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ABSTRACT

RETHINKING U.S. ANTITRUST AND INTELLECTUAL PROPERTY RIGHTS

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The paper discusses three claims as the framework for rethinking the relationship between antitrust and intellectual property rights (IP) in the United States: (1) the claim that antitrust has always been the product of a fundamental tension between competition policy and private property rights. (2) the claim that IP reflects its own tensions between competition and property rights. In particular, the paper argues that patent law, like copyright, advances progress best when it fosters competition in ideas, when it replenishes the reservoir of public knowledge. (3) the corollary claim that understanding the relationship between antitrust and patent law calls for recognition of the dual competition regime involved— antitrust law for commercial markets; patent law for the marketplace of ideas.

The paper concludes with a brief discussion of the "So what?" question: What difference would it make— this new vision of two competition logics working in these two linked but separate domains?

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RETHINKING
U.S. ANTITRUST AND INTELLECTUAL PROPERTY RIGHTS

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Good Morning and thank you for giving me the opportunity to survey the intersection, or some might say, the collision, of antitrust policy and intellectual property rights in the United States. It is always a pleasure to come to Rome, and a challenge to participate in any program sponsored by the Law and Economics Lab.

This morning I will describe a different way to think about the relationship between competition policy and intellectual property rights, different from the dominant approach taken in the U.S. I will use patent law as my primary example for IP, although I will touch on trademark along the way. This presentation is part of a larger project entitled "The Political Economy of Progress."

In my talk today, I will make three claims:

First, that antitrust has always been the product of a fundamental tension between competition policy and private property rights. I have long rejected the dominant view that U.S. antitrust is the product of competition policy alone. Of course, no one doubts that property rights are necessary for the commercial transactions seen in market economies. Competition is not possible without property rights. But there is another side of property rights, an aspect that is not entirely consistent with competition, a facet of property rights that sometimes conflicts with competition policy. I will describe this morning how antitrust doctrines have always mediated tensions between competition policy and property rights by regulating commercial markets. My discussion of this claim will be brief. An extended analysis is available in my writing,

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particularly my *Competition Policy in America* book.[2] This morning, I take as my example of property logic at the center of U.S. antitrust trademark protection because its effects on competition policy have been so extensive yet largely unrecognized.

I will devote more time to my *second claim*— that IP reflects its own tensions between competition and property rights. In this light, the past 20 years of increasing propertization threatens to collapse the policy structure supporting innovation by eliminating IP's internal competition policy. This trend toward propertization derives from the dominant approach in the U.S., which applies an incentive logic of innovation to maximize wealth in commercial markets as the proxy for progress. In my view, however, the policy of promoting progress directs IP law, first and foremost, to protect and replenish the public domain by extending access to the marketplace of ideas and thereby encouraging competition.

[2] Rudolph J.R. Peritz, Competition Policy in America: History, Rhetoric, Law (NY: Oxford Univ. Press, rev. ed 2001).

At first glance, it might appear that this sort of claim is more properly addressed to copyright protection. Copyright is more obviously associated with the marketplace of ideas, especially the First Amendment values of expression and access. Holmes, Hand and other brilliant writers have long reminded us that our hopes for progress reside there and that copyright should recognize and protect the public nature of ideas.[3] In contrast, patent law, by its very nature, seems intended to promote material progress in commercial markets by granting exclusive private rights. This morning, I hope to shift your focus to what I claim is the fundamental ground for patent rights in the U.S.— progress that results from open access to public knowledge, progress that stems from non-rivalrous competition in the marketplace of ideas.

My *third claim* follows logically from the first two— it is the claim that recognizing these neglected grounds, these suppressed logics, will enable a better analysis than the dominant views permit. From the antitrust perspective of commercial markets, patent protection can be seen as one of several property logics that have always regulated the shape of competition policy. As seen from the patent policy perspective, antitrust is a commercial corollary that complements patent law's regulation of competition in ideas. Thus to understand the proper relationship between antitrust and patent law, we must recognize the dual competition regime involved— antitrust law for commercial markets; patent law for the marketplace of ideas. The network of legal doctrines hyperlinking these separate domains, these separate markets, is rooted in patent policy's mandate, first and foremost, to maintain and replenish the marketplace of ideas. Of course, these are very large claims that I can only support by example today.

I will conclude the paper with remarks about the "So what question?": What difference does it make— this new vision of two competition logics working in two linked but separate domains?

EC and US Attitudes toward Competition and IP

The United States and Italy reflect different attitudes toward many aspects of life, including sports, culture and cuisine. In Italy, the pasta is served al dente; in the U.S., too often it is not. Here, it is Caruso; in the U.S., it is Johnnie Cash. In Italy and throughout Europe, a football is round, as it should be; in the U.S., it is not. Now I will talk about a difference between America and Italy, indeed between America and Europe, that typically excites less passion than pasta, Pagliacci, and La Liga but which is nonetheless important— competition policy, IP and their relationship. My discussion derives entirely from U.S. law. You will likely see in the U.S. laws and their underlying public policies significant differences from your regime. I will be interested in your reactions and so I have reserved some time for questions.

