No. 05-1056

In The
Supreme Court of the United States

MICROSOFT CORPORATION,
Petitioner,

v.

AT&T CORP.,
Respondent.

On Writ of Certiorari
to the United States Court of Appeals
for the Federal Circuit

BRIEF OF *AMICUS CURIAE* ELI LILLY AND COMPANY IN SUPPORT OF PETITIONER

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QUESTIONS PRESENTED

35 U.S.C. § 271(f)(1) provides that it is an act of patent infringement to "suppl[y]. . . from the United States . . . components of a patented invention . . . in such manner as to actively induce the combination of such components outside of the United States." In this case, AT&T Corp (AT&T) alleges that when Microsoft Corporation's (Microsoft's) Windows operating system is installed on a personal computer, the computer with the installed operating system represents "the combination of such components" so as to infringe AT&T's patent purporting to claim a "Digital Speech Coder" system. AT&T sought damages not only for each Windows-based computer made or sold in the United States, but also, under section 271(f)(1), for each computer made and sold abroad. Microsoft infringed under section 271(f)(1), it is alleged, when it supplied outside the United States its Windows software code to foreign computer manufacturers who then installed the code on foreign-manufactured computers that were sold only to foreign consumers. The two questions arising in this appeal can be represented as follows:

(1) Whether software code that is recognized by a digital computing machine and directs its functioning – such code by itself being nothing more than an intangible sequence of binary values, commonly expressed as sequence of 1's and 0's – can qualify as a "component" of a patented invention within the meaning of section 271(f); and, if so,

(2) Whether the required duplication outside the United States of the coding sequence, in order for it to be used in a foreign country to operate computing machines, qualifies the duplicated sequence as having been "supplie[d] . . . from the United States?"

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MISCELLANEOUS

I. INTEREST OF *AMICUS CURIAE* [1]

Amicus curiae Eli Lilly and Company ("*Amicus*") is a research-based pharmaceutical company. *Amicus* discovers and develops innovative medicines. Its innovations aim at enabling patients to live longer, healthier, and more active lives. To support its business, *Amicus* invests billions of dollars annually in research and development. An effectively functioning patent system is critical to its ability to make R&D investments in discovering new medicines and establishing their safety and effectiveness for human use.

Amicus' dependence on the patent system renders the integrity of the patent system of manifest importance to its survival. Its business model is threatened, therefore, by judicial decisions in patent cases that produce anomalous results, create substantial clouds of uncertainty over the reach of the patent laws, or fail to reflect the proper balance in the patent laws between strong incentives to innovate and rigorous application of the limitations that Congress placed on patent protection.

Permitting the patent laws to overreach their congressionally mandated boundaries undermines confidence in the patent system and respect for patents and patenting. This disrespect operates to the detriment of *Amicus* and others dependent upon respect for valid patent rights for their economic survival.

Amicus has no financial interest in the parties to this litigation or in the outcome of this specific case. Its interest

[1] This brief was not authored, in whole or in part, by counsel for either party. No person or entity other than *amicus curiae* and its counsel made a monetary contribution to the preparation or submission of this brief. *Amicus* contacted both parties to obtain consent. Both parties referred *amicus* to their respective global consent letters, which have been lodged with the Clerk of the Court.

is that the patent laws be interpreted to protect innovation to the fullest possible extent, consistent with the rigorous conditions and requirements for patenting Congress has imposed.

II. INTRODUCTION

This case is symptomatic of how profoundly the law of patenting inventions can go astray if rigor is not present in the application of the conditions and requirements for patenting. The courts below have overreached in determining those acts that infringe a patent. While perhaps not self-evident from the record below, this overreaching is a byproduct of the failure of the courts below to rigorously apply the prime statutory requirement for patenting – that every claimed invention in a patent must be limited to patent-eligible subject matter. This Court had the opportunity recently to address the issue of "subject matter eligibility" for patenting in *Laboratory Corp. of America Holdings*, but dismissed *certiorari* as having been improvidently granted. *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 126 S. Ct. 2921 (2006).

