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Re: Comments on Preliminary Examination Instructions in view of the Supreme Court Decision in *Alice Corp. v. CLS Bank*.¹

The USPTO's Preliminary Examination Instructions ("Guidance") in view of *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) do not correctly interpret the Supreme Court's decision, and do not provide specific guidance to the 7,000 examiners who will have to implement them on a daily basis. The Court's decision was not written as a manual for how examiners are to evaluate patent applications, and so simply quoting and paraphrasing the decision (along with scrupulous footnoting) is not sufficient to provide a cohesive, workable framework for the examination of patent applications, particularly for computer implemented inventions. The core problem remains that examiners will be left to their own subjective evaluation and opinion of the patent eligibility of the claims before them. Already, the patent community is observing very different approaches from different examiners. This lack of uniformity leads to increased costs and delays in the examination of patents, as well as increased uncertainty by innovators as to the eligibility of their inventions in technologies that have been traditionally considered patent eligible.

These comments will provide a framework for interpreting the Court's decision in a way that is consistent with the overall approach to § 101 that the Court has adopted.

Alice and the *Mayo* Two Step Test of Patent Eligibility

The core holding of *Alice* is to establish a uniform two step test for patent eligibility that applies to all of the judicial exceptions to § 101:

¹ The views set forth herein are my own, and do not reflect the opinions of Fenwick & West LLP, or any of its clients.

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts.

If so, we then ask, "[w]hat else is there in the claims before us?" To answer that question, we consider the elements of each claim both individually and "as an ordered combination" to determine whether the additional elements "transform the nature of the claim" into a patent-eligible application.

We have described step two of this analysis as a search for an " 'inventive concept' "--i.e., an element or combination of elements that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself. *Alice*, 132 S.Ct. at 2355 (internal citations to *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289, omitted).

The Guidance accurately captures this framework:

- First determine whether the claim is directed to one of the four statutory categories of invention, i.e., process, machine, manufacture, or composition of matter. If the claim does not fall within one of the categories, reject the claim as being directed to non-statutory subject matter.
- Second, if the claim does fall within one of the statutory categories, determine whether the claim is directed to a judicial exception (i.e., law of nature, natural phenomenon, and abstract idea) using Part 1 of the two-part analysis detailed below.
- Third, determine whether the claim is a patent-eligible application of an exception using Part 2.

First and foremost, the two steps of *Mayo*, what the Guidance calls Part 1 and Part 2, are *real* tests. This means there are three possible outcomes under *Mayo* for claims directed to one of the four statutory categories:

1. Claim does not recite a patent ineligible concept. Outcome: no rejection under § 101.
2. Claim recites a patent ineligible concept. Proceed to *Mayo* step two.
 - a. Claim recites an "inventive concept". Outcome: no rejection under § 101.
 - b. Claim does not recite an "inventive concept." Outcome: Rejection under § 101.

In other words, not every claim recites a patent ineligible concept, and not every claim that does recite a patent ineligible concept automatically fails to recite an inventive concept. Examiners must be careful to treat each step of the test separately.

What The Supreme Court Means by *Abstract Ideas*

For the first step of the *Mayo* test, the Guidance states "determine whether the claim is directed to an abstract idea," and then provides an accurate, almost verbatim paraphrase of the Court's text in *Alice*. The Guidance goes to provide without any elaboration, four examples of *abstract ideas* mentioned in *Alice*: fundamental economic practices, methods of organizing

human activities, “an idea of itself” (*sic*), and, mathematical relationships/formulas. The Guidance concludes this part with the simplis(tic) instruction “If an abstract idea is present in the claim, proceed to Part 2 below.” The Guidance does not explain what the Court actually means by “abstract idea.” While the Guidance does paraphrase the Court saying “an invention is not rendered ineligible simply because it involves an abstract concept,” there is no overarching explanation that would allow examiners to distinguish between permissible and impermissible abstract ideas, let alone the other judicial exceptions.