U.S. Antitrust Law: The Property Logics Within

I begin with treatment of the property logics within US antitrust law. First, a quick look at corporate mergers, then a few minutes about manufacturers' restraints on distribution of their branded products.

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[3] More recently, a cottage industry has risen to produce excellent scholarship in this area. See, e.g., the superb collection of papers from The Duke Conference on the Public Domain, 66 Law & Contemp. Probs. 1 (2003) (J. Boyle, ed.).

A merger is fundamentally a simple transaction. It is an exercise of the most basic property right— a sale or exchange. The subject matter of the Supreme Court's landmark *Northern Securities* decision, in 1904, was a railroad trust that President Teddy Roosevelt wanted to bust.[4] Legendary financier J.P. Morgan persuaded three robber barons, who were owners of two competing railroads (with 9000 miles of parallel track) to merge by exchanging their stock for certificates in the Northern Securities Trust. One railroad was in bankruptcy and the other was losing money every day. The merger proposed a simple exchange of property– railroad stock for trust certificates. But it was a splintered Supreme Court that held the exchange violated the Sherman Act because the merger would eliminate competition between the railroads. According to a bare majority of the Court, competition policy trumped property rights. Four judges dissented because *they* believed that *property rights* should be protected and that the merger should be permitted. Owners should be allowed to run their businesses as they see fit; certainly, they should have the right to sell or exchange their property. The four dissenters also insisted that the antitrust law, as applied by the majority, violated the constitutional protection of private property from government confiscation.

Nine judges, four opinions and a deep split over the relationship between competition policy and private property rights.

In the hundred years since *Northern Securities,* the Court has returned to property questions repeatedly in cases involving manufacturers' restraints on distribution. Although property questions have caused wild oscillations in doctrine, I only make mention of the fact and direct you to my prior article on the matter.[5] Today, I will describe the property logic that has shaped vertical restraints doctrine for the past 30 years. This property logic awards different status to price restraints and non-price restraints, granting more lenient treatment to most non-price restraints. Indeed, this property logic provides the very foundation for the dominant approach to vertical restraints.

The antitrust categories of price and non-price restraints is a commonplace today. But the Supreme Court did not recognize separate categories of vertical restraints in antitrust law=s first 75 years. Until 1963, the Court treated competition as a unitary process and restraints as an undifferentiated concept. It was in the *White Motor Company* case that the Supreme Court first announced that manufacturers' non-price restraints on dealers would be treated more leniently than price restraints.[6] Price restraints were categorically illegal. But with non-price restraints, defendants would now have the opportunity to demonstrate that their particular programs in fact enhanced competition. The Court's differentiation between price and non-price restraints was the result of an imaginative shift from viewing competition as a unitary process to seeing it as a bi-level process. In this bi-level process, at the higher level, White competed against other truck

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[4] Northern Securities Trust, 193 U.S. 197 (1904).

[5] Peritz, A Genealogy of Vertical Restraints Doctrine, 40 Hastings L.J. 511 (1989).

[6] White Motor Co., 372 U.S. 253 (1963); *compare* Dr. Miles Medical Co., 220 U.S. 373 (1910).

manufacturers— Ford, General Motors and Chrysler. Interbrand competition. At the lower level, White's dealers competed against one another. Intrabrand competition

With this view of stratified markets, the Court saw in White Motor's argument a legitimate logic of competition. The logic is now familiar: White was a small truck manufacturer struggling to survive against large rivals whose economies of scale gave them significant cost advantages. It was a losing strategy for White to compete on price with General Motors, Ford and Chrysler. White Motor recognized that it had to develop a marketing strategy to compete on product quality and service. It had to differentiate its product to attract and hold a customer base. It had to add value to the White Motor trademark or leave the market. To accomplish this, White had to encourage its dealers to join it in non-price competition against the Big Three by investing in brand development— better service, more inventory, and so on. The only encouragement that made economic sense required White to assure its dealers the profit margins needed to invest. White had to eliminate dealer competition, typically price competition, it argued to the Supreme Court, by limiting their geographic and customer markets. In short, White argued, intrabrand restraints and, with them, largely non-price competition, were necessary for corporate survival against the Big Three.

The Supreme Court accepted the argument, which depended upon a bi-level view of competition. At each level, restraints remained illegal per se. Manufacturer cartels were prohibited; so were restraints among dealers. But a vertical restraint between levels, one imposed by a manufacturer on its dealers below, was seen as potentially enhancing competition.[7]

What was it that led the Court to adopt this bi-level view of competition? It was the property logic of ownership. Not ownership of the underlying product but ownership of a brand and the images and ideas contained in it. It was ownership of the White Motor trademarks not ownership of the trucks and replacement parts.

