April 22, 2010

Machine-or-Transformation Test Hit The Board: Patent-Eligible Subject Matter Following Bilski

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MACHINE-OR-TRANSFORMATION TEST HITS THE BOARD: PATENT-ELIGIBLE SUBJECT MATTER FOLLOWING BILSKI
By: Peter Ludwig

ABSTRACT
In In re Bilski the Federal Circuit held that the machine-or-transformation test is the test to apply to determine subject matter eligibility of process claims under 35 U.S.C. § 101. The en banc majority opinion of the Federal Circuit introduced the machine-or-transformation test based upon Supreme Court precedent. The Supreme Court will soon hand down a ruling letting the public know if this is the test that will be applied to process claims. Although patent practitioners may have a test to apply, application of the test is far from certain.

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I. INTRODUCTION

The issue of the patent-eligibility of process claims in In re Bilski surrounds an interpretation of 35 U.S.C. § 101. Section § 101 is the governing statute on patent-eligible subject matter. If interpreted broadly, section 101 may be read to encompass pure business method claims. Pure business method claims may be inventions that involve processes without the use of a particular machine, merely consisting of a process of doing something in particular specific steps in a particular order. If interpreted narrowly, section 101 may be read to prohibit pure business methods, and only provide protection for tangible process elements. Due to the continuously evolving nature of our technology, and the important innovations in the past decade regarding the e-commerce and software arts, many patent practitioners and inventors argue for an expansive interpretation of section 101. In either case, the Court’s ruling on this issue will be sure
to have lasting consequences to the future of, among others, the e-commerce and software arts in the United States.

In particular, section 101 states, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.” However, the mere fact that a claim fits within one of the § 101 categories does not mean it is per se patent-eligible subject matter. The Supreme Court has repeatedly cautioned that “[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”

The interpretation of “process” has been a frequent point of controversy in the courts. 35 U.S.C. § 100(b) defines “process” as meaning “process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.” This definition, in part because it uses “process” to define process, has been unhelpful to most courts. To clarify this ambiguity, the en banc Federal Circuit held that “the Supreme Court’s [machine-or-transformation] test” is the governing test to determine if a process claim recites patent-eligible subject matter.

This article explores how the Federal Circuit and Board of Patent Appeals and Interferences (“Board”) have ruled on the patent eligibility of process claims. First, the Federal Circuit’s recent ruling in In re Bilski is explained. Then, a recent decision by the Federal Circuit applying the machine-or-transformation test is analyzed. Lastly, the article reviews several decisions of the Board to assist patent practitioners in understanding how the test is being applied.

II. MACHINE-OR-TRANSFORMATION TEST

2 In re Ferguson, 558 F.3d 1359, 1363 (Fed. Cir. 2009).
4 In re Bilski, 558 F.3d 943, 954 (Fed. Cir. 2008). The court noted that it was overruling the previous tests relied upon to determine if a process claim recited patent-eligible subject matter. The prior tests noted were the “Freeman-Walter-Abele test,” the “useful, concrete, and tangible result test,” the “technological arts test,” and the “physical steps test.” Id. at 958-961.
In *Bilski*, the Federal Circuit applied “the Supreme Court’s” machine-or-transformation ("MOT") test to process claims. The court stated that “[a] claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” To be clear, application of the MOT test was limited to process claims. According to the Federal Circuit, if a claim satisfies the MOT test then the claim “does not pre-empt all uses of a fundamental principle in any field but rather is limited to a particular use, a specific application.” In other words, the courts do not view the granting of a fundamental principle, e.g., $E=mc^2$, as promoting the progress of science and the useful arts. These foundational principles are viewed falling into the abstract idea exception.

The Federal Circuit labeled the test as the “Supreme Court’s” because the Court has used similar language. In *Diamond v. Diehr*, the Court held that “when a claim containing a mathematical 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 § 101.” During the recent oral arguments of *Bilski* in the Supreme Court, however, Justice Breyer stated, “I mean—and *Dierh* has these words in it, similar words; it just says ‘e.g.’—are you following me?” Justice Breyer seemed to imply that the Court is not explicitly bound by this “e.g.” language.

The en banc Federal Circuit in *Bilski* held that claim 1 failed the MOT test. Claim 1 recited:

1. A method for managing the consumption risk costs of a commodity sold by a commodity producer at a fixed price comprising
   (a) initiating a series of transactions between said commodity provider and consumers . . . ;
   (b) identifying market participants . . . ;
   (c) initiating a series of transactions between said commodity provider and said market participants . . . .

