PANEL VI

PATENT NOTICE AND THE TROUBLE WITH PLAIN MEANING

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INTRODUCTION: NOTICE AND FENCES

In their book, *Patent Failure*,¹ James Bessen and Michael Meurer argue that the American patent system is failing to protect innovators adequately because its notice delivery is poor.² Bessen and Meurer argue, with examples, that lack of clear notice of a patent's existence, as well as what would be determined to be the coverage of that patent, apparently makes the system quite costly to society due to unpredictability.³ We don't know how a claim will be construed before a judge construes it, and perhaps not until the Federal Circuit reconstrues it—so how will a firm have notice of its vulnerability to suit if it pursues a particular course of product development? The authors decry this

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¹ JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK (2008).

² See *id.* at 9 ("Poor notice causes harm because it subjects technology investors to an unavoidable risk of disputes and litigation. The expected cost of inadvertent infringement imposes a *dis*incentive on technology investors.").

³ See *id*. (attributing to "poor notice" an appellate court's opinion giving a sixteen-yearold patent "boundaries that many people, including a district court judge, would find surprisingly broad").

situation, and they have some interesting and troubling stories to tell. In chapter three they recount the different strategies of RIM and Kodak as patent defendants: RIM didn't try to investigate all patents that might bear on their technology,⁴ while Kodak did plenty of due diligence.⁵ They both lost their cases.⁶

The basic question addressed by Bessen and Meurer is whether the costliness of the system due to unpredictability of claim meaning and applicability in practice could be reduced. Bessen and Meurer believe that a substantial reduction of unpredictability costs could clearly be implemented.⁷ I tend to be skeptical. At least, I tend to be skeptical that costs due to unpredictability of claim interpretation can be reduced as much as these authors seem to believe. To put my point perhaps too bluntly, there is no such thing as plain meaning that everybody concerned will accept, especially when it comes to innovative products and processes where there is money at stake.

There isn't a single unified issue of "notice," but rather the issue of notice breaks down into more specific inquiries. First, notice to whom? Perhaps to competitors of the patentee (whether or not they are developing competing patents), to start-ups (and other follow-on inventors), and generally to practitioners in the field (the person having ordinary skill in the art whom patent folks call PHOSITA). Next, notice of what? Perhaps of the existence of the patent document itself, its contents (its specification, its claims), at what point the patent document is made public, or other information about the patent (whether it is in force, or pending, or in various stages of post-grant review or

⁴ See id. at 47 (describing RIM's development of wireless e-mail technology without permission from, or investigation into, an inventor who patented similar technology).

⁵ See id. at 48 (recounting extensive efforts of Kodak to invent around Polaroid's patents, and its thorough consultation with patent lawyers).

⁶ See id. at 47-51 (observing how RIM engaged in five years of litigation, faced a potential injunction, and eventually settled for \$612.5 million, and how Kodak lost its patent suit against Polaroid, resulting in a \$900 million judgment). Does the observation that even a firm that takes great care (and incurs large expenditures) to learn about patents in its field can lose its big case cause firms to tell their technologists to be sure not to look at patents of others? Such a result, if that is indeed what is occurring, seems to undermine one of the central values attributed to the patent system: the advance of general knowledge in a field. In turn, undermining this central value might undermine the general rationale for using patents (rather than some other system) for incentivizing and/or rewarding innovators. In their book, Bessen and Meurer do not recur to the overarching question about whether or not we should have a patent system. My remarks here are primarily on the notice problem, but I will come to the overarching question in conclusion. *See* Postscript, *infra* notes 67-71 and accompanying text (discussing several perspectives on the benefits and deficiencies of the current patent system and possible alternatives).

⁷ See BESSEN & MEURER, *supra* note 1 (listing reforms that would benefit the patent system, including structural changes in judicial review of patent cases, modifications to the methods for defining patents, and improvements in the mechanisms through which innovators search for and identify existing patents).

litigation, whether or not it is part of a group of patents held by one firm, whether or not the subject matter is patented in other countries). And finally in case this is even possible, which I will discuss in this essay—notice of what technology or technologies the particular patent actually covers—that is, what the patent actually would be held to cover, if its coverage came to matter in the marketplace.

What do Bessen and Meurer mean by notice? They want it to mean what I just characterized as "notice of what technology or technologies the patent actually covers"-meaning "actually would be held to cover, if its coverage came to matter." They think that the situation they observed has hopelessly failed at this goal, but they think the situation can be improved. Their proposal for improvement calls upon comparison with real property boundaries.⁸ That is, they mostly take the position that notice of the scope of a patentee's property rights is usefully analogous to notice of real property boundariesfences, or metes and bounds. They recount that real property boundaries function to avoid trespass, and to facilitate transfer of rights if someone wishes to use someone else's property. They want patent "boundaries" to do the same: avoid infringement, facilitate licensing. For Bessen and Meurer, the failure of the patent system is the lack of appropriate notice of patent existence and scope to participants in the system: inventors, would-be inventors, start-ups, established firms, competitors. The failure of notice leads to inadvertent infringement (and large financial losses).9

Thus, the main thesis of Bessen and Meurer is that more clarity of notice in patents will allow participants in the system to know the scope of property rights with enough specificity in order to avoid infringement and to provide for clearance of rights (that is, licensing of rights when needed).¹⁰ To the contrary,

⁸ See id. at 46 ("An ideal patent system features rights that are defined as clearly as the fence around a piece of land. Realistically, no patent system could achieve such precision, but our current system appears to be critically deficient in this regard. The comparison to tangible property is informative.").

⁹ See id. at 47 ("[C]ertain institutions that contribute to clear notice [for tangible property] are pitifully underdeveloped [in the patent system]. It is hardly surprising, then, that patents, unlike tangible property, have a significant problem with inadvertent infringement.").

¹⁰ See id. at 61 ("The law and institutions that support notice in the patent system fall far short of similar institutions supporting notice for tangible property rights."). As a former property professor, I have to say that property boundaries are not necessarily as clear-cut as these authors make them sound: nuisance, prescriptive easements, implied licenses, covenants running with the land, and so on and so forth, do cause quite a bit of trouble, especially where large amounts of money are at stake, and plenty of contested cases could come out either way. *See, e.g.*, Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc., 114 So.2d 357, 359 (Fla. Dist. Ct. App. 1959) ("[I]n the absence of some contractual or statutory obligation[,] a landowner has [no] legal right to the free flow of light and air across the adjoining land of his neighbor."); Hornsby v. Smith, 13 S.E.2d 20, 25 (Ga. 1941) (holding that a fence erected "solely from malice, is an invasion of the right to light and air,

a main point I want to make in this essay is that notice communicated by fences is not analogous enough to notice communicated by language in order for the Bessen and Meurer argument to be ultimately compelling. Patent claims raise the question—in a way that fences do not—of how words "read on" objects in, or states of, or events in the world.¹¹

It could be ameliorative to restructure some doctrines that seem counterproductive, though readers will probably have different views of what those are. Perhaps the lack of interlocutory appeal of the trial court's claim construction,¹² or perhaps the conflicting standards between the United States Patent and Trademark Office's ("PTO") review and the United States Court of Appeals Federal Circuit's review, and in my view, certainly the lack of enough attention to the knowledge of PHOSITA. If this sort of thing is all Bessen and Meurer meant to say, well and good. Moreover, perhaps the reforms of the Leahy-Smith America Invents Act ("AIA"),¹³ such as the various forms of post-grant review,¹⁴ have mitigated their critique. Yet the idea that there is such a thing as language meaning analogous to the existence of a physical fence stuck visibly and rather immovably in the ground, which they seemed to endorse, seems to me naïve. The problem of how words relate to the world is a

and will authorize a court to grant relief"); Boomer v. Atl. Cement Co., 257 N.E.2d 870, 875 (N.Y. 1970) (holding that even in the face of a clear nuisance, the grant of an injunction was not automatic where significant economic factors were at stake); Morgan v. High Penn Oil Co., 77 S.E.2d 682, 688-90 (N.C. 1953) (expanding private nuisance liability to an oil company's operations regardless of whether or not the company's operations were carried out negligently).