After *White Motor*, antitrust courts started to treat competition among dealers, typically price competition, as less important than competition among manufacturers, often non-price competition. Competition among manufacturers, which hinged on development of trademark value, was given more and more sway. At bottom was the determination that manufacturers should be permitted to control the distribution and resale of their branded products, even though they retained no ownership in the goods themselves. Where price cutters were once hailed as heroes, as free traders, the new property logic of trademarks branded them as free riders, as knaves who misappropriated the value of efforts by fellow dealers to develop brand names.[8] Since *White Motor*, antitrust's vertical restraints jurisprudence, its vision of competition, has inhabited the confines of trademark protection.

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[7] The logic was top-down only because only branded manufacturers were seen as legitimate property rights holders.

[8] It was Justice Oliver Wendell Holmes, Jr., who first characterized price cutters as knaves. Dr. Miles, *supra* (Holmes, J., dissenting).

Before I move on to my *second claim* about intellectual property rights and their internal logics of competition, I want to summarize *my first claim: that antitrust has always been suffused with its own property logics, logics which have informed and shaped the competition policy that regulates commercial markets. Antitrust law in the U.S. does not make sense without recognizing the centrality of property rights*.

Now I turn from antitrust to patent law. In my view, U.S. patent policy cannot be properly understood, nor can patent law truly promote progress, without recognizing the centrality of competition policy. I maintain that there is a competition policy, entirely different from antitrust, that is the fundamental ground for patent protection. My position is starkly different from the dominant approach, which treats patent protection primarily as a species of property right, a right to exclude competition.

In my view, patent law, rightly understood, promotes progress first and foremost by extending access to the marketplace of ideas, by giving priority to competition in the production of ideas and information. In the dominant view, patent law should promote innovation by maximizing exclusionary rights that raise entry barriers to commercial markets and exclude competition.[9]

My discussion proceeds as follows. First, I will survey the common ground that my position shares with the dominant one. Next, I will take a shovel to that common ground and expose the subterranean differences that lie below the surface of commonality. That will allow me to show you that encouraging competition and extending access to knowledge markets is patent law's primary mechanism for promoting progress. And, to conclude, there is the important "So what?" question: What are the consequences of adopting my position?

First, the common ground that my position shares with the dominant view.

No one questions the ultimate authority for patent protection, the U.S. Constitution of 1789. It authorizes "Congress . . .to promote progress in . . . useful arts by securing . . . to . . . inventors, the exclusive right to their respective . . . discoveries." Today, the "useful arts" are understood as industrial and technological arts. One year after the Constitution was adopted, the First Congress passed the Patent Act of 1790.[10]

Although there have been rumblings from natural rights advocates from time to time, there is a broad consensus that the Constitution expresses a policy that is instrumentalist, that authorizes

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[9] Nonetheless, the logic is not simple. It should be remembered that patents, like other property interests in commercial markets, create the legal architecture for the transactions. With patents, it is not only exclusionary rights but, as Hohfeld put it, the use privileges needed to permit the licensing necessary to develop, produce and distribute inventions— privileges that make competition by innovation possible.

[10] There is, of course, much to be said about the statute's relationship to its sibling Copyright Act of 1790 and promoting progress in science by granting authors exclusive rights in their writings. I leave this to another day, pausing only to note that the 18th century meaning of "science" was what we today call "knowledge." Our notion of science was termed "natural philosophy."

Congress to issue letters patent to inventors as the *means to an end*, the end of promoting progress in the technological arts. Thus patent protection is seen as part of a bargain contract between the government and the inventor, a *quid pro quo*, a government concession of exclusive private rights in exchange for the public benefits of technological progress. The patent bargain is intended to produce three public benefits, three kinds of progress. First, there is public access to new ideas and information. When a patent application is approved, it is published by the Patent Office. The approved application becomes a matter of public record, supplying new knowledge to nourish the public domain. Second, the patent grant creates for its owner a financial incentive to work the patent, an inducement to produce material benefits for consumers and other users. In the U.S., it should be noted, there is no obligation to work a patent. This underscores the importance of the first public benefit because the inventory of public knowledge expands, even if the holder does nothing with his patent. Third, patent rights expire in 20 years, adding the invention itself to the public domain and making its production and use freely available. It puts a cap on the private right to exploit the patent, adding a sense of urgency to the development process.

I am now lowering my shovel into this common ground. What differences hide below the surface? What separates the dominant view of exclusionary rights from my view of competition and market access in explicating patent law's regime of progress?

The broad consensus over progress as the goal for patent protection obscures difficult policy issues. To begin, the dominant view supports the recent trend toward expanding patent rights, toward increased propertization in the U.S., and gives overwhelming weight to one particular benefit— the financial incentive to the owner to work her patent. The increasing strength of patent rights has, of course, raised barriers to competition, as all property rights do. Nonetheless, this propertization trend serves progress, in the dominant view, because more patent protection provides greater incentive, which results in more innovation.[11] The difficulty with this incentive claim is its utter lack of empirical basis. Economists agree on very little. But they do agree here. They agree that no one has devised an experimental method to determine how patent protection affects innovation. Indeed, it is well-known among economists and others that expanding patent protection can retard innovation.[12]

The basic problem with the dominant approach? There is no baseline from which to measure how the patent regime affects innovation. That's a problem because the goal is maximizing innovation, not maximizing patent protection.