First, it is clear that the Court is not using the phrase *abstract ideas* in its normal sense, as one would in general discussion. A typical dictionary definition defines *abstract* as an adjective meaning “expressing a property, quality, attribute or relation viewed apart from the other characteristics inhering in or constitution an object,” Webster’s Third New International Dictionary (1986); or “relating to or involving general ideas or qualities rather than specific people, objects, or actions,” <http://www.merriam-webster.com/dictionary/abstract>. This is clearly not how the Court is using the term abstract idea. Rather, the Court has announced that *abstract ideas* is special legal term—like *willful infringement* or *written description*—and has nothing to do with the general linguistic, philosophical or common uses of the phrase:

In any event, we need not labor to delimit the precise contours of the “*abstract ideas*” category in this case. It is enough to recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here. Both are squarely within the realm of abstract ideas as we have used that term. *Alice*, 134 S. Ct. at 2357, emphases added).

Putting *abstract ideas* in quotes, and then stating “as we have used that term” indicates that the Court is using this term to mean something specific and distinctive from its ordinary dictionary meaning. For the Court, the *abstract ideas* of concern are necessarily “building blocks” and “fundamental” to culture or the “modern economy,” are “the basic tools of scientific and technological work.”

“We have “repeatedly emphasized this . . . concern that patent law not inhibit further discovery by improperly tying up the future use of “ these building blocks of human ingenuity.” *Id.*, at 2355.

“Accordingly, in applying the §101 exception, we must distinguish between patents that claim the “ 'buildin[g] block[s]’ ” of human ingenuity and those that integrate the building blocks into something more.” *Id.*

“The Court [in *Bilski*] explained that “ '[h]edging is a fundamental economic practice long prevalent in our system of commerce.” *Id.*, at 2356.

“Like the risk hedging in *Bilski*, the concept of intermediated settlement is “ 'a fundamental economic practice long prevalent in our system of commerce.’ *Id.*

The emphasis of the Court is on concepts that are *fundamental and essential* to an area of science or commerce. Let us call these Abstract Ideas with a capital *A* and a capital *I*. The notation here is consistent with the underlying emphasis of the Court on Justice Breyer called “big ideas,”

basic to a given domain in science or commerce. “Business methods are similarly often closer to “big ideas,” as they are the basic tools of commercial work.” *Bilski*, 130 S. Ct. 3218, 3255 (Stevens, J. concurring). For example, in *Bilski* the claim was plainly on the “fundamental economic practice” of hedging, something “long prevalent in our system of commerce and taught in any introductory finance class”—that is something fundamental to cultural domain of finance. In *Benson*, the Court believed that the claims covered the basic algorithm for converting binary coded decimal to binary, something that appeared fundamental to the domain of computer science and mathematics. Similarly, in *Mayo*, the Court believed that Prometheus’s claim covered a so-called “law of nature,” something fundamental to the domain of medicine and biology. In *Alice*, the Court stated that “on their face” the claims are “drawn to concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk,” which is also a “fundamental economic practice,” again core to cultural domain of contracts. *Alice*, 134 S. Ct. at 2356. The Court then links the “fundamental” notion to the “building block” notion: “The use of a third-party intermediary (or ‘clearing house’) is also a building block of the modern economy.” *Id.* And as if the more narrow use of *abstract ideas* as being “fundamental practices” is not plain enough, the Court repeats it just one page later to defeat Alice’s argument that abstract ideas must be “pre-existing, fundamental truths” that exist independently of human action: “Although hedging is a longstanding commercial practice, it is a method of organizing human activity, not a ‘truth’ about the natural world . . . the Court [in *Bilski*] grounded its conclusion that all of the claims at issue were abstract ideas in the understanding that risk hedging was a ‘fundamental economic practice.’” *Id.* at 2357 (internal citations omitted).

These kinds of Abstract Ideas are not the ordinary types of abstract ideas that are essential to every invention—something that the Court explicitly discusses:

At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. *Mayo*, 566 U. S., at ___ (slip op., at 2). At some level, “all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Id.*, at ___ (slip op., at 2). *Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. Id.*, at 2354 (emphasis added).