¹¹ Fences may themselves seem to be simply objects in the world. But fences have meaning: controversies arise over whether they are properly placed, properly placed by the right person or entity, and of the right design to accomplish a permitted purpose. *See generally* Lindsay Nash, Note, *Mending Wall: Playing the Game of Neighborhood Ordering*, 21 YALE J.L. & HUMAN. 173, 175-82 (2009) (analyzing the various functions fences play in society and the disputes that may arise because of them). For example, a picket fence may be acceptable where a high, concrete wall is not. Fences, too, can be (and are) subject to interpretation. *See id.* at 176 (explaining how some may view a fence's purpose as keeping people out, while others, specifically prison guards, may view a fence's purpose as keeping people in). Pertinent to my argument, however, I think we can accept that situations in which words must be interpreted to read on the world (the relationship of the words in a patent claim to a specific object or process) are different from situations in which objects in the world (fences or boundary lines) must be construed.

¹² See, e.g., Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1479 (Fed. Cir. 1998) (en banc).

¹³ Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.); *see* Paul M. Janicke, *Overview of the New Patent Law of the United States*, 21 TEX. INTELL. PROP. L.J. 63, 69-72 (2013).

¹⁴ See Rochelle Cooper Dreyfuss, *Giving the Federal Circuit a Run for Its Money: Challenging Patents in the PTAB*, 91 NOTRE DAME L. REV. 235, 271-80 (2015) (evaluating early use of the various forms of post-grant review).

puzzle that cannot be eradicated with analogies. Nor can it be squelched with exhortations to be clearer in claim drafting or less obtuse in interpretation.

If the idea that a set of words can be made to function like a physical fence is naïve, it is naïvely (and rather tacitly) shared by many judges, and many legal scholars, too. That shared idea is the assumption that a set of words can have a fixed "plain meaning." Time is important with patents as it is with constitutions, and if meaning is evolutionary, that fact will show up in both places, as I believe it does. But even without factoring in the issue of evolution of meaning over time, the notion that a set of terms (such as claims), which are interpreted in light of a larger context (at minimum, the rest of the patent specification, often the prosecution record, and also the understanding of PHOSITA), will have one particular fixed "plain meaning" that can brook no significant disagreement is, as I will argue, a myth.¹⁵

I. DESCRIBABILITY AND REFERENCE

Language philosophy studies the problem of how words relate to states of the world; or, how words relate to the world as humans experience it. Some years ago, I became interested in what I called the "linguistic turn" in patent law.¹⁶ I was fascinated not only by language philosophy itself, but also by the interpretive splits showing up among the judges on the Federal Circuit, and especially by the United States Supreme Court's use (for the first time, as far as I know) of the idea of "indescribability" in its decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.¹⁷ The problem of deciding whether and how a set of words "reads on" something in the world is the same one that language philosophers have thought of as the problem of reference. The

¹⁵ Of course, I am not saying that we (speakers of a language, located in a certain culture) do not frequently believe, and correctly believe, that a set of words has a plain meaning. We do. Humpty Dumpty was delightfully wrong to say that words just mean what he wants them to mean. LEWIS CARROLL, ALICE'S ADVENTURES IN WONDERLAND AND THROUGH THE LOOKING GLASS 190 (Roger L. Green ed., Oxford Univ. Press 1982) (1871) ("When I use a word,' Humpty Dumpty said, in a rather scornful tone, 'it means just what I choose it to mean-neither more nor less.""). Humpty Dumpty is wrong because words do not mean what the author or speaker intends them to mean, or as Humpty Dumpty put it, "chooses" them to mean, but rather what the hearers understand them to mean. It follows of course that meaning evolves and can be unclear in situations of conflict.

¹⁶ I began considering the issues raised by the meaning of meaning as applied to patent law, and I wrote a draft then that I presented to various groups. See Margaret Jane Radin, The Linguistic Turn in Patent Law (September 2004) (unpublished manuscript) (on file with author). A number of writers cited the manuscript in published works, or in unpublished drafts of their own. See, e.g., Kevin Emerson Collins, Semiotics 101: Taking the Printed Matter Doctrine Seriously, 85 IND. L.J. 1379, 1382 n.16 (2010). Although my manuscript was never completed, these issues are still ineradicably relevant, and worth revisiting here.

¹⁷ 535 U.S. 722, 735-36 (2002) ("Prosecution history may rebut the inference that a thing not described was indescribable."). For further discussion of the implications of Festo and indescribability, see infra Sections IV.B and IV.D.

question might be phrased: Whether a word or set of words (an expression) refers to an object (has the object as its reference)? If so, how does it do that? What is the connection? The question might also be phrased: Whether the object is within the extension of the given expression? Traditionally, scholars have thought that what mediates between an expression and its reference is something called "sense" or "meaning."¹⁸ Thus, in the traditional view, "sense" or "meaning" is correlated with individual language units. Roughly speaking, if this view were accurate with regard to language, it would be more likely that such a thing as "plain meaning" exists.

Generally, philosophers divided into those who thought that meaning is attached to linguistic units individually, word-by-word or clause-by-clause or sentence-by-sentence, versus those who thought that meaning is holistic, only to be understood in the context of an entire language or indeed in the context of the form of life in which the language is embedded.¹⁹ Various thinkers of the twentieth century developed views that undermined the traditionalist idea that meaning is to be understood in terms of individual language units. We could characterize the philosophical division as traditionalists (atomists) vs. social constructivists (holists).

Perhaps it will be useful (or at least interesting) to recount something of the holist view of language reference by recalling how Willard Van Orman Quine approached this problem. The holist view can be considered allied with philosophical pragmatism.²⁰ How does language "read on" or correspond with the world of things and contexts? Quine set up thought experiments in what he

¹⁸ See Michael S. Moore, Justifying the Natural Law Theory of Constitutional Interpretation, 69 FORDHAM L. REV. 2087, 2091 (2001) ("Traditional semantic theories are sense-determines-reference theories.").