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[11] It should be noted that more innovation is seen, through the lens of economist Joseph Schumpeter, as more competition. For an explication of three sharply different views of competition by innovation, see Peritz, "Innovation Economics and U.S. Antitrust Law" in Post-Chicago Developments in Antitrust Law (A. Cucinotta, R. Pardolesi, R. Van den Bergh, eds.)(London, U.K.: Elgar Press, 2002)(discussing J. Schumpeter, E. Chamberlin and B. Arthur).

[12] See, e.g., K. Arrow, "Economic Welfare and the Allocation of Resources of Invention," in The Rate and Direction of Inventive Activities (R. Nelson, ed. 1962); White v. Samsung Elect. Amer., Inc., 989 F.2d at 1512-1513 (9th Cir. 1993)(Kozinski, J., dissenting)(referring to copyright and derivative works); R. Brunell, Appropriation in Antitrust: How Much is Enough?, 69 Antitrust L.J. 1 (2001).

There is a second problem as well, a deeper problem in the operative assumption that the three public benefits are entirely compatible. They are not. And that incompatibility has corrosive effects on promoting progress. Perhaps the best example is the experimentation defense to claims of patent infringement. In the U.S., the defense is too narrow to have any practical value: A federal appeals court recently held that basic scientific research, conducted in Duke University physics labs, with government funding, amounted to patent infringement even though there was no commercial impact and no profit to be made, because Duke benefited from a "revenue stream" produced by government funding.[13] The court extended the patent holder's exclusionary right by questionable analogy to commercial profits and, in the process, blocked research activities by educational and other non-profit institutions, basic research whose only consequence would have been a deposit of knowledge in the public domain. The court simply assumed that extending the patent's reach would promote progress by increasing the patent holder's exclusionary right in an ersatz commercial market. Patent protection from experimental use, in this case, did not mean more progress. It likely meant less.

This dominant trend toward increased propertization of patents is also evident in the trivialization of the non-obviousness requirement, which I will discuss shortly. This trend results from a collapse of ends into means, the mistaken collapse of more progress into more patent rights. What began as an effort to promote the ends of progress by maximizing the material public benefits of patent protection has devolved into a rationale for maximizing the means itself— patent protection.[14] The focus has slipped from ends to means.

In my view, the focus must return to the ends of progress. Specifically, priority must be given to the public benefit of replenishing the public domain with new knowledge and the further progress that results from competition in ideas. Why? To begin, because the knowledge benefit is computable. There is an ascertainable base line. Without patent protection, commercial development would proceed in secret, at least until the trade secret is discovered. Even then, it is unlikely to result in a deposit to the storehouse of public knowledge. More likely, discovery would lead to a shared secret between two holders. But with a patent regime, knowledge must become public. There must be an immediate knowledge benefit. There are other reasons as well for giving priority to the knowledge benefit. At the same time, this approach raises questions about the standard for non-obviousness and other requirements of patentability. I hope we will have time to discuss some of these interesting issues after the presentation.

To reorient the focus from maximizing patent protection to promoting progress, we need a guide to the logic of progress, a guide to the internal structure of public benefits expected from patent protection. The three benefits— public access to new ideas and information, the private incentive for producing material enrichment, and public access after the term expires— actually fall into two categories. The public access requirement increases the store of knowledge and creates a

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[13] Madey v. Duke University, 307 F.3d1351, 1362 (Fed. Cir. 2002).

[14] This slippage from ends to means may be a consequence of the very inability to evaluate instrumental value. If one cannot determine whether the means serves the end, then an intuition will have to suffice for the time being. And that intuition is incentive theory, which justifies expanding the means to promote the end. The result is a trend toward increased propertization.

public good in the marketplace of ideas. New ideas and information are freely available. The key is free access and the subsequent competition in ideas. Everything is open for inspection and debate, criticism and praise, improvement and abandonment. But the second and third benefits are different in character. The exclusive development of inventions and the end of exclusivity fall into the commercial domain. These are not public goods but private rights. Commercial development is intended to produce profits. Private goods are developed in order to be bought and sold. Thus the second and third benefits ultimately define exclusive rights in commercial markets. Thomas Jefferson, in a letter to a disappointed patent applicant, put it this way in 1813:

> That ideas should freely spread [like fire] from one to another over the globe, for the moral and mutual instruction of man, and the improvement of his condition, seems to have been peculiarly and benevolently designed by nature. . . . He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. . . . Inventions then cannot, in nature be a subject of property. Society may [only] give an exclusive right to the profits arising from them, as an encouragement to men to pursue *ideas* which may produce *utility*. . .[15]