Thus, the Court is not talking about merely *broad* patent claims that “involve” an abstract concept, since every claim is an instance of some class of concept. Rather, the focus is on claims that on “on their face” recite fundamental concepts that are critical to further innovation (“human ingenuity”) in a particular known domain. This interpretation follows from the Court’s primary rationale for Section 101, preemption:

We have described the concern that drives this exclusionary principle as one of pre-emption. See, e.g., *Bilski*, *supra*, at 611-612 (upholding the patent “would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea”). Laws of nature, natural phenomena, and abstract ideas are “ ‘the basic tools of scientific and technological work.’ ” *Myriad*, *supra*, at ___.” *Id.*, at 2354.

Patents on “building blocks of human ingenuity” “would risk disproportionately tying up the use of the underlying” ideas, and are therefore ineligible for patent protection.” *Id.* (internal quotations and citations omitted).

The Court realizes that every patent preempts and blocks in some degree, because that is what patent claims do. The disproportionate risk of preemption *only* comes from patents that claim Abstract Ideas in the sense of fundamental building blocks, not just run-of-the-mill abstract ideas that underlie all inventions. It is only when the claim directly recites (*Mayo* step 1) and preempts (*Mayo* step 2) this kind of fundamental, building block Abstract Idea that the claim is ineligible. The ordinary type of preemption that comes from patent claims is an accepted part of the patent system—that is the whole point of claims, to define the metes and bounds of the invention so that others are *preempted* from making, using, and selling what’s inside the bounds.

Since every claim preempts, and since every claim rests up some abstract idea, the Abstract Idea exception would “swallow all of patent law” if it were interpreted too simplistically. *Alice*, 134 S. Ct. at 2354. Indeed, an overly formulistic approach risks precluding inventors from obtaining “pioneering patents” that set forth the basic technology in new fields, a result that the Court certainly did not intend. Limiting Abstract Ideas to fundamental building blocks of known areas of science and commerce provides the start of an objective way of evaluating which claims are potentially ineligible, and reduces the risk of the unintended consequences.

A. Applying The Correct Interpretation of Abstract Ideas under the Guidelines

How then should an examiner know whether a claim recites this kind of *fundamental building block*? It is not enough for the examiner to simply make the assertion based on subjective opinion. For example, here is an excerpt from a recently issued office action:

Claims 17-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In the instant invention, the claims are directed towards the concept of Fraud Determination. Determining fraud in reviews is considered a fundamental internet business practice and is simply a series of mathematical formulations, therefore the claims are drawn to an abstract idea.

This rejection illustrates the problem: the examiner asserts that “Determining fraud in reviews is considered a fundamental internet business practice” Considered *by whom*? The examiner? On what facts or evidence is the examiner making this assertion? On what basis can it be said that a process inherently restricted to a computer system (the Internet) that has been used for commerce for just over than 20 years is now “fundamental”?² Further, note that the examiner’s contention is not that “determining fraud” generally is fundamental (which is certainly true), but rather even determining fraud “in reviews.” That’s a bit of stretch.

The correct answer to the question of “considered by whom” is POSITA, the person of ordinary skill in the art. This is the only objective standard used in the patent law, and is the recognized standard for evaluating enablement and written description support. The POSITA recognizes that the presence of abstraction, *i.e.*, a generalization, does not make a claim to an abstract intellectual idea, since all claims must use generalizations to define an invention that is

² Commercial use of the Internet was originally prohibited. It was not until April 30, 1995 that the final restrictions on commercial usage were removed.

not limited to the specific embodiments: “[T]he Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc). Further, this POSITA perspective is also technology-independent—it does not discriminate for or against specific technologies, since the relevant POSITA depends on the claimed subject matter, not an arbitrary fixed point of view.

