermath-of-the-Bilski-Decision-Part-2-Business-and-Software-Methods.pdf>.

In that survey of the case law the following observations become clear. A high level general recitation of computing structure is not enough to make the recited computing structure meaningful. On the other hand, the recitation of general computer structure does not *per se* make the recited computing structure insignificant. The question is whether there is enough recited detail about the computer and the way it is programmed to take it away from being a high level general computing structure and make it into an application specific computer.

For example, if a computer is recited to perform the function X, Y, and Z, that is not enough since it does not recite how the computer is carrying out the function. There must be recited details of how the computing structure is performing the function. Alternatively, the claim can be recited in means plus function format such that limitations are imported

into the claims from the specification pursuant to 35 U.S.C. § 112(f).

Some examples of computing structure recited without details sufficient to make the computer a specific computer include: running a business method on a computer or over the internet without more; failure to specify precisely how the computer hardware and database are ‘specially programmed,’ and claiming a central process as doing nothing more than performing as a general purpose computer that has been programmed in some unspecified manner; listing of computer components by tossing in references to internet commerce; crafting claims as a Beauregard type claim; gathering data can fairly be characterized as insignificant extra-solution activity; failure to specify any particular type or nature of data or how or from where the data is obtained or what the data represents undercuts patentability of graphically displayed data; a mathematical algorithm that uses machines for data input and data output and to perform the required calculations but imposes no limit on the process itself is merely insignificant post solution activity; failure to visually display generated profiles may lead to unpatentable claims; running a business method on a computer to create data representing abstract objects may not be enough. P. Juhasz, IP Litigator, *supra*.

Some examples of computing structure recited with details sufficient to make the computer a specific computer include: electronic transformation of data is patentable; data representing physical and tangible

objects and their respective structures may be patentable even without a visual depiction of the data; specific computer having particular programming so as to amount to a specific computer architecture. *Ibid.*

The claims in *CLS Bank* include method, system and Beauregard claims reciting elements like “creating a shadow credit record and a shadow debit record” for each party and “electronically adjust[ing] said shadow credit record or shadow debit record” to ensure the monies were available come time to settle. On a plain reading, the claims in *CLS Bank* arguably recite no more than the presence of a computer. There is no detail about how the computer carries out the task.

Judge Lourie explained that none of the recited limitations adds anything of substance to the claim:

“First, the requirement for computer implementation could scarcely be introduced with less specificity; the claim lacks any express language to define the computer’s participation. In a claimed method comprising an abstract idea, generic computer automation of one or more steps evinces little human contribution. . . . Nor does requiring the supervisory institution to create and adjust a ‘shadow credit record’ and a ‘shadow debit record’ narrow the claims from the realm of abstraction. . . . Viewed properly as reciting no more than the necessary tracking activities of a supervisory institution, the steps relating to creating a ‘shadow record’ and then obtaining and adjusting its balance are insignificant ‘[pre]-solution activity’

Finally, providing end-of-day instructions to the exchange to reconcile the parties' real-world accounts with the day's accumulated adjustments to their shadow records is a similarly trivial limitation that does not distinguish the claimed method." *CLS Bank, supra*, at 1286-1287.

In the concurring in part and dissenting in part en banc *CLS Bank* decision, Chief Judge Rader imported computer application specific limitations into the claims from the specification that were not recited in the claims. *Id.* at 1328. For example, "[t]he computer and other hardware are specifically programmed to solve a complex program and are supported by numerous flowcharts that provide algorithm support for the functions recited in the claims." *Id.* at 1307-1309. The same goes for the dissenting en banc *CLS Bank* decision. For example, "the court can reasonably assume for present purposes that the terms 'shadow' credit and/or debit record and 'transaction' in the '479 patent recite electronic implementation and a computer or an analogous electronic device." *CLS Bank, supra*, at 1328.

Claims should be limited to computer application specific structure only if the claims expressly recite such application-specific limitations, the claims are written in means plus function format such that limitations are imported into the claims from the specification pursuant to 35 U.S.C. § 112(f), or a Markman claim construction process properly imports such computer application specific limitations into the claims. The claims in the patents in *CLS*

Bank are without those limitations. The claims do not recite computer architecture specially programmed. The claims do not recite physical or virtual links to physical and tangible and not abstract objects.

The recited computing structure in all of the claims in the patents in *CLS Bank* are general purpose computers. As Judge Lourie explained, none of the recited limitations adds anything of substance to the claim. The recited computing structure in the claims in *CLS Bank* are the equivalent of extra-solution activities in a method claim. The recited computing structure on the patents in *CLS Bank* are insignificant limitations.