Given the overarching importance of the provisions in the patent statute relating to subject matter eligibility for patenting, this Court should decide this appeal by addressing fully the rationale of the Court of Appeals for the Federal Circuit in its decision below, including its foundational reliance on its own prior jurisprudence as to what subject matter is eligible for patenting.

III. ARGUMENT

A. The Federal Circuit's Conclusion That Software Necessarily Qualifies as a Component of a Patented Combination is Based on Faulty Jurisprudential Foundations That Clearly Conflict with Section 101 of Title 35.

1. Section 101 Limits Patent Eligible Subject Matter to Tangible and Physical Products and Processes.

The requirement for "subject matter eligibility" for patenting is principally set forth in 35 U.S.C. § 101:

> Whoever 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 therefor, subject to the conditions and requirements of this title.

Thus, to be eligible for patenting, an invention or discovery that is claimed in a patent must fall squarely within one of four categories of subject matter. If a claimed invention cannot be characterized and set forth with definiteness as a (1) process, (2) machine, (3) manufacture, or (4) composition of matter, then the subject matter of the claim is not eligible for patenting.

Machines, manufactures, and compositions of matter are clearly tangible, physical things. Similarly, patent-eligible processes have historically been defined as consisting of one or more tangible, physical steps, rather than intangible or mental ones. This Court has so interpreted the term "process" as it is used in the patent statute:

> A process is a mode of treatment of certain materials to produce a given result. It is an *act*, or a series of *acts*, performed upon the subject matter to be transformed and reduced to a different state or thing.

Cochrane v. Deener, 94 U.S. 780, 788 (1877) (emphases added).

One of the most learned 19th century commentators on the patent law was equally explicit that an "art" or "process" was a sequence of acts undertaken on physical or tangible subject matter:

> An art or operation is an act or a series of acts performed by some physical agent upon some physical object, and producing in such object some change either of character or of condition. It is also called a 'process,' . . . .

William C. Robinson, *The Law of Patents for Useful Inventions*, § 159 (1890). Patent law has consistently used the terms "process" and "art" interchangeably.[2]

The requirements for physicality and tangibility of what is being claimed, even if claimed as a "process," have been part of the patent statute from the very beginning of the U.S. law on patenting. In the 1790 Patent Act, Congress used different words to limit subject matter eligible for patenting with precisely the same effect as in today's section 101. Under the 1790 patent law, patents were to be available only for an "art, manufacture, engine, machine, or device, or any improvement therein." Act of Apr. 10, 1790, ch. 7, § 1, 1 Stat. 109.

The 1793 Patent Act shortened the statutory listing to "art, machine, manufacture or composition of matter," a formulation that – with the clarifying definition of the term "process" in 35 U.S.C. § 100(b) – has survived unchanged to the present day. Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318.

From 1790 to the present day, patent statutes have

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[2] 35 U.S.C. § 100(b) states that "'process' means process, art or method."

consistently provided that patents can issue only for physical and tangible things – or processes for manipulating such physical, tangible things. Thus, section 101 requires that products eligible for patenting must be tangible and physical things or processes carried out on tangible and physical things.

2. The Jurisprudential Foundations of the Federal Circuit's Decision Failed to Recognize or Apply the Requirements for Patent Eligibility Under Section 101.

In order to fully address the infringement issue in this appeal, this Court would well-serve the patent system by correcting the Federal Circuit's jurisprudence relating to section 101. This is appropriate because patent-eligibility under section 101 was foundational to its holding on the section 271(f) issue in this case.

The Federal Circuit has taken views that appear on their face to be inconsistent with the requirement that patented inventions themselves must be physical and tangible. It has treated the four statutory categories for subject matter eligibility as more illustrative than definitive. It has cited the concreteness of the utility of the patented subject matter as sufficient evidence of its eligibility for patenting. The Federal Circuit has also moved the question of subject matter eligibility for patenting away from a focus on the claimed invention itself by emphasizing the role of other factors relating to patentability. The court's deviation from the words of the patent statute is best captured in this passage from its 1998 *State Street Bank* decision:

> The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to – process, machine, manufacture, or composition of

> matter – but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a "useful, concrete, and tangible result." This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.