For the examiner to reject a claim for anticipation or obviousness, she must have a reference: a mere opinion that something is anticipated or obvious is insufficient. More precisely, to take Official Notice (which can only be done for anticipation) the examiner must meet specific rules set forth in MPEP 2144.03. “Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are *capable of instant and unquestionable demonstration as being well-known.*” *Id.* (emphasis added). This is because the burden is always on the examiner to make a *prima facie* case for the rejection. Given that the proper focus of the Abstract Ideas exception is on fundamental building blocks, to support such a rejection the examiner should have to establish, with at least a reference or the equivalent of Office Notice, that the alleged abstract idea is fundamental in this sense. Indeed, this would faithfully mirror how the Court treated Alice’s claims: the Court cited two references to establish that Alice’s claims were on fundamental abstract ideas that are building blocks of commerce:

On their face, the claims before us are drawn to the concept of intermediated settlement, i.e., the use of a third party to mitigate settlement risk. Like the risk hedging in *Bilski*, the concept of intermediated settlement is " 'a fundamental economic practice long prevalent in our system of commerce.' " *Ibid.*; see, e.g., *Emery, Speculation on the Stock and Produce Exchanges of the United States, in 7 Studies in History, Economics and Public Law 283, 346-356 (1896)* (discussing the use of a "clearing-house" as an intermediary to reduce settlement risk). The use of a third-party intermediary (or "clearing house") is also a building block of the modern economy. See, e.g., *Yadav, The Problematic Case of Clearinghouses in Complex Markets, 101 Geo. L. J. 387, 406-412 (2013)*; *J. Hull, Risk Management and Financial Institutions 103-104 (3d ed. 2012)*. Thus, intermediated settlement, like hedging, is an *abstract idea* beyond the scope of §101. *Alice*, at 2356 (emphasis added)

It was only with after citation of such primary references that the Court concludes that intermediated settlement is a fundamental Abstract Idea. If the Court felt it was necessary to ground its holding in two references, than certainly examiners should be required to ground their opinion as well in objective evidence.

This leads to the further question of what a reference would have to disclose in order to satisfy this requirement. That in part depends on the age and nature of the reference. A reference like *Emery* above, being over 100 years old, and providing a comprehensive discussion of ideas still practiced today would be sufficient in most cases to establish an idea as fundamental. A more contemporary reference would have to disclose that the alleged abstract idea is commonly used in the field or industry; for example a college textbook describing the idea, or an industry reference publication, or a technical or journal article providing a survey of

basic industry practices. This approach will prevent examiners from claiming that the abstract idea underlying just about any type of claim is fundamental. Consider the following recent rejection:

“The claims are directed toward the abstract idea of viewing formula dependencies in a spreadsheet.”

This idea is obviously not a fundamental building block of science or commerce, or even computer science. You will not find it discussed in textbooks in computer science or engineering. First, whatever the invention is, it is specific to spreadsheets. While spreadsheets are common, that does not make them fundamental building blocks of human ingenuity. An invention that is specific to spreadsheets, or word processors, or other particular tools (whether computer implemented or not) should never qualify as fundamental. This rejection demonstrates the further the risk of conflating Section 101 with Section 102; here, the examiner’s underlying concern is more likely that the claims are anticipated, but if that is the case, she must cite a reference.

Again, an important aspect of the Court’s approach to implementing the Abstract Idea is that it is meant to avoid concluding that every claim is an Abstract Idea. Specifically, the claim must be “directed” to the Abstract Idea “on its face”—it is not enough that the claim “involves” it. The Court was very precise in its phrasing:

We must first determine whether the claims at issue are directed to a patent-ineligible concept. *Alice*, 134 S. Ct. at 2355.

It follows from our prior cases, and *Bilski* in particular, that the claims at issue here are directed to an abstract idea. *Id.* at 2356.

On their face, the claims before us are drawn to the concept of intermediated settlement, i.e., the use of a third party to mitigate settlement risk. *Id.*

Because the claims at issue are directed to the abstract idea of intermediated settlement, we turn to the second step in *Mayo*'s framework. *Id.* at 2357.

Being “directed” an Abstract Idea “on its face” is very different and much more restrictive than merely “involving” an Abstract Idea, because again, all claims “embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Id.* at 2356. In *Bilski*, *Flook*, *Mayo*, *Myriad*, and *Alice*, the claims were directed to and on their face recited what the Court considered to be an impermissible concept.