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1 Note, the Supreme Court has not explicitly stated this test, but it has been indirectly applied in *Benson* and *Diehr*. *Id.* at 954.
2 *Id.* (citing *Benson*, 409 U.S. at 70) (emphasis added).
3 *Id.* at 957.
5 *Bilski* Oral Argument, Sup. Ct., 31 (Nov. 9, 2009).
The first prong (i.e., “tied to a particular machine”) was not argued in front of the court. Appellants admitted, “claim 1 does not limit any process step to any specific machine or apparatus.”\textsuperscript{11} Although the court left “to future cases the elaboration of the precise contours of machine implementation, . . . such as whether or when recitation of a computer suffices to tie a process claim to a particular machine[,]” the court did provide some guidance.\textsuperscript{12} For instance, the court broadly stated, “the use of a specific machine . . . must impose meaningful limits on the claim’s scope to impart patent-eligibility.”\textsuperscript{13}

The second prong (i.e., transformation of a particular “article” to a different state or thing) was the main focus of the court’s analysis. The transformation must be “central to the purpose of the claimed invention.”\textsuperscript{14} Importantly, the test requires the transformation of a “particular article.”\textsuperscript{15} The court indirectly stated that an “article” must be a physical object or substance, or a data structure that is representative of physical objects or substances.\textsuperscript{16} Appellant’s claim 1 failed the second prong of the MOT test because an “article” was not transformed where the alleged transformations or manipulations were of public or private legal obligations or relationships, business risks, or other such abstractions.

The court mentioned two corollaries of the MOT test. First, “mere field-of-use limitations are generally insufficient to render an otherwise ineligible process claim patent-eligible.”\textsuperscript{17} Second, “insignificant postsolution activity will not transform an unpatentable principle into a patentable process.”\textsuperscript{18}

To assist practitioners and the courts in interpreting the MOT test, the court provided an example of a sufficient “transform[ation] of a particular article into a different state or thing.” The court identified a circumstance in which electronic transformation of data into a particular visual depiction of a physical object on a display may be considered a transformation sufficient to render a claimed process patent-

\textsuperscript{11} Bilski, 545 F.3d at 962.
\textsuperscript{12} Id.
\textsuperscript{13} Id. at 961.
\textsuperscript{14} Id. at 962.
\textsuperscript{15} Id. (emphasizing this as “the main aspect of the transformation test”).
\textsuperscript{16} Id. at 963.
\textsuperscript{17} Id. at 957 (citing Diehr, 450 U.S. at 191-92).
\textsuperscript{18} Id. (citing Parker v. Flook, 437 U.S. 584, 590 (1978)).
eligible. “[T]he claim was not required to involve any transformation of the underlying physical object that the data represented.” In addition, the court provided that a step of data gathering, without explaining how the data is gathered, is insufficient to satisfy the second prong of the MOT test.

After the Federal Circuit affirmed the Board’s holding that the claims are directed to non-statutory subject matter, Appellant petitioned the Court for certiorari. The Supreme Court granted the petition, and held oral arguments on November 9, 2009.

The Supreme Court is expected to rule on Bilski during the summer session of 2010. Although the Court may overrule the Federal Circuit’s decision, this article provides insight into how the first prong (i.e., tied to a particular machine) will be applied in future cases. The Court likely will not rule the application of the first prong because Appellants of Bilski did not argue the claim was “tied to a particular machine.”

In the next section, decisions at the Federal Circuit and Board are examined to assist patent practitioners in making arguments to Examiners and in front of the Board regarding section 101 rejections.

III. FEDERAL CIRCUIT AND BOARD ATTEMPT TO APPLY MACHINE-OR-TRANSFORMATION TEST

Both the Federal Circuit and the Board have applied the MOT test articulated in Bilski. In general, the post-Bilski era courts have upheld rejections by the Examiner under §101, or stated a new ground of rejection, at a higher rate than when compared to the pre-Bilski era.

A. FEDERAL CIRCUIT APPLIES MOT TEST

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19 Id. at 962-63 (citing In re Abele, 684 F.2d 902, 908-09 (CCPA 1982) (holding claims to recite patent-eligible subject matter because the data “clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues.”)).