V. Each claim in *CLS Bank*, taken as a whole and excluding the recited computing structures which are extra-solution activity, are not tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea). Rather, the claims preempt the principle of reducing settlement risk by facilitating a trade through third party intermediation itself.

The second challenge for the lower courts has been determining when an abstract idea is limited to a particular application so as to not preempt the fundamental principle.

On one end of the preemption/non-preemption spectrum lies *Benson*. In *Benson*, the Supreme Court

considered claims to computer-implemented methods “for converting binary-coded decimal (BCD) numerals into pure binary numerals.” 409 U.S. at 64. The claims each recited a series of data manipulation steps for effecting the indicated numerical conversion and “purported to cover any use of the claimed method in a general-purpose digital computer of any type.” *Ibid.*

The Court identified the abstract idea at issue as the formula for performing BCD to pure binary conversion. *Id.* at 65. The Court found the claims were “so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion” and would thus reach every application of the basic conversion algorithm. *Id.* at 68-69. Accordingly, the claims were held ineligible for patenting under § 101.

The Court in *Bilski* also found claims on a well known hedging strategy to reach every application of the basic hedging strategy. In finding the commodity claims in *Bilski* to be non-statutory subject matter, the *Bilski* Court explained that:

“Petitioners’ remaining claims are broad examples of how hedging can be used in commodities and energy markets. *Flook* established that limiting an abstract idea to one field of use or adding token post solution components did not make the concept patentable. That is exactly what the remaining claims in petitioners’ application do.” *Bilski*, *supra*, at 3231.

On the other end of the preemption/non-preemption spectrum lies *Diehr*. The claims in *Diehr*, however, are not limited to the isolated step of “programming a digital computer,” the Court found; rather, they describe a process of curing rubber beginning with the loading of the mold and ending with the opening of the press and the production of a synthetic rubber product that has been perfectly cured – a result heretofore unknown in the art. *Id.* at footnote 15. As the *Diehr* Court explained, “[w]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of 35 U.S.C. §101.” *Id.* at 192. Because the Court did not view respondents’ claims as an attempt to patent a mathematical formula, but rather to be drawn to an industrial process for the molding of rubber products, the *Diehr* Court affirmed the judgment of the Court of Customs and Patent Appeals. *Id.* at 192, 193.

In between the two ends of the preemption/non-preemption spectrum lies *Flook*. Unlike the algorithm in *Benson*, the mathematical formula used for monitoring conditions in *Flook* during the catalytic conversion process in the petrochemical and oil-refining industries was limited so that it could still be freely used outside the petrochemical and oil-refining industries. *Id.* at 589, 590. Although the claim would

not “wholly preempt” the mathematical formula, *id.* at 580, the Court held that the claimed process fell under the abstract ideas exception to patentability. The *Flook* Court rejected “[t]he notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process.” *Id.* at 590.

Clearly, no field of use limitation as in *Benson* and *Bilski* amounts to preemption. Similarly, limitations as in *Flook* that are so abstract and sweeping as to cover both known and unknown uses of the algorithm in a particular-broad application may also amount to preemption. In either case, the claims contain no limitations that would bind the abstract idea or algorithm to a particular use or application such that the claim effectively tries to encompass the abstract idea itself (*i.e.*, there is preemption), and the claim is not patent-eligible. However, if one or more recitations that limit the particular application as in *Diehr* to a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (*e.g.*, transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of 35 U.S.C. § 101. *Id.* at 192. In other words, claims that recite a particular/specific application of an abstract idea may well warrant patent protection.

The claims in the patents in *CLS Bank* preempt the principle of reducing settlement risk by facilitating a trade through third party intermediation. As

Judge Lourie explained, “[t]he concept of reducing settlement risk by facilitating a trade through third party intermediation is an abstract idea because it is a “disembodied” concept. *Id.* at 1286. Each claim in *CLS Bank*, taken as a whole and excluding the recited computing structures which are extra-solution activity, are not tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea). Rather, the claims preempt the principle of reducing settlement risk by facilitating a trade through third party intermediation itself. *Mayo, supra*, at 1294; *Bilski, supra*, at 3231; *Benson, supra*, at 72; *Flook, supra*, at 593, 594; *Diehr, supra*, at 187.