This requirement is further necessary because step 1 of *Mayo* is an *actual test*. As noted above, that means that some claims will be directed to an Abstract Idea and *some will not*. Otherwise, if *every* claim (or even every computer-implemented claim) satisfies this test, then Part 1 is not a *test* at all, it is merely a step of “identification” and the only real test is Step 2. This approach is clearly not what the Court intended, again based on the Court’s emphasis in *Mayo* and *Alice* on not having the exception swallow the patent law.

B. Example Categories of Potential Abstract Ideas

A few comments pertaining to the specific examples of categories of potential Abstract Ideas in the Guidance are in order. The Guidance lists four examples of abstract ideas:

- fundamental economic practices
- methods of organizing human activities
- an idea of itself (sic), and,
- mathematical relationships/formulas.

Each of these examples has supporting footnotes to the *Alice* decision and other Supreme Court cases. But it should be understood that these categories are for *potential* Abstract Ideas. That is, something in one of these categories may or may not be an Abstract Idea. Taken superficially and out of context, some of these examples sweep too broadly, and will be too easily misused by examiners.

1. Fundamental economic practices

Economic practices are an area of primary concern for the Court, but not every economic practice is a *fundamental* building block. The problem here will be that it is all too easy to classify a *specifically* claimed way of performing transactions, advertising, accounting, etc. as “fundamental” simply because they fall into the class itself. In *Bilski*, the Court specifically rejected the argument that business methods were *per se* not patent eligible. In *Alice*, the Court did not mention business methods at all, which obviously prompted the concurring opinion to set forth its view that “any 'claim that merely describes a method of doing business does not qualify as a 'process' under §101.'” This should serve as reminder that examiners should be careful to avoid assuming that any and every claim in the business arts is an Abstract Idea. Strictly focusing on what is “on the face” of the claim rather than some underlying field or use case will ensure that examiners do not indiscriminately label every economic practice as fundamental. As noted above, an examiner should present evidence, such as citation to a reference such as finance or banking textbook or the like, to establish that an economic practice is fundamental. If the examiner can merely cite one or two items such as other patents or journal publications that disclose the same idea, that is not sufficient evidence that the practice is fundamental; at best it suggests that the claim is anticipated.

2. Methods of organizing human activities

The Guidance takes the Court’s reference to methods of organizing human activities out of context:

“Although hedging is a longstanding commercial practice, *id.*, at 599, 130 S. Ct. 3218, 177 L. Ed. 2d 792, it is a method of organizing human activity, not a “truth” about the natural world “that has always existed,” *Alice*, 134 S. Ct. at 2356.

The Court used this phrase only to rebut *Alice*’s argument that abstract ideas must be always be “pre-existing” and independent of human activity. The Court gives the claims in *Bilski* as an example of something that is not a fundamental pre-existing truth about world, but is a method of

organizing human activity, and thus obviously is not pre-existing. Bilski's claim was an Abstract Idea because it was a fundamental economic practice, not because it was method of organizing human activity. Thus, the Court is not saying that *all* methods of organizing human activity are abstract ideas. Rather, it is saying that *some* methods that are, such as Bilski's. Concluding from the Court's reference that *all* methods of organizing human activities are Abstract Ideas would be an example of the logical fallacy of faulty generalization. It makes the same mistake as this argument:

All dogs are animals.
All dogs have four legs.
Therefore, all animals have four legs.

Generalizing the "abstractness" attribute of Bilski's *particular member* of the class of organizing human activity to *all members* of that class is a logical error, just as generalizing the attribute of four legs of a dog (member) to all animals (class). For example, a method of organizing humans to prepare ice cream sundaes on chilled slabs of granite is obviously not an Abstract Idea. Thus, that a claim recites a method of organizing activities *does not tell* us anything interesting at all about whether it is Abstract Idea; whether it is or not depends on other factors.