20 Id. at 963.

21 Id. (citing In re Grams, 888 F.2d 835, 839-40 (Fed. Cir. 1989)).
The Federal Circuit first applied the MOT test in *Prometheus Laboratories, Inc. v. Mayo Collaborative Services*.\(^{22}\) The court applied the MOT test to claims directed to a method of treatment. Representative claim 1 in *Prometheus* recited:

1. A method of optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder, comprising:
   (a) administering a drug . . . to a subject . . . ; and
   (b) determining the level of 6-thioguanine in said subject . . . ,

   wherein the level of 6-thioguanine less than about 230 pmol per 8x10^8 red blood cells indicates a need to increase the amount of said drug . . . and

   wherein the level of 6-thioguanine greater than about 400 pmol per 8x10^8 red blood cells indicates a need to decrease the amount of said drug . . . .\(^{23}\)

The district court construed the claims to have three steps: 1) administer a drug to a subject; 2) determine metabolite levels; and 3) to be warned that an adjustment in dosage may be required based on the result of the determination.\(^{24}\) Plaintiff argued claim 1 satisfied the first prong of the MOT test because the claim, even though it does not positively recite being tied to a particular machine, is inextricably tied to several machines.\(^{25}\) Plaintiff referred to the Specification that disclosed the use of several machines to successfully implement the claimed method. Moreover, plaintiff argued the transformation of a particular article because 1) administering the drug transforms the physical biological makeup of the subject, 2) the second step requires the transformation of a bodily sample to determine the metabolites’ concentration, and 3) the metabolite levels are transformed into a warning for the doctor.\(^{26}\)

The district court found the claims to be directed to nothing more than natural correlations and data-gathering steps.\(^{27}\) The Federal Circuit, however, found claim 1 to satisfy the MOT test. In particular, the court found a “transformation of a particular article,” emphasizing that “[t]he transformation is of the human body following administration of a drug and the various chemical and physical changes of the drug’s metabolites that enable their concentrations to be determined.”\(^{28}\) The Federal Circuit stated, “[i]t is virtually self-evident that a process for a chemical or physical

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\(^{22}\) 581 F.3d 1336 (Fed. Cir. 2009).
\(^{23}\) U.S. Patent No. 6,355,623.
\(^{24}\) *Prometheus*, 581 F.3d at 1341.
\(^{25}\) Id. at 1345.
\(^{26}\) Id.
\(^{27}\) Id. at 1341.
\(^{28}\) Id. at 1346.
transformation of *physical objects or substances* is patent-eligible subject matter.”

The Federal Circuit made a distinction between a physical transformation of physical objects and an electronic transformation of intangible data.

**B. Board Applies MOT Test**

From October 30, 2008, the day of the Federal Circuit’s *Bilski* decision, to March 8, 2010, the Board issued 140 cases addressing, *inter alia*, a section 101 rejection. The Board has held a claim directed to non-statutory subject matter 78.3% of the time (i.e., failing the MOT test). Of that 78.7%, the Board has affirmed the Examiner’s initial section 101 rejection 40.1% of the time, and issued a new ground of rejection under section 101 38.15% of the time. The Board has issued a new ground of rejection based on section 101 either because 1) the Examiner did not fully understand the implication of *Bilski* and failed to apply the MOT test, or 2) *Bilski* was decided after prosecution was closed and thus the Examiner was unable to make a new ground of rejection under section 101 by the time the issue reached the Board. Nevertheless, the gathered statistics reveal the Board is currently taking a strict reading of the MOT test and is hesitant to grant a claim as patent-eligible unless it satisfies a narrow interpretation of the MOT test.

In the next section decisions of the Board are analyzed. The following are specific observations noticed after searching through several decisions involving the MOT test. I note that in some decisions the Board did not elaborate on why a claim was found to satisfy the MOT test.

To simplify the analysis of the Board’s decisions, the decisions will be discussed according to five categories. The categories are: 1) absence of particular machines, 2) preambles, 3) generic terms, 4) inherent structure, and 5) transformation of a particular article.

**i. Absence of Particular Machines**

The first prong of the MOT test requires the fact finder to determine if the process is “tied to a particular machine or apparatus.”

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29 *Id.* (quoting *Bilski*, 545 F.3d at 962) (emphasis in original).
30 37 C.F.R. §41.77(b) (2008) provides the Board with the authority, not only to reverse the Examiner, but to make a new ground of rejection.
31 *Bilski*, 558 F.3d at 954.
explicitly rule on this issue. However, the Federal Circuit did state that “the use of a specific machine . . . must impose meaningful limits on the claim’s scope. . . .” The Board, when applying the “tied to a particular machine” prong, has repeatedly recited the definition of a machine as “a concrete thing, consisting of parts, or of certain devices and combination of devices.” This prong has been the most frequently argued issue surrounding the MOT test at the Board. Specifically, “meaningful limits on the claim’s scope” has been interpreted narrowly.