Understanding the logic of progress involves a change in perspective, informed by Jefferson=s enlightenment imagery of ideas. Just as modern vertical restraints doctrine in antitrust required a bi-level view of commercial markets— interbrand and intrabrand —modern patent doctrine must be seen in terms of the bi-level structure of progress markets— commercial and knowledge. This change in perspective opens a path to the internal logic of progress, to adjudicating the tensions among the three public benefits that patent protection is intended to provide. The dominant approach, currently in the mode of increased propertization, can thus be understood as expressing a primary and overwhelming concern for commercial markets, for maximizing the incentive to produce material benefits. As the Duke University case illustrates, even impact on government funding analogized to commercial development preempts any consideration of harm to the free flow of ideas and information. Even the slightest impact on the means outweighs significant harm to the ends. By failing to take into account the loss of competition in ideas, the dominant approach does not adequately serve the ends of progress.

In my view, we must undo this collapse of ends into means. To reverse the course of increasing propertization, patent law must give priority to the knowledge benefit of new ideas and information. Access to these public goods in the marketplace of ideas should be protected as the most important goal of patent law. Access calls for more competition and less exclusion. Propertization, in this view, is bad patent policy because of its impact on the public domain, the marketplace of ideas. Propertization is bad patent policy because it maximizes the transaction costs of producing the public goods, the ideas and information, that patent policy promises. Patent protection is the means and thus the cost of producing public goods. It is not the ends. The primary goal should be knowledge maximization rather than wealth maximization. Though both are legitimate social goals, conflicts or incompatibilities should be resolved in favor of maximizing knowledge. That approach is most faithful to the patent bargain.

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[15] Letter from Thomas Jefferson to Isaac McPherson, Aug.13, 1813, in 6 Writings of Thomas Jefferson 180-81 (H.A. Washington, ed., 1854), cited in Graham v. John Deere Co., 383 U.S. 1, 8-9 (1966).

In this light, some might argue that viewing patent protection as the means, as the cost of producing public goods for the marketplace of ideas, would call not for maximizing but for minimizing exclusionary rights. But that would be equally unfortunate patent policy because we just don't know how to measure the relationship between patent protection and material progress. Maximizing knowledge might in some cases result from maximizing patent protection. The implication from this ignorance is that defining progress in terms of material benefit simply does not make sense, given the current state of economic research. Hence, a second-best argument emerges for giving priority to the knowledge benefit and for focusing on the marketplace of ideas, until the economists have figured it out.

But I don't intend to rest on that claim. Rather, I want to urge a first-best claim— that giving priority to the knowledge benefit best expresses the logic of progress. Means should be justified only by how well they serve the ends of progress. That's the constitutional mandate. Moreover, as we will see, patent law, properly understood, already reflects the constitutional bargain in many significant respects. Better patent policy would results from a primary commitment to the public benefit of replenishing the public domain with new knowledge, from the progress invented by competition in ideas.

Now, on to our short hike through a bit of U.S. patent law to show you that competition policy is already working in the corridors of progress.

Obtaining a patent is not a simple matter. The average cost is USD 30K and the process typically takes several years. It takes time because the applicant must persuade the Patent Office examiner that her invention merits exclusive rights. The applicant's burden reflects the historical fact that patent protection was never seen as the only means of achieving progress. Quite the contrary. The Anglo-American tradition has viewed competition as the ordinary means to achieve progress, with patent monopolies as the extraordinary means. Patent protection for innovation has been the exception, at least since England's first patent law— aptly named the Statute of Monopolies in 1624. The grant of an exclusive right to one's invention was a monopoly, an exception to the rule of competition.

The U.S. Patent Office requires the applicant to carry a heavy burden of proof. The application process can be understood as requiring the inventor to overcome a presumption that competition is the ordinary state of affairs, overcome by persuading the patent examiner that the claimed invention is extra-ordinary in relation to prior art and thus merits a patent monopoly. I won't take the time this morning to show how each and every element of that burden reflects the view that the patent grant is an exception to the ordinary regime of competition, an exception that rests on the knowledge component of progress. But I will describe three elements of the patent applicant's burden.

First and foremost, the patent applicant must show that the invention is useful. As the Supreme Court put it many years ago, "an idea of itself is not patentable, but a new device by which it may

be made practically useful is."[16] For example, the inventor of the telegraph, Samuel Morse, filed a patent application with multiple claims. A patent was granted for using electromagnetism to produce detectable signals over telegraph wires. But his famous claim of "electromagnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distances" did not withstand scrutiny. The Supreme Court rejected it as too abstract, as an idea that "matters not by what process or machinery the result is accomplished." More recently, the Supreme Court characterized the utility requirement as follows: The "patent system must be related to the world of commerce rather than to the realm of philosophy . . ."[17] The requirement that an invention be useful establishes a distinction between abstract ideas and commercial embodiments. Ideas are not patentable because exclusive rights cannot properly be granted to privatize the public goods that are intended for the public domain, the marketplace of ideas. Even a brilliant idea like $E=MC^2$ is not patentable. Einstein could not stop others from commercial development of his ideas. Others could receive patents on useful devices that embodied his idea. The idea was free for all even though an incentive analysis, a propertization logic, could conclude that more brilliant ideas would result from patent protection of ideas. But the public costs of production would be too high. The marketplace of ideas would suffer too much. In drawing a boundary between the idea and the device, the knowledge benefit is given priority over the material benefit: the idea is a public good destined for the marketplace of ideas, not private property for development in commercial markets.