Here too, there is a risk of examiners sweeping in far too many claims into the exception. For example, a very common and long patented field is games, Class 273. Games are a classic example of organizing human activity, and there are thousands of patents on various types of games, from board game, card games, ball games, and so forth, covering not just the physical equipment used in the games, but the rules of the games themselves, that is the rules for organizing the human behavior. The original Monopoly board and game concept was patented in 1935, with claim 1 specifically claiming the core rule that the property rents increase when the player has a "Monopoly" on a group of properties. Similarly, there are numerous other types of methods of organizing human activity that have historically been patent eligible, without any controversy at all, such as methods of fishing (Class 43/4.5), plant husbandry (Class 47), animal husbandry (Class 119), surgery (Class 128), woodworking (Class 114), just to name a few. It would be a perverse outcome from *Alice*, which deals with something as fundamental like intermediate settlement that board games, farming methods, woodworking methods, and bee keeping (Class 449/1) and the like are no longer patent eligible.

3. "An idea of itself"

Frankly, this one is simply meaningless, and provides nothing substantive to examiners, precisely because it has been twice removed from its original context. This phrase is lifted from *Rubber-Tip Pencil Co. v. Howard*, 847 U.S. (20 Wall.) 498 (1874). Immediately following the quoted text is the actual holding of the Court: "The idea of this patentee was a good one, but his device to give it effect, though useful, was not new." Thus, this case is about novelty, not patent eligibility. Similarly the other case cited by the Court, *Le Roy v. Tatum* is also about novelty, and indeed is an excellent example that care that must be taken when citing cases, since the Court there expressly states that it is *not* addressing the patent eligibility of the claims. A complete analysis of *Le Roy* is available at *Patent Eligibility: The Historical Cases*, <http://www.bilskiblog.com/blog/2013/05/the-historical-cases.html>, May 23, 2013.

4. Mathematical relationships/formulas

More than any other area, this is the one place that the Court's admonition to "tread carefully in construing this exclusionary principle lest it swallow all of patent law," must be followed. In *Alice*, the Court expressly stated that "[o]ne of the claims in *Bilski* reduced hedging to a mathematical formula, but the Court did not assign any special significance to that fact, much less the sort of talismanic significance petitioner claims." *Alice*, 134 S. Ct. at 2357 (emphasis added). Equally so, examiner must not assign any special significance to the presence of a mathematical formula either in the disclosure or in the claim. What matters is the underlying concept, not how it is expressed (e.g. "no special significance"), whether in words or mathematical symbols.

Indeed, Justice Stevens—the author of *Flook*—specifically cautioned against sweeping in "algorithms" into "laws of nature": "the inclusion of the ambiguous concept of an "algorithm" within the "law of nature" category of unpatentable subject matter has given rise to the concern that almost any process might be so described and therefore held unpatentable." *Diamond v. Diehr*, 450 U.S. 175, 219 (1981) (Stevens, dissenting). All modern engineering, including civil, mechanical, electrical, chemical, computer, etc. relies on mathematical analysis for design and formulation. This is because mathematics "is unique among languages in its ability to provide precise expression for every thought or concept that can be formulated in its terms." A. Adler, *Mathematics and Creativity*, *The New Yorker*, February 19, 1972, p. 39-45. Using a mathematical equation is simply one, albeit highly precise, way of expressing concepts, which can be either patent eligible or not. The presence of a mathematical equation does not imply or suggest anything by itself about the underlying concept, and should not be relied upon by examiners as an automatic evidence of an ineligible Abstract Idea. The proper understanding of the Court's references to mathematical formulas and algorithms is where mathematics is used to express what *are already* patent ineligible concepts. In other words, it is the underlying idea or concept that matters, and that underlying concept must be evaluated in Part I as to whether it is ineligible, not the form of its expression.