State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1375 (Fed. Cir. 1998), *cert. denied*, 525 U.S. 1093 (1999) (citation omitted).

The Federal Circuit's *State Street Bank* opinion provided the foundation for its subsequent decision in *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir.), *cert. denied*, 126 S. Ct. 568 (2005). The *Eolas* court held that computer software code by itself represented patent-eligible subject matter. In its decision in the present case, the Federal Circuit relied explicitly on *Eolas* to support its conclusion that software code necessarily can qualify as a component of a patented combination under a section 271(f) infringement analysis:

> The first question, *i.e.*, whether software may be a "component" of a patented invention under § 271(f), was answered in the affirmative in *Eolas Techs. Inc. v. Microsoft Corp.*, which issued while the instant appeal was pending. In that case, we held that "[w]ithout question, software code alone qualifies as an invention eligible for patenting," and that the "statutory language did not limit section 271(f) to patented 'machines' or patented 'physical structures,'" such that software could very well be a "component" of a patented

invention for the purposes of § 271(f).

AT&T Corp. v. Microsoft Corp., 414 F.3d 1366, 1369 (Fed. Cir. 2005) (citations omitted).

Contrary to *Eolas*, software code by itself is not patent-eligible subject matter under section 101. Software code (commonly known as "object code") is universally understood as being a sequence of binary values that is commonly represented as a series of "zeros" and "ones." Its *alter ego* is so-called "source code" that is written in a human-intelligible computer programming language.[3] Thus, what the "object code" encodes is a set of instructions (information) that can be recognized by a digital computing machine. Through the computing machine's recognition of the object code, the computing machine's functioning is directed.

Software, whether machine-recognized "object code" or human-intelligible "source code," is – in and of itself – simply information. It is instructions or directions. It is clearly not a "process, machine, manufacture, or composition of matter" under section 101 any more than it would have been an "art, manufacture, engine, machine, or device" under the 1790 Patent Act.

The Federal Circuit, therefore, contradicted the patent statute when it reached its *Eolas* conclusion that software code alone could be subject matter eligible for patenting. Although the Federal Circuit correctly took notice of the fact that software code can produce "useful, concrete and tangible results," it ignored the explicit section 101 requirements that preclude issuing or maintaining a patent on results, however useful, tangible and concrete, as opposed to products and processes.

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[3] *See* Petitioner's Brief at 1, 3-5.

Section 101 completely refutes the notion that Congress permitted an invention to be patented simply because the inventor could point to a useful, concrete and tangible *result* produced by an invention. It is the invention itself as set out in the claim in the patent that must be tangible and physical, as must – in the case of a combination – any of its discrete elements.

The jurisprudential foundations of the present case, which include the erroneous *State Street Bank* framework for deciding issues of subject matter eligibility for patenting and, more especially, the *Eolas* holding that software code alone qualifies as an invention eligible for patenting, clearly conflict with section 101 and led to the wrong decision in this case. To resolve this case, therefore, this Court should specifically disavow the analytical framework in *State Street Bank*, which can be wrongly construed to support patent-eligibility for software code and other intangible subject matter so long as it produces "concrete results." This Court should hold that Congress, while making eligible for patenting anything under the sun made by man through expansive and inclusive language,[4] has for more than 200 years consistently limited what can be patented to physical and tangible *things*, not intangibles that might produce some "useful, tangible, and concrete results." Finally, because software code is not in and of itself subject matter eligible for patenting, it does not automatically follow, as the Federal Circuit has held in *Eolas*, that it can represent a "component" under section 271(f) of a patented combination.

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[4] This Court has properly construed § 101 broadly, noting that Congress intended statutory subject matter to "include anything under the sun that is made by man." *See Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (quoting 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)).