¹⁹ See generally Jonathan Gienapp, *Historicism and Holism: Failures of Originalist Translation*, 84 FORDHAM L. REV. 935, 941 (2015) ("The meaning of individual linguistic components—words, phrases, or utterances—can only be understood in terms of their relations within the conceptual vocabulary of which they are a part."). To the idea of "conceptual vocabulary" I would add the broader idea of socio-cultural conditions integral to such vocabulary; that is the idea of a form of life whose background conditions are not separable from its vocabulary and its meaning.

²⁰ WILLARD VAN ORMAN QUINE, WORD AND OBJECT (1960). Perhaps controversially, I will sometimes be referring to the proponents of this social constructivist/holistic view of language as pragmatists, and their views as pragmatic. I am placing holism within pragmatism because Quine, who was one of the original proponents of the holistic view of language, said his view turns toward pragmatism (rather than remaining clearly within the sphere of the analytic), and many other philosophers identified with holism are identified with pragmatism. More generally, philosophical pragmatism focuses on how present practices are interrelated with past, present, and future contexts. Pragmatism has many variations, of course, and perhaps not all of them would apply to the strain of language philosopher.

called "radical translation."²¹ He asked us to imagine a linguist who meets a native from a foreign tribe whose language and way of life are completely unknown.²² How would the linguist go about trying to learn the language of such a native, that is, to translate it into our language? Quine argued that the linguist would have to observe the speaker's verbal utterances in their complete context and gradually build up hypotheses of how these utterances might be mapped onto utterances that might be made by a speaker of our language. Quine's position was both that the basis of meaning is ultimately empirical and holistic, and that it is never wholly determinate: there can always be alternative hypotheses that might be plausible translations.²³

In a famous example, Quine imagined a native who utters "gavagai"²⁴ when located in an environment that includes something that we would perceive as an object and would refer to as a "rabbit."²⁵ Quine argued that the temptation to infer that "gavagai" means "rabbit"²⁶ should be rejected because from the utterance itself there is no way to rule out alternative meanings such as "momentary rabbit-stage," or perhaps "undetached rabbit-part," or we could add, "one component part of a rabbit family," or maybe just "food." These interpretations relate to the environment and form of life of the native. "Food" might be a better hypothesis under circumstances where the natives exist almost entirely on this type of sustenance, for example, so that they would have no need to differentiate among varieties of food. "Momentary rabbitstage" invokes the puzzle of object temporality: What tells us when one discrete object is replaced by another in our perception? Maybe these natives see objects, or this particular kind of object, in more temporal differentiation than we do. A rabbit after eating grass could be a different object than a rabbit in search of grass to eat. "Undetached rabbit-part" (and also "one component part of rabbit family") invokes the puzzle of object differentiation from the background environment: What tells us where an object stops and its environment starts? Maybe these natives see objects, or this particular kind of object, as a collection of more differentiated objects than we see, or as a part of a less differentiated object than we see.

²¹ See id. at 28-79.

²² See id. at 28.

 $^{^{23}}$ See *id.* at 30, 73 (observing that the linguist will rely on his intuitive judgment to interpret the native's behavior, while conceding that "[t]he point is not that we cannot be sure whether the analytical hypothesis is right, but that there is not even . . . an objective matter to be right or wrong about").

²⁴ See id. at 29.

²⁵ See id.

²⁶ See id. at 51-52.

II. INTERPRETATION PROCEDURES, THEORIES OF MEANING, AND EFFECT ON OUTCOME

In Markman v. Westview Instruments, Inc.,²⁷ the Supreme Court affirmed the decision of the Federal Circuit that claim interpretation is a matter of law for the court²⁸ whereas application of the claim to the accused device or process is a matter of fact for the trier of fact.²⁹ In the time since the Markman decision, there has been a great deal of argument about exactly how a judge should proceed in interpreting a claim. But there has been continued adherence to the notion of a neatly divisible two-step process: first determine meaning, as a matter of law for the court, then apply the meaning to the object in question, as a matter fact for the trier. The assumption that such a two-step procedure is possible implies a certain view about language meaning. And the fact that the two-step procedure does not work very well in practice-it is hard, or perhaps impossible, to keep "law" and "fact" apart-implies that this view of language meaning is unsatisfactory. Whether or not (and the extent to which) the actual understanding of PHOSITA is involved in interpretation, for example, is a clue to how much a particular interpreter wants to interpret in light of a social context. But when a judge in a Markman hearing wants to know how PHOSITA understands a particular locution in order to decide what a claim means, then that starts to look like a matter of fact, not a matter of law.

It seems clear that the *Markman* two-step procedure must be closer to the view I call traditionalist and atomistic, and farther from the view I call pragmatist and holistic. Very few pragmatists would feel comfortable about saying that *first* someone (a trial judge) determines what an expression in words means, and then only *later* someone (the judge, or a jury) applies it to an object or action in the world. For the pragmatist/holist, application (use) of an expression is not separable from its meaning (interpretation).

To generalize, I think the difficulties courts experience in trying to arrive at a satisfactory procedure of interpreting patent claims relates at least in part to unexamined commitments to different theories of reference; that is, to just how some words in a claim might "read on" something in the world. Interpretive guidelines are only useful (from the point of view of notice) if they generate more predictable outcomes. In *Phillips v. AWH Corp.*,³⁰ the Federal Circuit demonstrated that endorsement of one interpretive approach to be followed by all judges would not guarantee that judges would all arrive at the same interpretive result. The fact that they didn't agree on the result in this very case

²⁷ 517 U.S. 370 (1996).

²⁸ Id. at 372.

²⁹ See id. at 384. This case gave rise to the practice of holding *Markman* hearings for the trial court to make a decision about the interpretation to attribute to the claim(s) being litigated. *See, e.g.*, Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1577 (Fed. Cir. 1996) (summarizing several challenges to a district court's judgment at a *Markman* hearing).

³⁰ 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

is the reason why *Phillips* is one of my favorite cases. Its outcome is ironic proof that agreement in interpretive procedure need not produce agreement in interpretation.

The disputed meaning of the claim in *Phillips* contained the word "baffles."³¹ The specification contained an illustration of angled baffles (portable walls) that can, among other functions, deflect bullets.³² The issue was whether the claim, with the word "baffles," covered defendant's perpendicular baffles. There was argument over whether the claim was a means claim,³³ but it is not necessary to explain that here, because the significant point is that a majority of the judges came to an agreement on how they would interpret claims,³⁴ and yet they disagreed about the result to which that interpretation would lead. Two judges who favored summary judgment for the defendant in the original three-judge panel were part of the en banc majority that laid out the interpretive approach to be followed.³⁵ But these judges still thought summary judgment for the defendant was appropriate in light of the appellate court's en banc agreed-upon approach,³⁶ whereas the others in the en banc majority thought the plaintiff's interpretation was plausible enough to be tried, and accordingly remanded the case.³⁷

The Federal Circuit succeeded in laying out an interpretive procedure, one that sought interpretation focusing on the claim, the specification, and the prosecution history as a whole, but not making use of dictionaries (unless technical) and not over-relying on expert testimony. The Federal Circuit did not factor any overt consideration of the value of the invention to society into claim interpretation, nor did it endorse (except rather tepidly, through technical dictionaries and perhaps expert testimony) the idea of seeking the knowledge of PHOSITA in the field of endeavor. The agreed procedure adopted by the

³⁵ On the original panel, Judges Lourie and Newman formed the majority, which granted summary judgment in favor of defendant AWH. *See* Phillips v. AWH Corp., 363 F.3d 1207 (Fed. Cir. 2004), *vacated* 415 F.3d 1303 (Fed. Cir. 2005).