Thus, while mathematics can be used to precisely describe patent ineligible Abstract Ideas (e.g., like $E=mc^2$), it also used to describe mundane things as well, such as fuel-efficient aircraft approach procedures (U.S. Patent No. 8,442,707), compressing video for transmission on cell phones (U.S. Patent No 8,494,051), efficiently allocating farming resources (U.S. Patent No. 6,990,459), or calculating golf handicaps and the difficulty of golf courses (U.S. Patent No. 8,282,455). Many of these mathematical algorithms are "models" that seek to represent the world in a form that can be understood by engineers, or in many cases that can then be manipulated by computers. No one would assert that such algorithms are fundamental building blocks of human ingenuity. These are instead simply examples of *applied* mathematics ("Applied mathematics is a branch of mathematics that concerns itself with mathematical methods that are typically used in science, engineering, business, and industry," http://en.wikipedia.org/wiki/Applied_mathematics) rather than *pure* mathematics ("[P]ure mathematics is mathematics that studies entirely abstract concepts." http://en.wikipedia.org/wiki/Pure_mathematics). At best, examiners should carefully evaluate patent applications that address topics in pure mathematics, because these are more likely to be such building blocks. This approach would recognize the concern the Court expressed in *Benson*, regarding what it understood to be a patent claim covering the basic, and purely mathematical, algorithm for converting binary-coded-decimal to binary: "Here the

"process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus." *Gottschalk v. Benson*, 409 U.S. 63, 68 (1972).

Indeed, if all applied mathematical algorithms were in fact fundamental building blocks, it would logically follow that any inventions that related to using computational methods to solve engineering problems would be ineligible, whether they were implemented in software or hardware. This certainly is not the right outcome and is completely inconsistent with the fact that there are thousands of patents directed to adding machines and calculators for performing addition, multiplication, division, and so forth. Further, it would mean that many modern communications technologies as used in smartphones and the Internet—communications protocols, encryption, audio and video compression, to name a few—would likewise no longer be patent eligible. Such a broad and disruptive outcome is clearly not what the Court intended for *Alice*. As will be further discussed below, the Court was quite concerned at oral argument in *Alice* with avoiding a broad ruling that invalidated all software and computer implemented patents. An approach by examiners that considers the presence of any mathematical algorithm as indicative of a *per se* Abstract Idea surely puts too many patent applications at risk.

Mayo Step 2, Preemption and Inventive Concepts

Only after the examiner has established that the claim is directed to an Abstract Idea on its face, does she proceed with the second step, determining “whether any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to significantly more than the abstract idea itself. In other words, are there other limitations in the claim that show a patent-eligible application of the abstract idea, e.g., more than a mere instruction to apply the abstract idea? Consider the claim as a whole by considering all claim elements, both individually and in combination.” The Guidance lists examples of items that “may be enough” to qualify as “significantly more” and items that are “not enough” to qualify (emphasis in original).

Again, while this is more a less a faithful paraphrase of the *Alice* opinion, it does not provide a useful analysis that explains how to approach these determinations. The primary problem here is that it is again divorced from the underlying concern that motivates the Court’s various statements—preemption. Instead, the Guidance again takes the phrases of the opinion out of context, and creates sweeping generalizations from what is a specific discussion focused on the claims before it. As with Part 1, Part 2 must be treated as a real test, which means that some claims that are directed to Abstract Ideas will fail Part 2 (and thus be patent ineligible) and some will pass (and thus be patent eligible). If all claims that are directed to Abstract Ideas in Part 1 necessarily fail Part 2, then Part 2 is not a real test after all. The question then is to find a way to make Part 2 a real test, rather than simply an after the fact justification of Part 1.

The solution lies in the Court’s touchstone of preemption, which must guide the Part 2 determination. This in turn depends on looking at scope of the claims “in practice”:

We have described step two of this analysis as a search for an " 'inventive concept' "--i.e., an element or combination of elements that is "sufficient to ensure that the patent *in practice* amounts to significantly more than a patent upon the [ineligible concept] itself." (Citing *Mayo*, at 3). *Alice*, 134 S. Ct. at 2355 (emphasis added).

Thus, if a patent's recitation of a computer amounts to a mere instruction to "implemen[t]" an abstract idea "on . . . a computer," *Mayo, supra*, at ____, 132 S. Ct. 1289, 182 L. Ed. 2d 321, 337), that addition cannot impart patent eligibility. *This conclusion accords with the preemption concern that undergirds our §101 jurisprudence. Alice*, 134 S. Ct. at 2358 (emphasis added)

The attention to what happens “in practice” is necessary to distinguish between claims that in fact preempt fundamental building blocks and those that “pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws. *Id.* at 2355.