VI. While the two-step approach of determining preemption and insignificant extra-solution activity is elegant, a simpler one-step test to determine whether a computer-implemented invention is a patent-ineligible “abstract idea” is whether steps that are central to the claim (*i.e.*, not token extra-solution activity) have a “physical” or “virtual” link to a specific real or tangible object.

Benson, Flook, Diehr, and *Bilski* stand for the proposition that a process claim taken as a whole and excluding extra-solution activity must be tailored narrowly enough to encompass only a particular application of a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea)

rather than to preempt the principle itself. *Mayo*, *supra*, at 1294; *Bilski*, *supra*, at 3218; *Benson*, *supra*, at 65; *Flook*, *supra*, at 594; and *Diehr*, *supra*, at 175. The 35 U.S.C. § 101 challenge post-*Bilski* thus is to define the boundary line of an invention involving an abstract idea, law of nature, or natural phenomenon beyond which the invention preempts one of these categories and is therefore unpatentable subject matter, and within which it is patentable.

While it is expected that there is no bright line rule that will work in every case, for guidance on where to define this boundary line, the *Bilski* Court pointed to the trilogy of *Benson-Flook-Diehr* as precedent. *Bilski*, *supra*, at 3231.

From the *Benson-Flook-Diehr* spectrum of inventions involving a fundamental principle may be gleaned the guidance of the court on determining when an abstract idea in a computer implemented business method patent is limited to a particular application so as to not preempt the fundamental principle – the first of the two challenges faced by lower courts post-*Bilski*. From the *Benson-Flook-Diehr* spectrum of inventions may further be gleaned the guidance of the court on determining when does a recited limitation such as computing structure amount to insignificant extra-solution activity – the second of the two challenges faced by lower courts post-*Bilski*.

While addressing the foregoing challenges in a two-step process as guided by the Court provides an

elegant way to determining the patent eligibility of computer implemented business method patents, this approach still requires two steps in making that determination – namely determining whether a recited limitation is meaningful and determining the preemption question. If each step of the two-step approach is rigorously applied in a systematic, objective manner, the foregoing approach may lead to the evolution of uniform jurisprudence. On the other hand, the determination of whether a recited limitation is meaningful and determining the preemption question may each lend itself to some subjectivity depending on the trier of law. When the two determinations are taken together, such subjective variations may further increase the likelihood of subjectivity in § 101 jurisprudence.

There is a threshold for subject matter patentability that may also be gleaned from the *Benson-Flook-Diehr* spectrum of inventions involving a fundamental principle, which may lend itself to a one-step approach in determining the patent eligibility of computer implemented business methods or, for that matter, software patents. That threshold is the existence of a “link” of the invention to a specific physical or tangible object. The invention in *Diehr* was held patentable because it connected to (more specifically, the data or electrical signals generated by the software *manipulated*) the physical and tangible objects of a “mold” and a “press” through the steps of “loading of the mold” and “opening of the press.”

Patentability in *Flook* failed since the claims were without any such link.

More specifically, the *Diehr* Court stated that “[w]e were careful to note in *Flook* that the patent application did not purport to explain how the variables used in the formula were to be selected, nor did the application contain any disclosure relating to chemical processes at work or the means of setting off an alarm or adjusting the alarm limit.” *Diehr, supra*, at footnote 14. All the application provided was a “formula for computing an updated alarm limit.” *Ibid.* One interpretation of these comments on *Flook* in *Diehr* is that there was no “link” of the data to a physical or tangible object. “Diehr’s claims, however, are not limited to the isolated step of programming a digital computer,” the Court explained. *Id.* at footnote 15. Rather, “they describe a process of curing rubber beginning with the loading of the mold and ending with the opening of the press and the production of a synthetic rubber product that has been perfectly cured – a result heretofore unknown in the art.” *Ibid.* In other words, there was a “link” of the data to a specific physical or tangible object (*i.e.*, a “manipulation” by the data of a physical or tangible object).

Hence, in *Diehr*, software that *manipulates* a specific physical or tangible object (*i.e.*, “physically links” to a physical or tangible object) is patentable subject matter (*e.g.*, the software manipulated data in *Diehr* signaled a device when to open the molding press and remove the cured rubber product). The same should be considered true for “virtual links,”

where the data that are transformed or manipulated, while not physical objects themselves, *are representations of a specific physical or tangible object*, as in the Fifth claim of Morse (*e.g.*, Morse code dot and dash signs representing the changing state of a physical object, such as on-off tones, lights, or clicks, in telegraphic use were held patentable). *O'Reilly v. Morse*, 56 U.S. 62 (1853).