For instance, in *Ex parte Marius A. Corneo-Hasegan* the Board found claim 1 was not tied to a particular machine. Claim 1 recites:

1. A method, comprising:
   - normalizing by a processor operands a, b, and c . . . ;
   - predicting by the processor . . . ;
   - if so, then scaling by the processor . . . ;
   - calculating by the processor result d’ . . . ;
   - determining by the processor . . . .”

On its face, claim 1 seems to be tied to a machine. All of the claim elements recite a step “by a processor.” The Examiner argued claim 1 was “directed to a method . . . for generating a result d by performing a floating point operation via a mathematical algorithm on operands a, b and c.” The Board found that “the recitation of a ‘processor’ performing various functions is nothing more than a general purpose computer that has been programmed in an unspecified manner to implement the functional steps recited in the claims.” This holding, particularly that the claim language fails to recite more than the requirement of a “general purpose computer,” has been a frequent ground for rejection under section 101.

The Board found a claim directed to a “classifier” as statutory subject matter in *Ex parte Forman*. Representative claim 1 and 4 recited:

1. A computer-implemented feature selection method for selecting a predetermined number of features . . . , the method comprising:
   - ranking features using two-category feature ranking;
   - picking a binary partition p;
   - selecting a feature based on the ranking for binary partition p; and

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32 In re Nuijten, 500 F.3d 1346, 1355 (Fed. Cir. 2007) (citing Burr v. Duryee, 68 U.S. 531, 570 (1863)).
36 Id. at 9.
adding the selected feature to an output list . . . 

4. A method . . . of claim 1 and further comprising using the selected features in training a classifier for classifying data into categories. \[39\]

The Board found claim 1 was not tied to a particular machine merely because of the nominal recitation of “computer-implemented” in the preamble, as Appellant argued. However, the Board found claim 4 to satisfy the MOT test. The Board looked to Appellant’s specification that defined “classifier” as “built via an algorithm using a training set comprising labeled records such that it can then classify unlabeled records,” noting this function was beyond mere general purpose computing. \[40\] The Board found the claimed “classifier” to be a machine being implemented to perform a particular application of the process. This decision leads me to believe that if the software being performed on a computer is performing a specific function, e.g., classifying, then the Board likely will find it tied to a particular machine under the MOT test.

In *Ex parte Daughtrey*, \[41\] the Board failed to find claim 1 directed to statutory subject matter. Claim 1 recited: “A user interface for a fare rule summary tool, the user interface displayed on a monitor, the user interface comprising: . . . a fare evaluation result table that displays . . . .” \[42\] The Board noted that the definition of “interface” is “[t]he layout of an application’s graphic or textual controls in conjunction with the way the application responds to user activity.” \[43\] Without a positive recitation of a machine required to interact with the interface, the Board found the claim comprised of a specific arrangement of information, and that the information can be presented in any manner, without the use of a machine. \[44\] Appellant’s argument that the “user interface is displayed on a monitor” was not persuasive.

In *In re Doerwald et al.*, \[45\] the Board found claim 17 to be tied to a particular machine. Claim 17 recited: “A method for providing customer-specific information for a customer to a weigh station, . . . comprising: a) obtaining customer information . . . at the weigh station . . . ; b) storing [at the weigh station]. . . ; and (c) receiving the associated

\[41\] Appeal No. 2008-0202 (B.P.A.I. Apr. 8, 2009).
\[42\] U.S. Patent Application No. 09/812,224.
\[44\] Id. at 8.
\[45\] Appeal No. 2009-006268 (March 5, 2010).
customer profile for the customer [at the weigh station]. . .” In *Doerwald*, the Board noted that “[t]his is one of those cases where looking at the claim as a whole may lead to a different conclusion than analysis of the parts.” The Board, unlike in *Marius*, found claim 17 to be sufficiently tied to a particular machine through the use of a “weigh station” that 1) obtained data, 2) stored the data, and 3) displayed the data.

There are several decisions finding a claim to satisfy the first prong. In *Ex parte Holmstead*, disputed claim 10 recited: “A computer-readable medium having stored thereon instructions that, when executed, direct a printer to: receive a print job . . .; examine the contents of the one or more print job elements . . .; and ascertain a location in the local memory of the printer to store . . .” While reversing the Examiner, the Board found the claimed “computer-readable medium” to fully complement with the definition of “machine.” The specification stated that “[p]rinter 100 may include a firmware component 110 that is implemented as a permanent memory module stored on ROM 106.” The Board noted that when the claimed instructions are implemented, they cause a printer to perform the three distinct functions in the claim. Similarly, in *Ex parte Myka et al.*, the Board found claim 14 to be directed to patent-eligible subject matter. Claim 14 was directed to the steps of, “monitoring at a master device,” “receiving, at a master device,” and “communicating, from the master device to the bonded device.” The Board focused on the claim language of, “communicating information between the master device and the bonded device” in finding the claim “tied to a particular machine.” In both *Holmstead* and *Myka*, the Board found the use of the particular machine to impose meaningful limits on the claim’s scope.