B. Software Code Cannot Represent a "Component" of a Claim Directed to a Combination of "Elements."

When an invention is claimed as a combination of elements, as most are, the patent statute requires that each such element itself must be physical and tangible. This limitation exists because 35 U.S.C. § 112, sixth paragraph, requires that the individual claim elements of combinations must be limited to specific structures, materials or acts. Thus, even if section 101 did not so require, every invention expressed as a combination of elements must be physical and tangible because section 112 commands that each of its constituent elements must be structures, materials, or acts.

The provisions of section 112, sixth paragraph, state:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of *structure*, *material*, or *acts* in support thereof, and such claim shall be construed to cover the corresponding *structure, material, or acts* described in the specification and equivalents thereof.

(emphases added) In this paragraph, Congress dealt with the situation in which an inventor of a combination of discrete elements seeks to describe one or more of the elements in a claim of a patent wholly in terms of the function to be performed by the element or elements.

A claim element of this type is commonly referred to as a "means-plus-function" element where the claimed combination represents a product (machine, manufacture or composition of matter) or a "step-plus-function" element where the claimed combination represents a process. Under section 112, sixth paragraph, a means-plus-function or step-plus-function element, although failing to explicitly set out a specific structure, material, or act in the claim itself, will nonetheless be limited to the corresponding structures or

materials or acts described in the patent specification and the equivalents thereof. The terms "structure" and "material" relate to inventions claimed in terms of a product, while the term "acts" relates to inventions claimed as processes. *O.I. Corp. v. Tekmar Co., Inc*., 115 F.3d 1576, 1582-83 (Fed. Cir. 1997) ("In this paragraph, structure and material go with means [products], acts go with steps [processes].").

The plain meaning of section 112, sixth paragraph, is that a discrete element of a claim to a combination must either be set out as something tangible and physical (*i.e.*, a structure, material or act), or, if it is expressed as a means or step for performing a specified function, then it will nonetheless be interpreted as something tangible and physical, *i.e.*, the structure, material, or acts described in the specification or equivalents thereof. Either way, each and every element in a claim to a combination can only be subject matter that is tangible and physical.

The remaining inquiry in this case, then, involves the relationship between the "components" of a claimed combination and the constituent "elements" of the claimed invention. In particular, must the component or components of a patented invention that is claimed as a combination of elements necessarily also be tangible and physical for the purposes of determining infringement under section 271(f)?

The Federal Circuit's erroneous holding that software code by itself was patent-eligible permitted it to avoid addressing the relationship between the terms "elements" and "components." More importantly, it meant that the Federal Circuit could avoid grappling with the actual claims of the patent and any analysis of the discrete *elements* of the claimed combinations.

Claim 24 of the patent in suit is both illustrative and representative of the patent claims. Claim 24 can be parsed into its constituent elements as follows:

> 24. Apparatus for encoding a speech pattern comprising
>
> [1] means for partitioning a speech pattern into successive time frames;
>
> [2] means responsive to the frame speech pattern for generating for each frame a set of speech parameter signals;
>
> [3] means responsive to said frame speech parameter signals and said frame speech pattern for generating a signal representative of the differences between said frame speech pattern and said frame speech parameter signal set;
>
> [4] means responsive to said frame speech parameter signals and said differences representative signal for generating a first signal corresponding to said frame speech pattern;
>
> [5] means responsive to said frame speech parameter signals for generating a second frame corresponding signal;
>
> [6] means for generating a signal corresponding to the differences between said first and second frame corresponding signals; and
>
> [7] means responsive to said frame differences corresponding signal for producing a third signal to modify said second signal to reduce the frame differences corresponding signal.

The seven discrete elements of claim 24 are each expressed in the means-plus-function format that is permitted under section 112, sixth paragraph.[5] Under the provisions of

[5] Claims 10–18, 24–31, 33–36, and 40–41 of the patent at issue are all subject to section 112, sixth paragraph, as claims set out in a "means-plus-function" format. The remaining 20 claims are process claims that

section 112, sixth paragraph, each of these seven discrete elements is limited to specific, corresponding structures, materials, and acts set out in the patent specification and the equivalents thereof.