³⁶ See Phillips, 415 F.3d at 1330 (Lourie, J., concurring in part and dissenting in part) ("[W]hile I wholeheartedly join the majority opinion in its discussion and resolution of the 'specification v. dictionaries' issue, I would affirm the decision below."). Note that Judge Newman also joined Chief Judge Mayer's opinion condemning the lack of attention to the folly of treating claim construction as solely a matter of law. *See infra* note 38.

³⁷ See Phillips, 415 F.3d at 1328 (majority opinion).

³¹ *Id*. at 1309.

³² *Id.* at 1310.

³³ See id. at 1309-10.

³⁴ See id. at 1314-18 (establishing the appropriate sources of information for courts to consider in claim construction, including the language in the claim itself, the written specification, the prosecution history, as well as sources external to the patent, which should carry less interpretive weight, such as expert testimony, general dictionaries, and technical dictionaries).

Federal Circuit—minus then-Chief Judge Robert Mayer,³⁸ who was joined by Judge Pauline Newman—is a species of language traditionalism.³⁹ Newman and Mayer were the hold-out holists.⁴⁰ They insisted that what a claim means cannot be separated from the practice in which it is located, and to determine that practice, work at the trial court level was needed.⁴¹ In his dissent, Mayer wrote: "The court's opinion today is akin to rearranging the deck chairs on the Titanic—the orchestra is playing as if nothing is amiss, but the ship is still heading for Davey Jones' locker."⁴²

Before *Phillips*, a number of the Federal Circuit's panel decisions, true to more rigid traditionalist commitments, had discredited the use of certain "extrinsic evidence" in very strong terms.⁴³ The en banc decision in *Phillips* attempted to repair the disarray in claim construction regarding extrinsic evidence (such as expert testimony and dictionaries), by reaffirming a traditionalist constructivist approach (looking at the patent documents as a

⁴⁰ Although the term "holist" has previously been used to describe a judge willing to use a broadened procedure of the type affirmed in *Phillips*, see R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105 (2004), the word "holist" as I am using it is quite different: "holist" refers to philosophical understandings of language as being embedded in an entire history and culture, a form of life.

⁴¹ See Phillips, 415 F.3d at 1331-33 (Mayer, J., dissenting) (emphasizing that "there can be no workable standard by which this court will interpret claims so long as we are blind to the factual component of the task," and observing that the district court is in a much better position to develop such facts and make the accompanying interpretations).

⁴² *Id*. at 1334-35.

⁴³ See, e.g., Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 (Fed. Cir. 1996) ("[W]here the patent documents are unambiguous, expert testimony is entitled to no weight."). The result of this position is to disallow expert testimony at the trial court level about how PHOSITA would understand the documents.

³⁸ See id. at 1330 (Mayer, J., dissenting) ("Now more than ever I am convinced of the futility, indeed the absurdity, of this court's persistence in adhering to the falsehood that claim construction is a matter of law devoid of any factual component. Because any attempt to fashion a coherent standard under this regime is pointless, as illustrated by our many failed attempts to do so, I dissent.").

³⁹ We might call it constructivist traditionalism, since the *Phillips* majority wished to take all of the language in the patent prosecution and documents and use that language to find a canonical meaning for the words in the claim. *See id.* at 1314 (majority opinion) ("Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean. Those sources include the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." (internal citation and quotation marks omitted)). An even more rigid traditionalism is possible, by insisting that the words of the patent alone must yield a true answer.

whole), and disaffirming the idea that plain meaning should first be ascertained by looking up the words of the disputed claim in the dictionary. In addition to traditionalists of different stripes, the two holists on the court at this time had made decisions by different panels unpredictable. Perhaps it is understandable in this context that panels before *Phillips* had resorted to dictionaries;⁴⁴ particularly because pragmatists/holists can agree with traditionalists on the usefulness of technical dictionaries, which reflect the understanding of practitioners.

Little is known about the extent to which debates of the kind supposedly resolved in *Phillips* actually influence outcomes. Imagine a case in which the plaintiff's claim refers to a "fastener," and the plaintiff's preferred embodiment has a set of screws. The accused device has a Velcro patch. Does the defendant's device infringe? If the word "fastener" in the claim is interpreted as including Velcro in its reference, then the plaintiff will prevail (unless the interpretation is broad enough to cover things in the prior art). If the word "fastener" in the claim is interpreted as excluding Velcro, then the defendant will prevail. It is clear that claim construction determines outcome. But it is not clear what determines claim construction. Both the judge who thinks "fastener" includes Velcro are likely to feel certain that their understanding is the obvious plain meaning. There's the problem in a nutshell for hoped-for plain meaning and its hoped-for salutary effect on notice.

Interpretation of text and its relationship to objects in the world remains a mystery. At least according to pragmatists/holists, believing that there is such a "thing" as plain meaning does not make it more or less likely that Judge X will think the word "fastener" includes Velcro. The pragmatist would say merely that if Judge X, a traditionalist, does find that Velcro is included, she will say that Velcro is within the plain meaning of the word "fastener"—but that does not mean that there was such a thing as plain meaning impelling her to do so.

There are judges who consistently tend to interpret claims broadly, favoring the policy of rewarding patentees. There are judges who consistently tend to interpret claims narrowly, too.⁴⁵ Such judges often believe that narrow interpretations favor the policy of notice to the public—but of course, that assumes that the applicable linguistic public, such as PHOSITAs, entrepreneurs, and technology experts, holds to a narrow understanding of the terms in question.

⁴⁴ See, e.g., *id.* at 1584 n.6 ("Although technical treatises and dictionaries fall within the category of extrinsic evidence, as they do not form a part of an integrated patent document, they are worthy of special note. Judges are free to consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.").

⁴⁵ These days there are more of them, but the pendulum may swing again.

In sum, judges have tacit commitments to a theory of language—most of the time these days to a theory that I have called traditionalist or atomistic. Aside from their tacit position on how language yields meaning, they also have tacit commitments regarding how and in what circumstances (if any) to give weight in claim construction to the idea of proportionate rewards to patentees or other policy matters.⁴⁶ I don't know how judges' pronouncements about interpretive procedures, along with their (tacit) commitments to positions about how language works, and along with their (mostly tacit) commitments to various weights of the benefits and costs of other features of the patent system, actually operate to influence their decisions. I am pretty sure that no one does know. I am pretty sure that even the participants themselves don't know. It is possible that they have intuitions in which they "know" who should win, and the interpretations come out accordingly.

Perhaps this is a skeptical view. Perhaps not, though, if one believes that what a set of words means depends upon the whole context, both inside and outside of the documents, and further guesses that the judges who have an intuition about who should win are tacit holists, even if they then, ex post, write a plain meaning type of opinion to justify their decisions. The judge's intuition may be based on an intuitive understanding of the whole status of the practice in which the term is used and understood, whereas the opinion afterwards may be based upon following the rules to arrive at that answer.