*Ex parte Busche* provides an interesting look at the Board’s analysis. Claims 29 and 43 recited:

29. A computer program product in a computer readable medium comprising instructions for enabling a data processing machine to select data sets for use with a

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48 Id.
52 Id.
56 Appeal No. 2008-004750 (B.P.A.I. May 28, 2009).


The Board distinguished claim 29 from claim 43 by stating that claim 29 recites instructions on a computer readable medium for executing the method, while claim 43 recites training a specific machine. The Board found claim 29 directed to non-statutory subject matter as “the step performed by the instructions do no more than generate arbitrary data sets, compare them, modify them, and then use them in some unspecified predictive algorithm.” Interestingly, the Board found claim 43 directed to statutory subject matter as it enables a machine “to predict customer behavior,” as opposed “to select[ing] data sets,” as recited in claim 29.

The next section looks at how the typical Beauregard claim reciting a computer-readable medium, or the like, in the claim’s preamble has been interpreted under the MOT test. In the pre-Bilski era, such claims were generally found to be patent-eligible.

ii. PREAMBLES

The Board is frequently asked to interpret preamble language as tying the claim to a particular machine. This further requires the Board to find the preamble to “impose meaningful limits on the claim’s scope.” In general, the Board has followed the guidelines of MPEP 2111.02. “Whether to treat a preamble as a limitation is a determination ‘resolved only in review of the entire[ ] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.’”

58 Busche, Appeal No. 2008-004750 at 20.
59 Id.
60 In re Beauregard, 53 F.3d 1583 (Fed. Cir. 1995) (finding “that computer programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. § 101.”).
Although the general rule is that preamble language does not limit a claim, the Board has mentioned areas when preambles are limiting: Jepson claims, dependence on a preamble term for antecedent basis, when the preamble is essential to understanding the claim, and when the preamble recites structure or steps deemed important by the specification. Accordingly, the Board has on occasion found preamble language to satisfy the MOT test.

In *Mazarra*, the Board found the preamble language of, “a computer usable medium including a program,” directed to patent-eligible subject matter. The Examiner did not give the preamble any weight, and as such, rejected the claim under section 101 as failing to recite patent-eligible subject matter because “a computer usable medium” was the only arguable structure in the claim. The Board found the claim “tied to a particular machine” by looking at the “computer usable medium” limitation from the preamble. The Board emphasized that the body of claim 17 referred to the preamble for antecedent basis purposes and therefore found the preamble to limit the claim’s scope, even though the antecedent basis was not directed to the “computer usable medium” portion of the preamble.

However, the Board in *Ex parte Gutta* failed to find the preamble language of “[a] computerized method performed by a data processor” to satisfy the first prong of the MOT test. The Board found the claimed step of, “performed by a data processor,” to add nothing more than a general-purpose computer that is associated with the steps of the process in an unspecified manner. The Board found this despite the body of the claim reciting “displaying” steps, which inherently refers back to the so-called “general purpose computer” mentioned in the preamble. Similar to *Marius*, each element of the claim was required to be performed by “a processor,” but the Board failed to find this to tie the claim to a particular machine.

Contrary to the beliefs of some practitioners, the Board has not broadly asserted that for the sole reason that a word of structure, e.g., computer-implemented or computer-readable medium, is mentioned in the preamble, that the claim is directed to patent-

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62 *Id.* at 19.
63 *Id.* at 20.
64 *Id.* at 23.
65 *Id.*
67 *Id.* at 5.
eligible subject matter. In *Ex parte Lee*, Appellant argued the claim language of “computer-implemented” in the preamble satisfies the first prong of the MOT test. In particular, Appellant argued that it inherently implies “a computer with a database for sorting database records, . . . .” The Board disagreed, stating the preamble is directed to “a nominal recitation of structure which would not tie the claimed process to a particular apparatus.” Because it was not defined in Appellant’s Specification, the Board referred to Webster’s Dictionary to define database. “Database” was defined as “[a]ny collection of information . . . even if the information isn’t stored on a computer.” Similarly, the Board in *Ex parte Shetty* found claims drawn to a computerized method as directed to non-statutory subject matter. In *Shetty*, the Board stated “each claim fails to subsequently use the term ‘computerized’ in the body of the claim, and therefore [the preamble] fails to breathe life and breath into it by setting forth the complete combination.”