In addition to the burden of showing utility, the applicant must persuade the patent examiner that the invention is non-obvious. For 150 years, the courts applied an intuitive notion of non-obviousness, asking whether the device was truly an invention. In 1910, for example, the renowned jurist, Learned Hand, approved a patent for purified Adrenalin because it was "a new thing commercially and therapeutically." Lawyers complained that this intuitive approach was vague, but for my purposes, it clearly supports the view that progress was taken to require something not only useful but "new"— something with informational value. Without injecting new knowledge into the public domain, no patent would be granted for exclusive rights in commercial markets. For a decade in the mid-20th century, however, a deep anti-monopoly sentiment spilled over into patent doctrine, resulting in the more stringent requirement of a "flash of creative genius." But Congress quickly intervened to amend the Patent Act by adding a less demanding definition of non-obviousness as "not obvious to ordinary workers in the field." The statute's author and subsequent Federal Circuit judge characterized the new statutory test as requiring only that the invention "add to the sum of useful knowledge."[18] The lower standard was intended to extend patent rights to inventions that contributed to the public domain even though the contribution did not reflect a flash of genius.

To appreciate the practical effects of this diminished standard, it is useful to consider the sources of additional devices now eligible for patents. Presumably, additional patents are now granted for inventions that earlier were candidates for trade secret protection. To the extent that the lower

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[16] RTP v. Howard, 87 US 498, 507 (1874).

[17] L. Hand in Parke-Davis v. Mulford, 189 F.2d 95 (S.D.N.Y. 1911). Quotation from Brenner v. Manson, 383 US 519 (1966).

[18] Giles S. Rich, Laying the Ghost of the "Invention" Requirement, 1 APLA Q. J. 26 (1972).

standard for non-obviousness draws trade secrets out of hiding, it promotes progress by adding new information and ideas to the public domain. Patent protection for more trade-secret-eligible inventions encourages the production of public goods and ensures free access.[19]

My third and last example of the knowledge benefit's primary importance to the current patent regime is the requirement that the description of the invention in the patent application be clear and complete enough to enable those reasonably skilled in the art to make and use it. The Patent Act (§112) also requires that the applicant include any additional knowledge of the "best mode" of making and using the invention. The description and enablement requirement provides a knowledge benefit in two ways. First, without a stringent requirement, the patent examiner could not be certain that the applicant had reduced the idea to practice. There would be the danger of patenting an idea, of turning a public good into private property. Second, as the Supreme Court stated, "If the description be so vague and uncertain that no one can tell, except by independent experiments, how to construct the patented device, the patent is void."[20] In other words, there would be insufficient informational value. The patent regime would produce the worst of all possible outcomes: private rights to an idea and public goods without use value. The public domain would shrivel while prices in commercial markets would increase.

In sum, the patent elements of utility, non-obviousness and specification promote progress first and foremost by requiring the production of significant public goods for the marketplace of ideas in exchange for private exclusionary rights in commercial markets. They embody the recognition that progress requires a healthy and well-fed public domain, replenished in each instance with new ideas and information that are freely accessible. That's my position.

What difference would it make, adopting this position in place of the dominant one?

The dominant view is caught in a downward spiral of increasing propertization. In the absence of an empirical basis for determining the proper bounds of patent protection as the means for promoting progress, policy making has devolved into the untenable logic that more patent protection results in more innovation. As a result, the knowledge benefit is virtually ignored after the patent has issued. In some cases, the public knowledge benefit is actually diminished when it conflicts with ever-expanding private rights in commercial markets.

In my view, promoting progress requires that patent doctrine recognize the primary importance of the public domain and, with it, access to the public goods of information and ideas— what I have called the knowledge benefit. The public domain must be understood as the marketplace of ideas, the sphere for competition in ideas. The impact of this re-orientation would be widespread. Most broadly, it would reverse the downward spiral of propertization, the increasing public cost and decreasing public benefits of patent protection. Here are five specific examples of how patent law and policy would be improved.

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[19] A continuing decline into triviality raises the question whether there is any knowledge benefit to the public in exchange for the patent grant.

[20] The Incandescent Lamp Patent, 159 US 465 (1895). The patenting of computer software raises important questions about the knowledge benefit. The description element is satisfied by language of general means that does not require publication of source code. The result is patents that are too broad and information that is too vague to be useful. My approach would not permit the current approach to software patents.