III. HOLISM AND PATENT PUZZLES

A. Plasticity of Describability in the Context of Invention

Even though plain meaning can often exist in "real life,"⁴⁷ describing an invention is not very often, and perhaps almost never, like reading off plain meaning from observing an object. There is often no clear reference relationship between an invention and words. The inventor may come into the prosecutor's office and show the prosecutor a material object or a drawing and say, "I have invented *this*." The prosecutor will say, "Not so fast. What is *this*? Consider whether it is a collection of undetached parts. Consider whether it is one part attached to a collection of previously known parts. Consider whether it is a collection of parts undetached from a surface on which it stands. Consider whether it is a temporal stage of one or more parts. The process of making something become describable, when that something is an

⁴⁶ See Postscript, infra Part notes 67-71 and accompanying text.

⁴⁷ See supra note 15 and accompanying text (explaining that words mean what listeners understand them to mean from the perspective of inhabiting a particular form of life). A holist would say that where a dispute has not arisen in real life, the socialized group has most likely not met a situation where the socially understood meaning will be disputed. Consider generation gaps, which cause disputes about plain meaning between parents and children.

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innovation, is like the process of trying to translate an unknown action or utterance into the language we already know. The invention becomes describable and therefore comes into being as a differentiated object—usually differently differentiated objects in different sets of claims—as the prosecutor works in this way with the technologist. Describability of an invention is not a static characteristic of language, but is emergent in a dynamic process.

Quine's problem of hypotheses for translation is not the same as attempting to pin down delineation of new, hitherto unknown, objects in a linguistic context known to us, because he postulated an unknown context and our context is known. Our context is the world of the specific technology in which the proposed invention is an intervention, inside the larger context of technologies, and the modern world of communication itself. Yet the point holds that our entire context is relevant to what our words mean. The patent prosecutor is trying to describe something that has not before been known, and has many ways of trying to do that. In that way the task of the prosecutor is analogous to the task of Quine's imaginary linguist trying to find translation(s). The holist interpreters of patent documents would say that the entire practice of people involved in the use and development of technology is relevant to how an invention would be perspicuously described. That is why the need to consider the understanding of PHOSITA in its context keeps making its appearance, even from within the *Markman* and *Phillips* context. That is why the dissenters in *Phillips* thought that without clear recognition of that need the process was sunk.

I have described the puzzles (and lack of plain meaning) involved in distinguishing an object from a surrounding environment. But, as my example of the imaginary colloquy between the inventor and the prosecutor may have shown, there are also puzzles (and lack of plain meaning) involved in construing an object as consisting of particular constituent parts (and not others that may be construed as context). In our language we don't habitually see the rabbit as a collection of undetached rabbit-parts-head, tail, legs, bodythough we can name the parts and have some way of understanding that legs can be separately thought of from a body even if they are attached. Why don't we think of the rabbit as a collection of rabbit-hairs, rabbit blood cells, and so forth? I think this is a hard question for a traditionalist/atomist to answer, who is looking for "the" answer. But the question is easier for a pragmatist/holist because she is not looking for "the" answer. The holist would answer that we normally don't do that because that construal would not be useful in the life context in which we normally meet up with rabbit parts. But nothing would make it wrong if we happened to be in an unusual context—perhaps a biotech patent-where hairs or cells would be relevant.

I think the pragmatist/holist way of thinking about meaning is the right way, or at least provisionally right, or at least much better than the atomistic plain meaning way. I also think the holist way of thinking is hard to avoid (or maybe impossible to avoid), and often surfaces surreptitiously in a mostly traditionalist world of rhetoric. That's why I have focused on *Phillips*, in which

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the judges endorsed the same interpretation procedure, but ended up with different interpretations.

B. Describability and Temporality

The seeming inevitability of holism and the problem of finding a way (or ways) to describe an invention is also the reason why I will now draw attention to *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*⁴⁸ *Festo* introduced the issue of describability in the context of deciding how to adjudicate the extent to which estoppel by prosecution history can disallow use of the doctrine of equivalents to expand a claim during litigation.⁴⁹ The doctrine of equivalents allows the literal meaning of claims to be expanded to include coverage that is not within the literal meaning of the claim—as interpreted!—but is close enough (equivalent) under the circumstances.⁵⁰ In *Festo*, a crucial issue for allowance of equivalents became whether or not the equivalent could have been described in language when the claim was drafted.⁵¹ This case was decided in the context of a history of a claim amendment during prosecution.⁵² The issue was to what extent amendment of claims during prosecution would estop the allowance of claim expansion later by means of the doctrine of equivalents.⁵³

Courts in the past had said equivalents would be allowed in order to foreclose unscrupulous copyists who used a small change to undermine the value of an invention,⁵⁴ but more recently courts have not looked to the emulator's state of mind but rather to the merits of the patent. Courts in the past had also allowed equivalents when claims were drafted too narrowly.⁵⁵

⁵⁵ For example, the disputed claim in the important Supreme Court case of *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17 (1997), included the limitation "at a pH from approximately 6.0 to 9.0." *Id.* at 22. Warner-Jenkinson wanted to expand the coverage to a pH of 5.0. *Id.* at 23. The lower limit of 6.0 came as an amendment, and the Court held that amendments not explained during prosecution must be presumed to be related to patentability, and if the presumption was not rebutted, no territory was allowed to be regained by equivalents. *See id.* at 33. But the Supreme Court remanded the case to consider the reason (if any) for the amendment. Thus expansion by equivalent to cover a pH

⁴⁸ 535 U.S. 722 (2002).

⁴⁹ See id. at 726.

⁵⁰ *Id.* at 733 ("The doctrine of equivalents allows the patentee to claim those insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes.").

⁵¹ *Id*. at 740.

⁵² *Id*. at 729.

⁵³ *Id.* at 727-28.

⁵⁴ See, e.g., Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 607 (1950) ("Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law.").

But *Festo*'s rationale, as I read it, says that if it would have been possible to describe something more accurately in words at the time the claim was written, then the claimant (in reality most likely the attorney who drafted the claim) should have done so, and should not now be able to use equivalents to recover claim scope lost because of failure to make the optimal use of language that was available at the time.⁵⁶ This rationale eliminates relying on arguing that the claimant (or her prosecutor) drafted too narrowly to gain an equivalent, if a more accurate description was possible. The Court left unmentioned the question whether, in order to invalidate the idea of estoppel by failure to describe the invention more accurately during prosecution, describability had to be possible for the inventor herself or for whoever prosecuted the claim for her.⁵⁷

Festo came up in the context of reviewing a claim that had been amended. An amendment can show that language was available at the time of filing, if in fact the claimant had used the words she wanted, but the examiner had disallowed those words. That is, if the examiner required an amendment of something that the claimant wanted to claim, then, depending upon the exact wording, we might be able to infer that what the inventor now wishes to claim by equivalents was describable (and indeed described by the claimant) at the time of application. Thus, estoppel is readily understood in this situation. But even without a (narrowing) amendment of a disallowed (broader) claim, could a claim that is drafted too narrowly be expanded by equivalence after *Festo*? A broader implication of *Festo*'s rationale is that the answer is, "No, not if the broader claim would have been describable at the time." For this reason, *Festo* seems to imply a more general narrowing of the doctrine of equivalents than its previous narrowing in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*⁵⁸

What I think we can take away from the introduction of "describability" in patent discourse—and the temporality dimension of "describability"—is this: at least as regards inventions, which are emerging knowledge, the issue of plain meaning of language is going to be contestable, lacking the clarity that theorists such as Bessen and Meurer seem to hope for. Indeed, if an invention is fully describable at the time of application, with all its ramifications for development and further use, perhaps it is obvious and not actually inventive.⁵⁹

of 5.0 was understood to be possible, even though it would seem that 5.0 would have been describable at the time of application. *Id.* at 34.