Furthermore, the Board has ruled that the broadly claimed “method implemented on a computer-readable medium” is not necessarily embodied in a tangible computer-readable medium. Without any specific definition in Appellant’s specification, the Board asserted, “the medium appears to be a broadly definable wireless network that encompasses [non-statutory] signals per se proscribed by *Nuijten*.

In *Marius*, the Board provided an interesting explanation as to why the preamble failed to provide statutory subject matter claim 18. The Board stated that when broadly construed in light of Appellant’s specification, the “computer readable media” is limited in scope to a “fixed magnetic disk, [ ] floppy disk drive, [ ] optical disk drive, [ ] magneto-optical disk drive, [ ] magnetic tape, or non-volatile memory including flash memory.” Despite “computer readable media” being limited to the hardware disclosed in Appellant’s specification, the Board nevertheless held that this does not add any practical limitation to the scope of the claim.

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69 Id. at 12.
70 Id. at 13.
71 Id. at 14.
74 *Ex parte Isaacson et al.*, Appeal No. 2008-1884 at 10 (B.P.A.I. Feb 26, 2009).
In the next section, the treatment of generic terms in claim language is discussed in accordance with the MOT test.

iii. **Generic Terms**

Appellants have generally been unsuccessful arguing generic terms that should be, according to Appellant’s, interpreted by those of ordinary skill in the art as tying the claim language to a particular machine. Such generic terms that Appellants have attempted to use include, for instance, “processor,” “user output device,” “machine,” and “memory.” The Board has generally failed to find the generic term to tie the claim to a particular machine. Such nominal recitations of structure have not been found to impose meaningful limits on the claim to convert it into patent-eligible subject matter.  

For instance, in *Ex parte Mitchell et al.* the claimed system was directed to “a processor comprising logic [and a] memory for storing the instructions.” The Board pointed out the claim recites “identifying” a set of data structures, but does not require a processor do anything to the “data structures,” and that the claim does not require a “memory” for storing any data structures, only “memory for storing instructions.” Appellant’s argued that the Federal Circuit held the claimed language of, “machine having a memory” containing a particular data structure as directed to statutory subject matter, and that the same should be applied here. The Board rejected this analogy because the claim does not require a memory containing a particular data structure.

In addition, in *Ex parte Novaues* the Board stated that “[g]eneric terms, like ‘mechanism,’ ‘means,’ ‘element,’ and ‘device,’ typically do not have enough definite structure to be considered to tie the claim to a particular machine.” In these cases, the specification was analyzed to determine if the term could be construed to be directed to non-statutory subject matter. For instance, the Federal Circuit found the term
“mechanism” not recognized as reciting structure, but simply as a substitute for the term “means for.”

The next section discusses how the Board has treated Appellants’ argument regarding inherent structure.

iv. **INHERENT STRUCTURE**

Appellants have attempted to argue that the claim language is inherently “tied to a particular machine” or that it inherently transforms an article. The Board has been quick to remind Appellants that during patent prosecution, the claims must be “given their broadest reasonable interpretation consistent with the specification.” In doing so, inherent structure is rarely found at the Board.

In *Ex parte Jaehn*, Appellants argued the recited “graphical user interface” inherently tied the claimed process to a particular machine. Appellants cited a dictionary definition of “graphical user interface” defining it as “a computer program”; argued “[a] computer program is tangible and real”; and cited decisions where Examiners and the Board recognized “graphical user interface” as statutory subject matter. In response, the Board, among other things, stated that they “know of no legal authority that is binding precedent . . . which holds computer programs per se to be patentable subject matter under § 101[,]” and affirmed the Examiner’s rejection. Appellants could not refer to a definition, in their specification or elsewhere, defining “graphical user interface” as an article of manufacture.

In *Ex parte Atkins*, the “system” claim at issue recited the limitations including a “label definer,” an “inferencer,” and a “character reorderer.” In applying the MOT test to a system claim, the Board failed to find the recited elements defining inherent structure “because (1) they are not ‘means’ recitations subject to interpretation under 35 U.S.C. § 112, sixth paragraph, and (2) they would not have been understood in the art as implying any particular structure.” Accordingly, in *Ex parte Verhaugh* the Board reversed an

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83 Id. (citing Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004)).
84 Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005).
85 Appeal No. 2009-010768, at 12.
86 Id. at 14.
88 Id. at 17.
89 Id. (citing Ex parte Miyazaki, 89 U.S.P.Q 2d 1207 (B.P.A.I. 2008) (precedential)).
Examiner who rejected a means-plus function claim under § 101. In doing so, the court held the means-plus function claim was, by the nature of section 112, sixth paragraph, inherently directed to a machine.