If the Federal Circuit had not short-circuited its analysis by concluding that software code itself was patent-eligible subject matter, its inspection of the patent claims would have led it to conclude that software code *by itself* could not have formed any one of the discrete elements of the combination claimed in the patent. The reason it would have made such a conclusion is that, as discussed above, software code by itself is neither a structure, a material, nor an act, as each discrete element of the claims to a combination must be.

The only remaining question for the court would have been whether the term "component" with respect to a combination under 271(f) could have a different meaning from the term "element" used in section 112, sixth paragraph. While it might be possible to marshal an argument that a component might consist of one or more elements, it is not possible to support a contrary contention – an element certainly cannot be subdivided into components though any stretch of the patent laws.

First, there is no basis for concluding that, in enacting section 271(f), Congress intended that a single component of a patented combination would be anything different from – most particularly anything lesser than – a discrete element of a patented combination. In particular, Congress provided no framework for parsing a claim into components in any manner differently from parsing the claim into elements.

Second, nothing in the patent statute provides any basis for concluding that, having explicitly set out the requirements for claiming a combination of elements,

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are not on their face set forth in a "step-plus-function" format.

Congress intended a different formulation for determining the discrete components forming the claimed combination. Indeed, a holding that the "components" of a claimed combination should be ferreted out by subdividing the discrete elements of that combination would only succeed in making the law of patent infringement under section 271(f) hopelessly uncertain and unpredictable. This would be the last thing that Congress could have intended in crafting a provision defining the infringement of a patent.

Furthermore, the terms "element" and "component" are linguistically synonymous. An "element" is commonly understood as a "fundamental, essential, or irreducible constituent of a composite entity,"[6] or "a constituent part" or "a distinct part of a composite device."[7] A "component" is either the same (*e.g.*, a "constituent element, as of a system" or "a constituent part") or very nearly so (*e.g.*, a "part of a mechanical or electrical complex."[8])

Finally, the Federal Circuit has interpreted the term "element" to be either synonymous with or representative of a subset of a "component" (but never *vice versa*) for the purposes of interpreting other issues of patent infringement: "'Element' may be used to mean a single limitation [in a patent claim], but it has also been used to mean a series of limitations which, taken together, make up a component of the claimed invention." *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1259 (Fed. Cir. 1989).

In light of the entire statutory framework for patents,

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[6] http://www.answers.com/topic/element (last visited Dec. 14, 2006).

[7] http://www.merriam-webster.com/dictionary/element (last visited Dec. 14, 2006).

[8] http://www.merriam-webster.com/dictionary/component (last visited Dec. 14, 2006) or http://www.answers.com/topic/component (last visited Dec. 14, 2006).

therefore, the "elements" and "components" of patented combinations must be parsed in an identical fashion. The conclusion that the terms "elements" and "components" have synonymous meanings under the patent law is necessary not only in view of the plain meaning of the terms themselves, but also because this is the only logical implementation of Congress' intent in the use of the term "component" in section 271(f). It necessarily follows that each component of that combination must likewise be tangible and physical.

A proper analysis under the patent statute disqualifies the Microsoft software code by itself as being a discrete component of the patented combination because software, by itself, is not tangible or physical. The supply of the software code itself cannot, therefore, actively induce the infringement of a patent under section 271(f).

C. The IT Industry's Complaints Against the Patent System Are Partly Attributable to Failure of the Lower Courts to Rigorously Apply Sections 101 and 112 of Title 35.

The facts of this case provide especially compelling policy reasons for this Court to clarify that patenting of inventions must be reserved for subject matter that is tangible and physical and, most particularly, where the invention can be characterized as a combination of elements or components, such discrete elements or components must themselves be tangible and physical things.

Petitioner Microsoft and many other companies in the information technology ("IT") industry are members of a group that has taken the name "Coalition for Patent Fairness." This group has described a wide-ranging set of problems that its members assert they experience with the patent system. The Coalition and its members are seeking legislative redress, including sweeping changes to U.S.

patent law. One aspect of the redress they seek is legislation that would repeal section 271(f) outright.