⁵⁶ See supra note 51.

⁵⁷ It would be awkward to hold that it is describability by the claim-drafting attorney that is at issue because it would raise the question of whether claim-drafting attorneys may be co-inventors.

^{58 520} U.S. 17 (1997).

⁵⁹ For further discussion on this point, see *infra* notes 65-66 and accompanying text.

C. Claim Elements and Linguistic Sub-Units

The holist view undermines any hope of consistent application of the allelements rule in claim interpretation. That rule requires that in order for an object or method to be deemed infringing, each element of the claim must have a corresponding element in the object or method.⁶⁰ My earlier fanciful discussion of rabbit parts and rabbit hairs and rabbit cells suggests that there doesn't seem to be a satisfactory way to arrive at an understanding of a canonical set of "elements" for a physical object, or for a method. Can we track the "elements" by reading the language of the claim? The correspondence envisioned by the all-elements rule asks us to break down a linguistic expression into elements. It is unclear how we could determine that a certain set of particular elements is the right way to characterize an expression. Do we just look for semi-colons or commas in the claim? This seems arbitrary and manipulable. In practice, it may often be done, but perhaps not when a lot turns on it.

Even if we could have an uncontroversial delineation of linguistic sub-units and an uncontroversial set of elements of an object or method in the world, the all-elements rule asks us to determine whether there is a one-to-one correspondence between each linguistic sub-unit and each element in the object or method. The problem of reference is pushed down one level of abstraction. That is, each chosen linguistic sub-unit must "read on" each chosen sub-unit of the claimed object or method. The problem doesn't go away. It is unclear how we would know that a particular linguistic sub-unit in a linguistic expression maps canonically onto a particular element in an object.

D. Evolving Meaning and Invention

As I mentioned earlier, the thought experiments of Quine and others did not focus on the evolutionary nature of language—that is, the idea that language changes over time. We all know such evolution occurs in ordinary life: just think of some of the things teenagers say that parents cannot properly interpret (such as, a few years ago, "Shut up!"). It is especially true in the emergent world of inventions. Patent actors are engaged, whether explicitly or only implicitly, with the change of language over time because patents are concerned with innovation—changes in our surrounding matrix of tools, methods, and mental know-how—and the emergent discourse that describes it. I believe that this was clearly recognized in *Festo* when the Court emphasized the idea of describability lagging behind invention.

Someone who believes in the idea of plain meaning of words may accept that language changes over time, but may believe that reality does not, and thus may suppose that over time language gets closer to describing reality (what is

⁶⁰ See Warner-Jenkinson, 520 U.S. at 29 (stating that for successful application of the doctrine of equivalents each element must be present by equivalence if not literally, and thus that "the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole").

"really out there"). On the other hand, a holist (social constructivist) may suppose that changes in language and changes in perceived reality are both integral to each particular form of life and change together in complex ways.

In *Festo*, at least it seemed clear that describability was not being treated as static, but rather evolving. The Court assumed that a particular equivalent could be describable at the time of alleged infringement, yet could have been indescribable at the time of drafting the claim. But it could be that the Court's tacit theory of language, if it were spelled out, would hold that describability keeps increasing—that is, the world "out there" is continually becoming more describable in words. When one has a simple realist view of the world—things are objectively "out there" whether we know them or not, and the "things" that are "out there" are unchanging, not dependent for their individuality of "thingness" on our knowledge of them—this seems to imply the assumption that the language that can describe the world evolves in the direction of a closer fit with reality. The assumed order of coming into being implied in *Festo*—first the innovative object, later describability—may reflect the idea that as new phenomena emerge they acquire names.

A social constructivist view of language as it occurs in scientific communities—and here the work of Thomas Kuhn is most often thought of⁶¹—could instead hold that recognition of phenomena and emergence of describability in words occur together, in the context of scientific practice. Such a Kuhnian indivisibility of phenomena and their descriptions does not seem to capture the view in *Festo*. Indeed, arguably what *Festo* added was only the word (the concept) of "indescribability" and not the process of characterizing innovation. After all, the notion has persisted for a long time that an invention has an "essence" or "essential identity" which actually exists but is imperfectly describable in words at the time of invention. In clinging to the idea of an "essence" which exists but is not describable, therefore, some judges, or judges some of the time, perhaps retain an unstated underlying Platonic realism: inventions are out there waiting to be found, and when one is found, our language takes time to catch up to it.

Perhaps tugging in the opposite direction, however, is the fact that traditionally in patent law an invention is normally deemed incomplete until it is "reduced to practice," meaning that it physically exists or can easily be used by others and the inventor has shown that it works.⁶² That is, mere conception

⁶¹ See generally THOMAS S. KUHN, THE STRUCTURE OF SCIENTIFIC REVOLUTIONS 198-204 (2d ed. 1970) (elaborating the process of scientific revolutions and changing paradigms describing phenomena in the world, and observing that shared values in the scientific community can be interpreted and applied differently by different scientists until a new paradigm coalesces).

⁶² At least for patent applications filed before the effective date of the AIA, which indicates the more contemporary approach to patentability, see U.S. PATENT & TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE, § 2138.05 (9th ed. rev. July 2015):

The invention must be recognized and appreciated for a reduction to practice to occur.

[&]quot;The rule that conception and reduction to practice cannot be established nunc pro tunc

does not count as invention. This body of law frequently has assumed that conception means concrete describability: that the inventor has a picture in her head, or a notation in a lab notebook, which she then "follows" in building a prototype. This seems to suggest that courts routinely suppose that concrete describability, in the sense of envisioning the exact mechanism or structure, precedes invention.⁶³ Whereas, as we have seen, in other contexts, courts also assume that invention precedes describability.

The time for determining the meaning of a claim was in the past often taken to be the date of invention, but perhaps now, post-AIA, is more frequently taken to be the date the patent application was filed. The time for determining whether something counts as an equivalent is the date of infringement. Thus, in theory, a court is supposed to look to one time in the past to find out the literal meaning of a claim, and then look to another time in the past (more recent) to find out whether the claim should be expanded to include an equivalent.

Time and Obviousness E.