The *Morse* case is one of the bedrock cases in U.S. patent jurisprudence. In his original 1837 petition to the Commissioner of Patents, Morse described his fifth claim as: “[a] dictionary or vocabulary of words, numbered and adapted to this system of telegraph.” *Id.* at 76. In the 1848 reissue of the patent, Morse’s fifth claim recited:

“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.” *Id.* at 86.

In examining Morse’s fifth claim, the Supreme Court held: “We perceive no well-founded objection . . . to his right to a patent for the first seven inventions set forth in the specification of his claims.” *Id.* at 112. In other words, the fifth claim recited patentable subject matter.

The Morse system claim was patentable arguably because the recited system *represented* a physical object (*e.g.*, Morse code dot and dash signs representing the change in state of a physical object

(e.g., switch)) or a tangible object (such as on-off tones, lights, or clicks, in telegraphic use) despite arguably recited without any physical link to (*i.e.*, any physical manipulation of) any physical or tangible objects. Hence, an invention that manipulates data *representing* a specific physical or tangible object (*i.e.*, that contains a “virtual link”) should also be subject matter patentable under the Supreme Court’s *Morse* precedent.

Also instructive on “virtual links,” that is, the idea that *manipulation of data representing a physical or tangible object* is sufficient to provide patentable subject matter, is *In re Abele*, 684 F.2d 902 (CCPA 1982). In *Abele* the Court of Customs and Patent Appeals held unpatentable a broad independent claim reciting a process of graphically displaying variances of data from average values. *Id.* at 908. That claim did not specify any particular type or nature of data; nor did it specify how or from where the data was obtained or what the data represented. One dependent claim, however, was drawn to patent-eligible subject matter where it recited that “said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.” *Id.* at 908-909. As was explained by the Federal Circuit in *In re Bilski*, 2008 U.S. App. LEXIS 22479; 545 F.3d 943; 88 U.S.P.Q.2d 1385 (BNA) (Fed. Cir. 2008) (en banc), the data in *Abele*: “clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues. Thus, the transformation of that raw data into a particular

visual depiction of a physical object on a display was sufficient to render that more narrowly claimed process patent-eligible.” *Id.* at *50.

The term “physical” or “tangible” covers all things that exist in the real world rather than things that are imaginary or that exist only in the mind. Anything existing in the real world includes both those things that can be directly perceived, touched, or manipulated, and physical phenomena, such as electrical signals, electromagnetic radiation, or chemical properties which, while existing in the real world, may only be perceived or manipulated indirectly, such as with the assistance of a machine or apparatus, or by a chemical reaction.

The clue to the patentability of software may thus lie in the *manipulation* by the data (*e.g.*, the electrical data or signals generated by the software instructions) of physical and tangible objects whether physically (*i.e.*, by a “physical link”) as in *Diehr* (*i.e.*, the electrical data or signals generated by the software instructions are manipulating in this case *physical* [not tangible] objects of a “mold” and a “press” through the steps of “loading of the mold” and “opening of the press”) or *virtually* (*i.e.*, by a “virtual link”), that is to say, by electrical signals or data generated by the software instructions *representing physical or tangible objects* as in *Morse* (*e.g.*, opening or closing of a telegraphic switch).

The “physical link” and “virtual link” patent claim approach may thus be helpful in defining that

boundary line beyond which a claim preempts a fundamental principle (*i.e.*, a law of nature, natural phenomena, or an abstract idea) and within which the claim does not under the Supreme Court's *Diehr* and *Morse* precedent.

VII. Recited steps in the method claims of the U.S. 5,970,479 (“the ’479 Patent”) and U.S. 6,912,510 (“the ’510 Patent”); and the system and product (media) claims of U.S. 7,149,720 (“the ’720 Patent”); and U.S. 7,725,375 (“the ’375 Patent”) have neither a “physical” link nor a “virtual” link and so the ’479, ’510, ’720, and ’375 Patents are not subject matter patentable under 35 U.S.C. § 101.

The patents are directed to the two-part financial transaction, well known in the art, of first agreeing to a contract at one time, and then exchanging items of value, in this case making payment on the contract (*i.e.*, settlement of the contract) at another time. The patents in *CLS Bank* describe a system for minimizing the risk that, at the time of settlement of the contract, one bank will no longer have enough money to satisfy its payment obligation to the other under the contract. The asserted patent claims are method claims 33 and 34 of U.S. 5,970,479 (“the ’479 Patent”); all method claims of U.S. 6,912,510 (“the ’510 Patent”); and system and product (media) claims of U.S. 7,149,720 (“the ’720 Patent”) and U.S. 7,725,375 (“the ’375 Patent”).