A prime complaint that Microsoft and other Coalition members have with the current operation of the U.S. patent system is the lack of appropriate notice. They cite the difficulty in identification of adversely owned patents of potential relevance to the products and services that come from their respective research and marketing efforts. Their search for greater certainty in the patent system has undeniable validity – identifying potentially infringed patents relevant to a new product offering should not be a Magical Mystery Tour for the potential infringer.

It is apparent that Microsoft and the members of this Coalition believe that the serious problems arising from such occult patenting must be addressed:

> [W]hen a business is developing a new product, it often is extraordinarily difficult – notwithstanding the business's best efforts – to identify all of the existing patents, let alone pending patent applications, that may be relevant to each of the components that make up that new product. This problem is compounded by the fact that patent holders' subsequent infringement claims sometimes bear little relation to the invention described in the patent and therefore cannot be anticipated by the potential defendant.[9]

Without question, patents containing claims to subject matter that is ephemeral and abstract, rather than clearly identified as physical and tangible, complicates the ability to identify those patents that may be relevant to making the

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[9] "The Patent Reform Act of 2006, S. 3818, Enhances Innovation and Promotes Economic Growth," p. 11, *at* http://www.patentfairness.org/CPF_White%20paper%20v3.pdf (last visited Dec. 14, 2006).

commercial decisions to bring new products or services to market.

Limiting patenting to what Congress dictated via 35 U.S.C. §§ 101 and 112 can be eligible for patenting will squarely address the concerns of Microsoft and the IT industry with regard to the ability to understand patents and identify the relevance of what is being claimed. Claim 24 of the AT&T patent provides a proverbial "poster child" for the concerns of the Coalition for Patent Fairness as they relate to the inability to identify potentially infringed patents.

Because inventors are permitted by Congress to set out a claim entirely in the form of a series of means for performing a set of functions, it is particularly important to require that each such element of those claims relate to an identifiable structure, material, or act for carrying out the described function set forth in the claim itself or identified in the patent specification. If the discrete elements of a claim can consist solely of *information*, and the content of the information is, in turn, identified only by its *function* when put to some use, understanding the nature of what has been patented becomes much more difficult.

The consequence of errant Federal Circuit rulings on what is eligible for patenting has in large measure produced – or at least seriously exacerbates – the concerns expressed by the Coalition for Patent Fairness. The consequence of reversing this errant jurisprudence of the Federal Circuit would at a minimum substantially dilute such concerns. If this Court clarifies that each element in a claimed combination must be tied to a specific structure, material, or act – either one expressly set out in the claim or identified in the patent specification – the task of identifying patents that will be of relevance to a product could be remarkably simplified. What is being patented should be identified with more specificity than just that it is a set of machine-recognizable instructions for carrying out some desired function.

The Coalition for Patent Fairness is not the only entity raising concerns over patenting in the information technology industry sector. While the Coalition has identified the problems with fully understanding the import of individual patents, other commentators have noted that such problems with individual patents are magnified when such patents are sought and issue in the thousands and tens of thousands, year after year, thereby creating so-called "patent thickets."[10] By permitting individual patents to issue that *overreach* the subject matter eligibility constraints on patenting, the collective impact of the creation of "thickets" of such patents in an affected area of technology creates the possibility of *patent overprotection* beyond anything envisioned by Congress in enacting rigorous requirements for patenting.

The aggregate impact of patent overprotection has been examined in a recent report published by the Council on Foreign Relations. This report characterizes overprotection, including the development of alleged "patent thickets" as a possible threat to the Nation's economic well-being:

> America's robust economic competitiveness is due in no small part to a large capacity for innovation. That capacity is imperiled, however, by an increasingly overprotective patent system. Over the past twenty-five years, American legislators and judges have operated on the principle that stronger patent protection engenders more innovation. This principle is misguided. Although intellectual property rights (IPR) play an important role in innovation, the recent

[10] The term "patent thicket" has been used to describe the proliferation of patents impacting some areas of technology. Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting* (March 2001), *at* http://ssrn.com/abstract=273550 (last visited Dec. 14, 2006).