The time for determining non-obviousness (as well as enablement) also seems to waver. It is difficult to imagine how courts can be referring to any consistent reality "out there" in making these inquiries. Yet a traditionalist atomistic interpreter would have to assume that at least in theory any judge who attempts these inquiries with respect to a particular invention should come to the same result. Perhaps such a traditionalist would roundly excoriate legal actors if they fail to come to the same result. Perhaps a traditionalist would say that failure to get the same result is causing "patent failure." If the interpreter is a social constructivist/holist about language, however, she is likely to be more sympathetic with judges' task, because meaning in the past was integral to a form of life in the past, and we are asking the courts to reconstruct a past form of life.

Obviousness relates to what a PHOSITA would have known at the time of filing a patent application.⁶⁴ Obviousness is a frequently argued ground for disallowing patents, so we should ask, in light of the desire of Bessen and

simply requires that in order for an experiment to constitute an actual reduction to practice, there must have been contemporaneous appreciation of the invention at issue by the inventor Subsequent testing or later recognition may not be used to show that a party had contemporaneous appreciation of the invention." (citation omitted).

⁶³ Mark Lemley's paper for this Symposium, however, explains that contrary to what the law says about this, judges routinely ignore or downplay the idea that the inventor must know that the invention works before a patent will be granted. See Mark A. Lemley, Ready for Patenting, 96 B.U. L. REV, 1197 (2016) ("[P]atent law has actually discouraged inventors from getting their inventions to work in practice, rewarding those who run to the patent office before they are fully done with the invention and giving them precedence over those who take the time to make sure their invention works by building and testing it.").

⁶⁴ Did obviousness itself change when the AIA changed the time for evaluating obviousness from the time of invention to the time of filing? That could be an interesting question for anyone who believes that meaning is evolutionary, varying over time.

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Meurer among others, for clearer notice: Could relevant actors in the marketplace have notice from plain meaning of patent documents that a patent would or would not fail because of obviousness?

There are well-known jurisprudential difficulties with determinations of obviousness in judicial review, particularly the risk of hindsight bias.⁶⁵ Many breakthroughs can look obvious in retrospect; indeed, sometimes the most brilliant look the most obvious. There are also practical difficulties with determining obviousness at the PTO: particularly the fact that PTO examiners may have significantly less expertise than applicants whose arguments they examine, and the fact that the PTO has lacked the ability to research all of the prior art, especially in fields that depend on local knowledge of a particular technological culture.

Moreover, it is widely believed that the PTO in the late twentieth and early twenty-first centuries issued many patents that should have been rejected for obviousness, particularly for computer-implemented claims. This belief probably gave rise to the current special post-grant review for covered business method patents, which is scheduled to sunset roughly when the bulk of the suspect financial business methods will have expired.⁶⁶

Taking these issues as given, however, and focusing on describability, obviousness can be readily understood as applicable to a situation in which something is in fact clearly describable within the relevant linguistic community (that is, the realm of PHOSITA) before the invention is made or the application is filed. In other words, if those who participate in a practice can perspicuously describe something, then that thing is obvious at the time this description is available to PHOSITA. By perspicuous description, I mean at least description at a level that is not too abstract—not just a "cure for AIDS" but rather the exact mechanism that eliminates retroviruses. Of course, what is or is not "too abstract" is a judgment call, and is an issue that causes much expensive uncertainty and litigation. Many important inventions (such as electric lighting, the telephone, and lasers) were foreseen and abstractly described before they could be described with enough specificity to be patented.

This view of obviousness seems to imply the corollary idea that a nonobvious invention, that is, any invention that is patentable, is to some extent indescribable in the relevant technological community at the time of invention and probably at the time of filing. When the filing has attempted to capture something that was to some extent indescribable as of the filing date, and later the invention turns out to be very valuable, there will then be room for arguments espousing different descriptions to allow more coverage. There

⁶⁵ See generally KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007); see also Gregory Mandel, Patently Non-Obvious II: Experimental Study on the Hindsight Issue Before the Supreme Court in KSR v. Teleflex, 9 YALE J.L. & TECH. 1, 3 (2007).

⁶⁶ See 37 C.F.R. §§ 42.300-42.304 (2013) (codifying the various provisions related to post-grant review for covered business method patents).

will be room for arguments about equivalents, expanded enablement, and written description. Such arguments will involve a lot of costs and uncertainty. They will not be resolved by plain meaning, and the uncertainty will be very hard or perhaps impossible to eliminate.

What if judges and other actors knew (became conscious of the fact) that plain meaning of words alone is not a viable theory of interpretation, at least in cases where it matters? Perhaps there would be less intransigent sticking to what seems to be plain meaning by those who hold their ground because to them the meaning is, well, plain. Perhaps there would be more collegial discussion of the contexts in which the meaning is used, matters, and is evolving. Ironically enough, it seems likely that this situation would provide better notice to marketplace participants than would conflicting demands to recognize plain meaning.

POSTSCRIPT: PATENT NOTICE AND THE BIG PICTURE

Most American analysts consider the patent system from an economic point of view. That view gives rise to the general question of how the social welfare produced by the patent system might be optimized. An even more general question is whether social welfare produced by protection of innovation and innovators might be greater with an alternate system, or with a different mix among patent and alternate systems. Given the inherent costs of maintaining a patent system, the question arises, is there a better way to accomplish its goals? Many have posed the more general question, from Fritz Machlup⁶⁷ to contemporary advocates of a prize system.⁶⁸

Nevertheless, let's assume it is decided that a patent system such as the one we have can yield more social welfare than any feasible alternative to it. Then one way to put the general question for optimizing the social value of the system would be as follows: How can we achieve a maximum positive difference between positive and negative ledgers that are due to a particular structure of the system? The positive ledger would include: (1) the amount of rewards accruing to inventors through the patent system, and (2) the amount of social wealth accruing from incentivization of follow-on and other inventors on account of their observation of the rewards delivered to others through the patent system. The negative ledger to be subtracted would include: (1) the

⁶⁷ See SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE S. COMM. ON THE JUDICIARY, 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 80 (Comm. Print 1958) (Fritz Machlup) ("If we did not have a patent system it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.").

⁶⁸ See generally Benjamin N. Roin, Intellectual Property Versus Prizes: Reframing the Debate, 81 U. CHI. L. REV. 999, 1001 (2014) ("A 'growing number' of academics have concluded that the government could correct [problems related to innovation] by replacing some or all of the intellectual property system with prizes.").

deadweight loss from monopolization, (2) the effect of propertization on information costs of knowledge acquisition, (3) the dampening of follow-on invention because of exclusion by—or payments demanded—by earlier patent holders (including thickets of them), and (4) the costs of granting plenary power over all subsequent development to an early inventor under a prospect rationale.⁶⁹ Further, the costs of administering the system (prosecution, post-grant remedies, litigation, arbitration, financing of the PTO, the U.S. International Trade Commission ("USITC"), treaty administration, etc.) must be subtracted. The optimal system would involve achieving a positive difference between the items on the plus ledger and the items on the minus ledger, and maximizing that positive difference.