As explained above, the link of data or electrical signals generated by software instructions to something “real” (either by “physical” manipulation of a physical or tangible object, or by “virtual” manipulation of data *representing* a physical or tangible object) provides a useful clue to the patent eligibility of inventions involving processes. As explained in the following, in neither of the asserted claims does the data of the software link to something “real.” In neither of the asserted claims does the software *manipulate* a specific physical or tangible object. The asserted claims are without any “physical” or “virtual” link and hence are unpatentable subject matter under this Court’s *Diehr* and *Morse* precedent.

Method claim 33 of the ’479 Patent is illustrative of ’479 and ’510 Patents:

33. A method of exchanging obligations as between parties, each party holding a credit record and a debit record with an exchange institution, the credit records and debit records for exchange of predetermined obligations, the method comprising the steps of:

(a) creating a shadow credit record and a shadow debit record for each stakeholder party to be held independently by a supervisory institution from the exchange institutions;

(b) obtaining from each exchange institution a start-of-day balance for each shadow credit record and shadow debit record;

(c) for *every transaction resulting in an exchange obligation*, the supervisory institution adjusting each respective party's shadow credit record or shadow debit record, allowing only these transactions that do not result in the value of the shadow debit record being less than the value of the shadow credit record at any time, each said adjustment taking place in chronological order; and

(d) at the end-of-day, the supervisory institution instructing one of the exchange institutions to exchange credits or debits to the credit record and debit record of the respective parties in accordance with the adjustments of the said permitted transactions, *the credits and debits being irrevocable, time invariant obligations* placed on the exchange institutions. (Emphases added.)

The operative nouns in the recited process are shown *italicized above*. They include terms like “*a shadow credit record and a shadow debit record*,” “*start-of-day balance*,” “*transaction*,” and “*obligations*”; not one term being a physical or tangible thing. The italicized operative nouns are no different than the “commodity transactions” in *Bilski*, which the Supreme Court held to be abstract. *Bilski, supra*, at 3231.

The operative gerunds in the recited process are shown underlined above. They include terms like “adjusting.” They operate on abstract things like “shadow credit” (*i.e.*, operative nouns) and so provide no “physical” or “virtual” link to anything real or tangible. Hence, they fail 35 U.S.C. § 101 for the same

reason that the “hedging” of an abstract commodity transaction in *Bilski* failed 35 U.S.C. § 101.

Hence, in neither of the asserted claims of the '479 and '510 Patents can it be said that the data or electrical signals of the software instructions link to something “real.” In neither of the asserted claims does the software *manipulate* a specific physical or tangible object. The asserted claims are without any “physical” or “virtual” link and hence are unpatentable subject matter under the Supreme Court’s *Diehr* and *Morse* precedent.

Illustrative of the system and product (media) claims of the '720 Patent is system Claim 1 which recites:

1. **A data processing system** to enable the exchange of an obligation between parties, the system comprising:

a data storage unit having stored therein information about a shadow credit record and shadow debit record for a party, independent from a credit record and debit record maintained by an exchange institution; and

a computer, coupled to said data storage unit, that is configured to (a) receive a transaction; (b) electronically adjust said shadow credit record and/or said shadow debit record in order to effect an exchange obligation arising from said transaction, allowing only those transactions that do not result in a value of said shadow debit record being less than a value of said shadow credit record;

and (c) generate an instruction to said exchange institution at the end of a period of time to adjust said credit record and/or said debit record in accordance with the adjustment of said shadow credit record and/or said shadow debit record, wherein *said instruction being an irrevocable, time invariant obligation* placed on said exchange institution. (Emphases added.)

Claim 1 of the '720 Patent recites structure which has been emphasized above by **bold lettering**. The structure consists of the “**a data processing system**” recited in the preamble and the terms “**a data storage unit having stored therein**” and “**a computer . . . configured to,**” both recited in the body of the claim.

Neither recited structure *does anything other than* what conventional, systems, data storage units, and computers do – namely, provide a working order of things (*i.e.*, system), data storage (*i.e.*, data storage unit), and computing (*i.e.*, a computer). Hence, the subject matter patentability of Claim 1 of the '720 Patent *should be determined by the functionality implemented by this structure* which are defined by the operative noun and operative gerund terms and whether or not they preempt an abstract principle.