> increase in patent protection has not spurred innovation so much as it has impeded the development and use of new technologies.[11]

Objective evidence that "overprotection" may be at work in the information technology industry sector is difficult to find. In its absence, however, empirical evidence demonstrates an order of magnitude difference in patenting in the IT industry sector compared to other high-technology industry sectors, notably the pharmaceutical industry. As an example of the comparative patenting intensity in relation to research and development expenditures, Microsoft expended $6 billion on R&D in its fiscal year 2005 ending on June 30.[12] During 2005, the United States Patent and Trademark Office issued a total of 750 patents to Microsoft.[13] By comparison, *Amicus* Eli Lilly and Company expended $3 billion on R&D during 2005 and was issued 48 patents – one-half of Microsoft's R&D expense, but one-fifteenth as many issued U.S. patents.[14]

Comparable data for other leading companies in these two high-technology industry sectors appears to confirm an order of magnitude greater intensity of patenting for information

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[11] Keith Maskus, *Reforming U.S. Patent Policy: Getting the Incentives Right*, CSR No. 19, Council on Foreign Relations, p. 3, *at* www.cfr.org/content/publications/attachments/PatentCSR.pdf (last visited Dec. 14, 2006).

[12] Microsoft Corporation Annual Report, Fiscal Year 2005 *at* http://www.microsoft.com/msft/reports/ar06/staticversion/10k_fr_inc.html (last visited Dec. 14, 2006).

[13] *Top 300 Organizations Granted U.S. Patents in 2005*, *at* www.ipo.org/AM/TemplateRedirect.cfm?template=/CM/ContentDisplay.cfm&ContentID=3384 (last visited December 14, 2006).

[14] Eli Lilly and Company Annual Report, 2005, p. 1, *at* http://www.lilly.com/investor/annual_report/lillyar2005.pdf and *Top 300 Organizations Granted U.S. Patents in 2005*, *id*.

technology companies:[15]

Information Technology		Pharmaceutical	
IBM	2941	Pfizer	389
Hewlett-Packard	1808	Johnson & Johnson	379
Micron	1561	Bayer	176
Intel	1549	Sanofi-Aventis	145
Texas Instruments	734	Bristol-Myers Squibb	113
Sun Microsystems	715	Merck	100

At least part of this apparent difference in the pattern of patenting may be attributable to the ability (under current Federal Circuit jurisprudence) to obtain patents by skirting the statutory requirements under either or both of sections 101 and 112.

If such overreaching and overprotection are creating the adverse consequences noted in recent reports and analyses, the overreaching and overprotection phenomena could be addressed by this Court holding that section 101's subject matter eligibility requirements, as set out by Congress in the present patent statute and in each of its predecessors for over 200 years, must be rigorously observed – claims and their constituent elements must be directed to tangible and physical subject matter.

IV. DISPOSITION BY THIS COURT

Amicus Eli Lilly and Company, therefore, asks that this Court declare the following:

(1) While Congress intended that anything under the sun made by man is eligible for patenting, it has limited patent-eligible subject matter to what is physical and tangible. This

[15] *Top 300 Organizations Granted U.S. Patents in 2005*, *id*.

rule excludes patenting software and software code alone, but does not bar from patent-eligibility tangible inventions expressed as novel computing machines.

(2) It is not sufficient for patent eligibility that the subject matter claimed in a patent produce a concrete, useful and tangible result; the patented subject matter must itself be concrete, useful and tangible.

(3) Subject matter that is not itself eligible for patenting cannot represent a component of a combination invention under 35 U.S.C. § 271(f) because each such component must itself be a concrete and tangible entity, *i.e.*, each component must represent something that is or could be expressed as a claim element that is expressly defined as a structure, material, or act, or that would be so limited under the provisions of 35 U.S.C. § 112, sixth paragraph.

CONCLUSION

The ruling of the Court of Appeals for the Federal Circuit should be reversed because it conflicts with the plain meaning and purpose of sections 101 and 112 of the patent statute.

Respectfully submitted,

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