In *Ex parte Ghosh et al.* the Board held a claim directed to “[a] method for computing and storing a quality metric . . . , the method comprising: . . . storing the computed quality method in a computer-readable memory[ ]” as reciting non-statutory subject matter. Appellants argued the claim recites inherent structure through the step of “storing” and that it imposes a meaningful limit on the claim. The Board did not find inherent structure in the claim stating the computing steps “merely involve calculations and manipulation of data in performing a mathematical operation on a list of numbers to produce output results in accordance with an algorithm.” If Appellant’s specification could have been read to require the use of some tangible medium, the claim likely would have been considered statutory.

In *Ex parte Korpela et al.*, the Board failed to consider what some may call inherent structure in a claim reciting “a network modeling tool, comprising . . . output means. . . .” In the analysis, the Board stated that “[w]hen functional descriptive material is recorded on some (tangible) computer readable-medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases . . . .”

The Board has even rejected a claim under § 101 that cannot be feasibly performed without the use of a machine. Claim 1 in *Ex parte Morgenstern* recites: “A method for configuring an aircraft for low sonic boom supersonic flight conditions comprising: scaling an equivalent area distribution curve of the aircraft . . . ; and relaxing a design constraint to require the equivalent area distribution curve of the aircraft to be at or below the equivalent . . . goal curve.” Appellants argued the method is inherently tied to a particular machine, as it is “extremely computationally intensive” and the

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91 Id.
93 Id. at 9.
94 Id. (citing In re Lowry, 32 F.3d 1579, 1583-84 (Fed. Cir. 1994)).
96 Id. at 13.
97 Id. at 12. (emphasis in original)
specification describes an embodiment that implements the method on a computer.\textsuperscript{100} However, because neither the specification nor the claimed language required the use of a computer, the Board found the claim to recite non-statutory subject matter.\textsuperscript{101}

The next section describes how the Board has ruled on the second prong of the MOT test. The “transformation of a particular article” prong was explicitly ruled upon in \textit{Bilski}.

\textbf{v. \hspace{10pt} TRANSFORMATION OF A PARTICULAR ARTICLE}

The MOT test states that a process is patent-eligible if “it transforms a particular article into a different state or thing.” Moreover, during the oral argument on November 9, 2009 the Supreme Court Justices provided some insight into the second prong of the MOT test. For instance, Justice Scalia mentioned, with respect to the “Morse claim 8, . . . it was transforming sound into electrical current and then at the other end electrical current back into sound. I mean it met the transformation test, didn’t it? . . . It clearly did.”\textsuperscript{102} This statement by Justice Scalia leads me to believe that the transformation of a physical article, even if implemented through electronic data, satisfies the second prong. The question remains though to what extent the transformation has to be of a physical article. The Board has, similar to the first prong, applied the second prong strictly, failing to find more than a few claims that satisfy the second prong.

In \textit{Ex parte Jaehn et al.},\textsuperscript{103} the Board seems to have contradicted the example given in \textit{Bilski} that the Federal Circuit believed would have satisfied prong 2. In \textit{Bilski}, the court mentioned that a claim reciting electronic transformation of data into a particular visual depiction of a physical object on a display may be considered a sufficient transformation of an article.\textsuperscript{104} The claim at issue in \textit{Jaehn} recited:

“36. A method of displaying hotel data comprising the steps of:
\begin{itemize}
\item defining a plurality of distance ranges . . . ;
\item identifying a hotel selection parameter . . . ; and
\item displaying pricing data in rows and columns corresponding to . . . .
\end{itemize}”

\textsuperscript{100} Morgenstern, Appeal No. 2009-003085, 16.
\textsuperscript{101} Id.
\textsuperscript{102} Bilski Oral Arguments, Sup. Ct., 24-25 (Nov. 9, 2009).
\textsuperscript{103} Appeal No. 2009-010768 (B.P.A.I. Nov. 24, 2009).
\textsuperscript{104} 545 F.3d at 962-63.
Appellants argued the claimed method “transforms raw data into a usable visual depiction.”

“The Board found] nothing in the claims that one or ordinary skill could interpret as being an article of manufacture as legally defined. Accordingly, the claims could not be said to transform an article into a different state or thing.”

The Board noted that there is nothing in the claims to “limit the data to electronically-manipulated data and there is no step in the claims which can be reasonably construed as electronically manipulating data.”