The operative nouns in the recited process are shown *italicized* above. They include terms like “*information about a shadow credit record and shadow debit record for a party,*” “*obligation,*” and “*instruction*”; not one term being a physical or tangible thing.

The italicized operative nouns are no different than the “commodity transaction” in *Bilski*, which the Supreme Court held to be abstract. *Bilski, supra*, at 3231.

The operative gerunds in the recited process are shown underlined above. They include terms like “the exchange of,” “having stored therein,” “configured to,” “electronically adjust.” They operate on abstract things like an “obligation” (*i.e.*, operative nouns) and so provide no “physical” or “virtual” link to anything real or tangible. Hence, they fail 35 U.S.C. § 101 for the same reason that the “hedging” of an abstract commodity transaction in *Bilski* failed 35 U.S.C. § 101.

Hence, in neither of the claims of the ’720 Patent can it be said that the data or signals from the software instructions link to something “real.” In neither of the asserted claims does the software *manipulate* a specific physical or tangible object. The asserted claims are without any “physical” or “virtual” link and hence are unpatentable subject matter under the Supreme Court’s *Diehr* and *Morse* precedent.

Illustrative of the ’375 Patent is claim 39 which recites:

39. A **computer program product** comprising

a computer readable storage medium
having computer readable program code embodied in the medium for use by a party to exchange an obligation between a first party

and a second party, the computer program product comprising:

program code for causing a computer to send a transaction from said first party relating to an exchange obligation arising from a currency exchange transaction between said first party and said second party; and

program code for causing a computer to allow viewing of information relating to processing, by a supervisory institution, of said exchange obligation, wherein said processing includes

- (1) maintaining information about a first account for the first party, independent from a second account maintained by a first exchange institution, and information about a third account for the second party, independent from a fourth account maintained by a second exchange institution;*
- (2) electronically adjusting said first account and said third account, in order to effect an exchange obligation arising from said transaction between said first party and said second party, after ensuring that said first party and/or said second party have adequate value in said first account and/or said third account, respectively; and*
- (3) generating an instruction to said first exchange institution and/or said second exchange institution to adjust said second account and/or said fourth account in accordance with the adjustment of said first*

account and/or said third account, wherein said instruction being an irrevocable, time invariant obligation placed on said first exchange institution and/or said second exchange institution. (Emphases added.)

Like Claim 1 of the '720 Patent, the '375 Patent recites structure which has been emphasized above **by bold lettering**. The structure is **“a computer program product”; “a computer readable storage medium”; “embodied in the medium”; “a computer to send a transaction”; and “a computer to allow viewing of information.”**

The recited structure *does nothing other than* what conventional computer product or readable storage medium, flashed memory, or a computer to send or to allow viewing of information do – namely, provide a computer product, readable storage medium, a setting of switches in silicon (*e.g.*, embodied in), or a computer that enables sending or viewing of information. So subject matter patentability of Claim 1 of the '375 Patent *should be determined by the functionality implemented by this structure* which are defined by the operative noun and operative gerund terms and whether or not they preempt an abstract principle.

The operative nouns in the recited process are shown *italicized above*. They include terms like *“computer readable program code”* (*i.e.*, instructions); *“obligation”*; *“currency exchange transaction”*; *“first, second, third, fourth accounts”*; *“information”*; and *“adequate value.”* Not one of these operative nouns is

a physical or tangible thing. The italicized operative terms are no different than the “commodity contract” in *Bilski*, which the Supreme Court held to be abstract. *Bilski, supra*, at 3231.

The operative gerunds in the recited process are shown underlined above. They include terms like “to exchange”; “for causing”; “maintaining”; “electronically adjusting”; “generating.” They operate on abstract things like “account information” (*i.e.*, operative nouns) and so provide no “physical” or “virtual” link to anything real or tangible. Hence, they fail 35 U.S.C. § 101 for the same reason that the “hedging” of an abstract commodity transaction in *Bilski* failed 35 U.S.C. § 101.

Hence, in neither of the claims of the '720 Patent can it be said that the data or signals from the software instructions links to something “real.” In neither of the asserted claims does the software *manipulate* a specific physical or tangible object. The asserted claims are without any “physical” or “virtual” link and hence are unpatentable subject matter under the Supreme Court’s *Diehr* and *Morse* precedent.



CONCLUSION

The forgoing reasoning should be adopted in affirming the judgment of the Federal Circuit.

Respectfully submitted,

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