At least for social welfare theorists, the questions surrounding notice in the patent system (how notice is delivered, how much it costs, what costs it saves, etc.) should be placed within this general framework. How is the general question about optimizing the patent system affected by the way the patent system handles the issue of notice? Notice will be part of the negative ledger, in that it is costly to provide, but it will also be part of the positive ledger, in that it provides knowledge to PHOSITA and would-be competitors or licensees, and helps to bring about progress in the useful arts. How costly is it to provide notice? That depends upon how notice is disseminated, and such matters as whether claims are laid open before a patent is issued. But it also depends upon what one believes about conveying inventive material in language—and that is where what I have said in this essay fits in the equation. Notice is more costly than what Bessen and Meurer seemed to think. Indeed, notice is sometimes immeasurably costly.

It is true, of course, that sometimes the meaning of patent terms would not provoke dispute. When that happens, and affected parties know about the patent, the parties will settle and licensing may result, unless the patent owner holds out. But I think that the cost of providing the widespread kinds of notice that Bessen and Meurer call for would often outweigh the expected gain, particularly in industries where a great many patents are involved in each product. And, because the existence of plain meaning can only be assumed in situations where there is social consensus about meaning, there are many situations involving innovation where it is not possible to convey clear and

⁶⁹ See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 266 (1977) (introducing a prospect rationale in which invention is analogous to staking a mining claim). Kitch advocates that broad coverage be given to an early patentee, who may then act as controller over all subsequent uses and further development, avoiding duplicative and competitive work. *See id.* at 286 (asserting that "a monopolistic industry will be more efficient than a competitive one"). A fly in the ointment in this theory is that innovators are not necessarily good controllers. *See* Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 875, 916 (1990) (critiquing Kitch's approach as overly broad and arguing that narrower patents are on the whole more efficient, always leaving room for special treatment of breakthrough inventions).

indisputable notice by means of the language of patents. All in all, notice is a costly feature of the patent system, and reducing its costs is not a matter of analogizing with physical fences and real property, but rather a matter of many other parameters, such as whether the Federal Circuit should have the power it does, whether Congress should legislate interlocutory review of claim construction, and whether the PTO should hire more technologists. And, I would also include within these parameters, the issue of whether trial courts will gain back the power to take clear cognizance of the understandings of PHOSITA.⁷⁰ Nevertheless, even if reforms come to pass, the problems of evolution of meaning over time, particularly the problem of trying to predict what might be held to have been obvious at some date prior to the emergence of a conflict, would still remain.

But contrary to everything I have argued in this essay, let's now assume that somehow notice of patent coverage and enforceability could be readily delivered to all market actors who are, or could be, interested. Even if that could be done, in order to construct a response to the general question of how the patent system might achieve optimal incentivization of invention and progress in the useful arts we still would have to factor in the costs and benefits relating to the level of reward to patentees and how the rewards are structured. The appropriate level of reward, from the system optimization point of view, may depend on whether the patent is considered important or pioneering. That is, did the patentee invent a laser, or did he invent a cup-holder? Patent is supposed to deliver a broad enough protection so that emulators of a breakthrough invention cannot easily (that is, too quickly) undermine the protection and render it worthless, or at least render it not valuable enough to produce the optimum incentivization of future inventors. If the courts fine-tune protection of patentees by varying the breadth of coverage depending upon significance of the invention, that could provide a positive feedback for the system. From this point of view, breadth of coverage may vary with the nature of the invention. Some judges, and some analysts, find this variance beneficial for the system as a whole—a feature and not a drawback.

⁷⁰ The Federal Circuit has notoriously commandeered for itself many kinds of decisions. In particular, it has subjected claim construction to de novo review on appeal, *see supra* text accompanying notes note 27-29, which refuses to give deference to the trial judge and thereby downplays the role of the trial judge's ability to evaluate the understandings of PHOSITA and the credibility of witnesses. Recent cases before the Supreme Court seemingly reined in the Federal Circuit's claim construction practices. *See, e.g.*, Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 835 (2015) (holding that in reviewing a district court's resolution of subsidiary factual matters related to claim construction of a patent, the Federal Circuit "must apply a 'clear error,' not a *de novo*, standard of review"). What are those "subsidiary factual matters"? Most importantly, the understanding of PHOSITA at the appropriate time is a factual issue. Yet the Federal Circuit has (so far) essentially failed to follow the Supreme Court and still largely renders unto itself the power to decide all claim construction de novo as a matter of law. *See* Jason Rantanen, Teva, Nautilus, *and Change Without Change*, 18 STAN. TECH. L. REV. 430, 432 (2015).

Because of the issue of proportionate reward to patentees, notice and how it functions is only half of a dilemma. The other half of this dilemma is what judges and juries are willing to consider the proper level of protection for inventors. There is no way to say a priori, I believe, whether trying to hew strictly to one side of the dilemma (plain meaning, if there is such a thing) will achieve better results for the general optimization question than giving weight to the other side (variable level of patentee protection, and resulting increased incentivization). There are costs to the predictability of allowing (and expecting) discretionary judgments at times. But there are also costs to disallowing such discretionary judgments—costs in the form of decreased incentives for potential inventors whose risk-taking and creativity might be deterred (and might have been especially valuable), and costs of depriving inventors of breakthrough inventions the rewards that seem appropriate given the importance of the invention, when they lose out to agile emulators.

Is it possible to know to what extent the system should stress notice even if at the expense of some particularly innovative patentees (and expense therefore of the system as a whole), versus to what extent the system should be flexible with regard to proportionate reward to patentees even if at the expense of (what is hoped to be) better notice to others? Some observers, scholars, and judges seem to believe the answer belongs clearly to one side or the other.⁷¹ I am less optimistic—I tend to think this is a permanent dilemma, not fixable by choosing one side.

I don't know, of course, how one or the other position could be empirically shown to be superior (more efficient than the other), what could be empirically shown to be the most efficient combination of the two positions, or whether and to what extent the answer would depend upon what field of patents we are looking at (such as software, business methods, surgical implements, biotech methods, or kitchen tools). So I believe that positions on the notice question will rest largely upon hunches and intuitions, because that question is one factor in the optimization question that also encompasses the other half of a dilemma relating to the flexibility to provide for proportionate rewards.

⁷¹ Unless I misread them, Bessen and Meurer wouldn't be sorry to see the doctrine of equivalents eliminated, *see* BESSEN & MEURER, *supra* note 1, at 61 ("The doctrine of equivalents corrodes the notice function of patents."), whereas Robert Merges, among others, thinks that the doctrine has a significant place in a system that would appropriately consider the importance of the actual invention along with the words of the patent documents. *See, e.g.*, Merges & Nelson, *supra* note 69, at 854 (describing good application of the doctrine of equivalents as in the case where "a patent representing a 'pioneer invention'—which the Supreme Court has defined as 'a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art'—is 'entitled to a broad range of equivalents.' That is, when a pioneer patent is involved, a court will stretch to find infringement even by a product whose characteristics lie considerably outside the boundaries of the literal claims." (footnotes omitted)).

In conclusion, I have argued that the idea that patent claim notice could be rendered precise enough to justify an analogy with physical fences is illusory. But even if the analogy were not illusory, such precision would undermine a significant feature of the patent system: the flexibility to reward breakthrough inventions proportionately to their importance to society.