First, the experimental use defense against infringement would be expanded. Recognizing the primary importance of contributing new ideas and information to the public domain would likely lead to a different outcome in cases like the Duke University litigation because the court would begin its inquiry by examining the impact on the knowledge benefit. The experimental use defense was first expressed in 1813, in a much-quoted opinion by Justice Story who declared that the exclusive rights to a patent were not infringed by "philosophical experiments." The Duke University opinion took that to mean "idle curiosity." But Justice Story meant something significantly different. By referring to philosophical experiments, he meant natural philosophy—what we today call science. In a later opinion, he posed a distinction between "the . . . intent to use for profit and . . . the mere purpose of philosophical experiment."[21]

In similar fashion, Judge Pauline Newman of the Federal Circuit recently differentiated between research and development.[22] The premise underlying both distinctions is clarified when the experimental use defense is understood as the public policy stylus that draws a line between commercial markets and knowledge markets. Proper weight is given to competition in knowledge markets when patent policy is recognized, first and foremost, as promoting access to the marketplace of ideas. It is the public good of ideas and information that provides the raw materials for further progress and, indeed, for the development of innovation in commercial markets. In this light, all innovation is improvement innovation that depends on prior art in the public domain.[23] Patent law only makes sense when it treats knowledge markets as the resource that must be sustained for the sake of promoting progress.

Second, the current weak standard for non-obviousness can be understood as a failure of consideration in the patent bargain. The slide into triviality means that the knowledge benefit to the public is lacking in substance. A good example is the deluge of patents in the U.S. for thermal insulating sleeves on portable coffee cups. They are very popular in the U.S.— the cardboard ring that helps you hold your coffee cup without burning your fingers. The Patent Office has added an entire classification category for this field of invention. By 2003, the Patent Office issued at least 159 patents in this category. Reorienting patent law would cut against this devolution into vulgar propertization, the failure of knowledge benefit in the patent bargain, and the increased costs in commercial markets.[24]

Third, the relationship between patents and trade secrets would be clarified. The current focus on commercial markets has led the Supreme Court to view patents and trade secrets as consistent with one another because they both create incentives for commercial development. But attention

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[21] Whittemore v. Cutter, 29 Fed. Cas. 1120, 1121 (C.C.D.Mass.1813) (No. 17,600) (Story, J.); Sawin v. Guild, 1 Gall. 485, 21 Fed.Cas. 554 (C.C.D.Mass.1813) (Story, J.).

[22] Integra Lifesciences I, Ltd. v. Merck KgaA, 331 F.3d 860, 893 (9th Cir. 2003) (Newman, J., concurring and dissenting in part).

[23] K. Arrow, "Economic Welfare and the Allocation of Resources of Invention," in The Rate and Direction of Inventive Activities (R. Nelson, ed. 1962); cf. T. Kuhn, The Structure of Scientific Revolution (1954)(describing normal and revolutionary science.).

[24] See *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy* (FTC 2003), available at <http://www.ftc.gov/opa/2003/10/cpreport.htm>. The thermal sleeve example comes from John H. Barton, Non-Obviousness, 43 IDEA 475 (2003).

to the marketplace of ideas brings into plain view their fundamental conflict. Patent law's commitment to publication of knowledge is in sharp contrast to trade secrecy. Where their subject matter overlaps, where an invention meets the requirements for patent protection, trade secret rights should not be enforced because secrecy blocks access to knowledge that would be produced as patent's knowledge benefit. To take account of the unfair competition associated with misappropriation of trade secrets, the owner should be permitted a cause of action to recover damages. But no injunction would issue. Once out of hiding, a trade secret should not be allowed to return.[25] Trade secret law should be refashioned to minimize its impact on the supply of public goods in the marketplace of ideas. In short, the incentive to shift from trade secret to patent protection should be maximized.

Fourth, patents for the production of naturally occurring substances should be limited to protection of the process. An opinion in the early 20th century, written by the illustrious Judge Learned Hand, still stands today as a statement of the rationale for patenting purified forms of natural substances.[26] In that case, the purified hormone, Adrenalin, was patented because it was "a new thing commercially and therapeutically." Clearly, the rationale emerged from a focus on commercial markets. But the affects of patenting the product were much broader because it encompassed the very idea of purifying the hormone. A better solution would have been protection of the particular process and the particular use, leaving the idea of purified Adrenalin in the public domain and thus open to research competition. The same rationale would hold for genome research— process and specific use patents for isolating and for using particular gene sequences, but no product patents in the genes themselves. Competition to develop new production processes and new uses for Adrenalin and for gene sequences would be encouraged, because access to the idea of purified Adrenalin or an isolated gene sequence would not be foreclosed.

Fifth and finally, primary attention to the knowledge benefit would clarify the relationship between patent misuse and antitrust. Patent infringers often assert the equitable defense that the court should not enjoin the infringement because the patent holder misused the grant. In the U.S. today, the patent misuse defense largely overlaps antitrust claims. Some critics, including Judge Richard Posner, have called for the elimination of misuse defense entirely. To the extent that the misuse claim overlaps antitrust and regulates conduct in commercial markets, I agree with the critics. But, once patent policy is understood in terms of the knowledge benefit and its crucial importance to the marketplace of ideas, patent misuse doctrine can be refashioned to complement rather than overlap antitrust. Patent misuse should be seen in terms of a competition policy for the marketplace of ideas, for promoting the production of public goods and free access to them.