In Ex parte Daughtrey, the Board held the subject matter directed to non-statutory subject matter that recited: “A method for producing a concise summary of fare rules . . . , the method comprising: parsing a set of inquiries . . . ; retrieving fares and fare rules . . . ; evaluating the retrieved fares against [the rules] . . . ; and producing a summary of results . . . ; and displaying the summary on a user output device.”

In comparing this to State St. Bank, where the Federal Circuit held the transformation of data “representing discrete dollar amounts” by a machine as statutory subject matter, the Board found this transformation directed to non-statutory subject matter because “it is unclear to what extent the [fare] data must relate to the ‘real world.’” Accordingly, the Board made the distinction between the transformations of data relating to “discrete dollar amounts” and data relating to fare information and fare rules, finding the latter to be patent-ineligible.

Similarly, the Board found a method claim that recited, “receiving a hierarchical process flow description . . . ; associating a first item description . . . ; and associating a second item description . . . .” as failing to transform a particular article to a different state or thing. In this situation, the Board has repeatedly held that “because the data does not represent physical and tangible objects,” the issue of whether mere calculations of a number based on inputs of other numbers is a sufficient “transformation” need not be determined.

105 Jaehn, Appeal No. 2009-010768 at 8.
106 Id. at 10 (emphasis in original).
107 Id.
110 Daughtrey, Appeal No. 2008-0202, at 11-12.
112 See, e.g., Ex parte Halligan et al., Appeal No. 2008-1588, 26 (B.P.A.I. Nov. 24, 2008).
The Board seems to be consistently interpreting “article,” as in “transforming a particular article,” an article of manufacture as defined in *In re Nuijten*. In *Nuijten*, the Federal Circuit defined “manufacture” as “the production of *articles* for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery.”\(^{113}\) The Board frequently states that a claim fails to transform a particular article because the data does not represent physical and tangible objects.\(^{114}\)

There have been very few cases finding a claim to sufficiently transform a particular article to a different state or thing. One such case was *Ex parte Forman*.\(^{115}\) As mentioned earlier, claim 4 in *Forman* recited: “using the selected features in training a classifier for classifying data.” After finding the “classifier” a particular machine (i.e., not an abstract idea), the Board mentioned that the claim satisfies the second prong of the MOT test, “namely by transforming an untrained classifier into a trained classifier.”\(^{116}\) In pertinent part, Appellant’s specification stated: “A classifier is typically constructed using an inducer. An inducer is an algorithm that builds the classifier using a training set comprising records with labels. After the classifier is built, it can be used to classify unlabeled records.”\(^{117}\) The Board found this claim to transform a particular article to a different state or thing.

\(^{113}\) 500 F.3d 1346, 1356 (Fed. Cir. 2007) (quoting Diamond v. Chakrabarty, 447 U.S. 303, 308 (1980)).

\(^{114}\) See, e.g., *Ex parte Clark III et al.*, Appeal 2009-008508, 11 (B.P.A.I. ) (finding the data to represent intangible attributes of the software).

\(^{115}\) Appeal No. 2008-005348.

\(^{116}\) *Id.* at 14.

claimed process seeks to wholly pre-empt the use of a fundamental principle (i.e., not an abstract idea).

There are a few pointers for patent practitioners that can be learned from the above analysis. For instance, the useful, concrete, and tangible result test is no longer the test to apply when arguing for the patent-eligibility of process claims. As a result of this, the mere claiming of generic structure, such as a processor or computer-implemented method, fails to convert a process claim into patent-eligible subject matter. In addition, the typical Beauregard claim now may be facially invalid. The first prong of the MOT test is only satisfied if a “particular” machine is not only required to carry out the claimed language, but also that it is positively recited in the claim. The second prong of the MOT test requires, not only a transformation, but a transformation of “a particular [physical] article.” If data is involved in the transformation, the data must represent a physical object to satisfy the second prong. Additionally, the courts are looking past the label of the claim (i.e., system or method), and applying the MOT test to system claims, as well as process claims.

The patent community waits for the Supreme Court’s ruling on In re Bilski. The Federal Circuit and the Board believe the MOT test is based upon Supreme Court precedent, and anticipate a ruling affirming the MOT test. Even if the Court overrules the MOT test, the application of the MOT test by the Federal Circuit and the Board reveals insight into how those courts interpret the term “process” in the Patent Act of 1952. The present analysis also reveals insight into the application of the first prong of the MOT test, as the Supreme Court likely will not rule on this issue. Nevertheless, based on the present application of the MOT test by the Board, I believe the days are gone when a true business method, as opposed to a business unit, are granted by the USPTO.