In *Alice*, the Court’s identification of the Abstract Idea of intermediated settlement and Alice’s essential acknowledgement that the software implementation was not significant provides the necessary insight into what the Court meant by ‘generic functions.’ To the Court the claimed steps—creating shadow accounts, obtaining data from the exchange institutions, updating records and transmitting instructions—were the essential steps of intermediated settlement, and thus recited the Abstract Idea. Turning to *Mayo* step two, the Court viewed these steps as entirely co-extensive with whatever was being done by the computer implementation, which is considered to be trivial: at oral argument, Alice essentially told the Court this, agreeing that it “would be fairly easy to program” and could be done in a weekend. Similarly, the system claims recited elements that appeared to the Court to be entirely generic: various “input means,” “data storage means,” and “data processing means.” To the Court, the collapsing of the claim elements with the basic computer functions and components meant that the patent claim was a “mere instruction” to implemented the idea on a computer, since it only necessitated only the generic capabilities of a computer to perform steps that were “conventional” and “routine.” To the Court this meant that the claim would “in practice” preempt all others from implementing the Abstract Idea. Thus, Alice’s patent claim was ineligible not *because* it was implemented using the generic functions of storing data, transmitting data etc. Rather, it was ineligible because these generic functions were the only thing necessary to “practice” the steps of the Abstract Idea itself.

Understood in this way, examiners can more readily evaluate whether particular claims are a “mere instruction” to implement an Abstract Idea on a computer. Instead of focusing on whether a generic computer is disclosed as the underlying structure for a computer implemented invention—which is surely the case in the vast majority of software patent applications—examiners should focus on whether a patent claim recites elements that differentiate it from other ways of practicing of the same Abstract Idea. Specifically, if the claims at issue recite an implementation of an Abstract Idea that includes elements that are meaningfully different from other implementations, then those elements are "sufficient to ensure that the patent *in practice* amounts to significantly more than a patent upon the [ineligible concept] itself.” As a result, the claim does not preempt the Abstract Idea and is patent eligible.

This leads to the question of what counts as meaningfully different. Here too, the perspective of POSITA provides the right approach. A claim limitation is meaningfully different if a POSITA would understand it as being a necessary feature of the invention *as claimed*, because such a limitation defines how the invention is practiced in the real world. In this context, a POSITA would recognize as meaningful and significant those limitations that may incorrectly appear to be trivial to a layperson unfamiliar with the technology's subtleties, the practices of the relevant technological community, and the significance of seemingly minor details. See *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051 (Fed. Cir. 1988) (“That which may be made clear and thus ‘obvious’ to a court, with the invention fully diagrammed and aided by experts in the field, may have been a breakthrough of substantial dimension when first unveiled”) (internal citation and punctuation omitted). Likewise, POSITA would also not consider as meaningful claim limitations that were mere clever drafting or window dressing. The use of POSITA ensures the identification of meaningful limitations is consistent with the science and technology underlying a claim. Such an understanding is especially important because in most cases the underlying science or technology is not expressly recited: claims are meant to capture the invention, not explain the underlying science in the field.

Limitations that constitute meaningful differences will typically include limitations that (alone or in combination) are novel and non-obvious, regardless of whether such features are implemented using generic computer functions. If the limitation is one that POSITA would recognize as limiting the implementation to one of a number of different ways to practice the Abstract Idea so that the claim does not fully preempt the use of the Abstract Idea, then the Court's concerns regarding preemption are satisfied. In addition, elements can be meaningfully different even if they are known or obvious—so long as there are other ways of practicing the Abstract Idea. This is necessarily the case because if the only features that count as meaningful are those that are novel and non-obvious, then the analysis under § 101 collapses into the analyses under §§ 102 and 103. This is inconsistent with the Court's repeated statements that § 101 serves a different purpose than those later sections.

Sincerely,

A handwritten signature in black ink, consisting of the letters 'RS' in a stylized, cursive font, enclosed within a hand-drawn oval shape.

ROBERT R. SACHS*