Here is one example of how a new patent misuse doctrine might work: Many patent licenses include grant-back clauses, in which the licensee grants the licensor, the owner of the basic patent, royalty-free use of improvement patents. Currently, grant-back clauses are evaluated under the antitrust laws, to determine the competitive effects in commercial markets. But grant-backs are not considered patent misuse. Under a new misuse analysis that determines the competitive effects

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[25] See Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470 (1974)(Douglas, J., dissenting).

[26] Parke-Davis v. Mulford, 189 F.2d 95 (S.D.N.Y. 1911).

in the marketplace of ideas, grant-back clauses would be evaluated differently. What of treating them as presumptively illegal forms of patent misuse? Take, for an extreme example, a situation where the licensee has invented a major improvement, one that increases significantly the value of the underlying patent. Will the licensee simply hand it over, as the grant-back clause requires? The licensee will have a strong incentive to slow down the development process or otherwise keep the improvement secret until the licensee is in a strategically strong position. Indeed, there is an incentive to work around the basic patent and end the license as soon as possible. But in the absence of a grant-back clause, the licensee would have an incentive to speed up the development process and to patent the hypothetical improvement to pursue the mutually advantageous scenarios presented by cross-licensing and, with it, the opportunity to share anticipated profits. The public domain would be enriched by the knowledge contained in the improvement patent's description and claims published by the patent office.

A new patent misuse doctrine might prohibit grant-back clauses or require that they take the form of rights of first refusal, to insure that the licensee retain the right to negotiate for profits from commercial development. Licensees would be encouraged to innovate and, in consequence, to produce a knowledge benefit by adding new information and ideas to the public domain.

To conclude . . .

Antitrust and patent policies are not on a collision course. Nor do they intersect in some simple way. Rather, they each embody their own internal matrix of property and competition logics.

A new approach emerges for organizing antitrust and patent regimes, once we recognize that they both have their own internal property tenets and their own internal competition policies. The approach begins with a bi-level view of markets in which patent law is seen as a web of property and competition policies. In commercial markets, patent law produces the property rights required for competition by innovation, competition captured in economist Joseph Schumpeter's metaphor of "perennial gales of creative destruction." Commercial competition is regulated by antitrust law. But in the marketplace of ideas, patent law is a competition regime. It produces public goods that replenish the storehouse of public knowledge needed for competition in ideas. It regulates access to them and thus regulates competition in ideas.

In contrast, the incentive logic that informs the dominant approach supports increased propertization, incorrectly assuming that maximizing the means, the property rights in commercial markets, will maximize innovation. But we know that is faulty logic. It is faulty for two kinds of reasons. First, we have no baseline from which to begin and so incentive theory is not computable. Second, experience gives us counter-examples to pierce the claim that greater incentive creates more innovation and, with it, more material benefits. Moreover, at a deeper level, no one doubts that patent's knowledge benefit is the fundamental engine for promoting progress. New knowledge is the raw material for progress, both informational and commercial. As an historical matter, at least in the Anglo-American tradition, progress has been thought of, first and foremost, as the product of competition. Only extraordinary circumstances have supported the issuance of a patent. Patent rights have been understood as the necessary and thus tolerated but not celebrated costs of producing progress. Finally, much of patent doctrine, particularly those

elements addressing the patent application process, corroborates this understanding of competition as the customary engine for progress.

Nonetheless, the incentive rationale that currently dominates patent policy clings to a property logic that calls for the utmost protection of commercialization rights. In consequence, it simply cannot recognize that it is the knowledge benefit that drives progress. The incentive logic for maximizing innovation, situated in commercial markets, treats the knowledge benefit as a positive externality to be privatized. But shifting perspective to the marketplace of ideas redefines the knowledge benefit as the public good to be maximized. From this perspective, private incentives to innovate reflect the production cost of promoting progress in the industrial and technological arts. In this light, patent protection is the negative externality exchanged for the positive externality of progress in the patent bargain. It's pretty simple: The patent regime is intended to promote progress not patent protection, public benefits not private rights.

My claim is that a patent regime promotes progress best when it gives priority to the knowledge benefit and furthers competition in ideas. In this public domain, we want to encourage the widest use of the knowledge benefit; here, use does not consume. Ideas and information remain available to all. In this public domain, there is no tragedy of the commons. In the marketplace of ideas, no harm arises from overuse. If anything, there is a constitutional call for overuse. Here, the mandate is for a comedy of the commons.[27]

[27] Once again, I leave to another day discussion of the comedy that I envision. For an early and influential view, see C. Rose, The Comedy of the Commons: Custom, Commerce, and Inherently Public Property, 53 Chi. L. Rev. 11 (1986).