The "UNLIMITLESS": On How to Remedy the Inadequacies of a Language-Based System for Patent Claims

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Introduction

Over the past three decades, it has become self-evident that patents are complex legal constructs that are expensive to obtain and even more so to protect through litigation. These problems plague the patent system not only in the United States but around the world as well. This persistent and pressing reality is largely owed to the structure of patents and especially the patent claims section therein. In this regard, the most important section of any patent application and patent registration is the

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patent claims section. That section, which defines what is claimed by the inventor, is essentially the legal "fence" that the inventor erects in order to protect his invention.[1] These patent claims utilize language; it is the tool by which patent claims are constructed and communicated. Enter the dissonance between the need for precise "fences" and the limits of linguistic expression. Indeed, while language is rich, it is not limitless, and it is far from exact. As the title of this work suggests, words are, in and of themselves, "unlimitless" in their ability to create clear-cut patent claims. Furthermore, given that various parties interact with the words in patent claims, e.g. applicant, examiner, courts, and other parties, it is no wonder that the substance of these legal "fences" is in many cases a subject of contention.

In this paper I describe the inherent limits of language and words to express exact elements objectively. I identify this limitation as the source of the problems that plague the patent system. In a nutshell, my contention is that a language-based patent claims system does not, and by definition cannot, create clear boundaries between inventions and cannot ensure that "fences" around patents are rendered impregnable. As such, patent registration, enforcement and litigation relating thereto remain complex and costly, and their outcomes are in many cases cast in doubt. Thus, while the patent system attempts to ensure protection for inventions in the private domain vis-à-vis the public domain, the "fences" between those domains, due to the linguistic inadequacies, are no more than suggestive.

In this paper I propose shifting to another, more refined model; one that is a compilation of language and other tools such as visual depiction, predetermined jargon and preset classifications. I explain how this model can be formulated and put into practice, and why it will greatly improve patent prosecution and enforcement.

This paper is comprised of three chapters. In the first chapter, I shed light on the reality pertaining to the staggering costs of the prosecution and litigation of patents. In the second chapter, I explain why a language-based patent claims system is not sustainable, and why indeed it constitutes the core of the problem that plagues the patent system nowadays. In the third and last chapter of the work, I survey current solutions that courts have formulated in order to alleviate problems relating to patent claims and explain why such solutions are insufficient. I then propose a new model for dealing with patent claims, which could make patent registration and litigation a much cheaper endeavor.

I. The Grim Reality of Patent Prosecution and Litigation

[1] The fence metaphor is widely used in literature. *See, e.g.*, ALAN L. DURHAM, PATENT LAW ESSENTIALS: A CONCISE GUIDE 92 (2013) ("The function of patent claims is to identify the subject matter covered by the patent. If patent infringement can be compared to trespassing, the claims serve as the boundary markers that define what is, or is not, an encroachment on the inventor's exclusive territory.").

In its essence, a patent is a contract between the state and an inventor whereby if the inventor shares his knowledge with the world, the world (i.e., the state) shall reward him (or her) with a right over his invention for a limited period of time. But this "contract" is not limited to those parties (i.e. the inventor and the state) and its impact extends to others that are not formal parties to said contact. These 'external' parties include the users (consumers) of the technology as well as the competitors in the field. Notwithstanding their formal status, both of these "silent" parties (users and consumers) have an interest in getting access to the technology with minimum costs attached. Thus, the patent contract is one that has repercussions beyond the formal two parties referred to therein (the inventor and the state). This multiparty involvement in the process renders the patent contract a very complex endeavor that involves a delicate social balance. While in the classic two-party contract the parties are at liberty to draw the terms of the agreement and to assign to each other certain rights or obligations, in the case of the patent contract, the state performs a dual function. That is to say, the state not only functions in a technical capacity, that is of registering the invention, but more so it also acts as an entity whose task is to establish the borderline between the private domain of the inventor and the public domain of the external parties. Thus, patents involve an ongoing tug-of-war between the inventor who is seeking to maximize returns by expanding his control or monopoly over the technology and between the external "silent" parties who have a vested interest in ensuring access to the invention for themselves. And in between these polarized interests of rewarding the inventor and of ensuring access to technology, exists the never-ending endeavor to maintain the primary purpose of patent law, which is to promote the progress of science and innovation.[2]

These competing interests and the endeavor to reconcile them within the conventional patent claims construct are what create an expensive patent system. Indeed, the cost of patents in prosecution and litigation is not a cliché that practitioners and academics use. The empirical data leaves no room for doubt as to the staggering costs of the patent system as far as inventors and/or patent owners are concerned. A 2013 survey by the American Intellectual Property Law Association, regarding the average litigation costs for patent infringement suits, proves this beyond doubt.[3] Specifically, that survey found that the costs of patent litigation for claims in patents that were valued at under $1 million are over $800,000.[4] Furthermore, according to that survey, the average costs for patent litigation involving patents which were valued in the range of $1 million to $25 million rose to $2.5 million.[5] The survey found that the average legal costs for patent litigation in patents valued in excess of $25 million were over $5 million.[6] It is important to note that

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2 This rationale is spelled out in the Constitution of the United States of America. U.S. Const. art. 1, §8, cl. 8 ("To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.").

3 *See*, Intellectual Property Insurance Corporation, *AIPLA 2013 Report of the Economic Survey*, http://www.patentinsurance.com/custdocs/2013aipla%20survey.pdf.

4 *Id.*

5 *Id.*

6 *Id.*

the survey focused on the actual cost of fighting over the patent i.e., both as a defendant and as a plaintiff. However, the survey excluded the damages that a defendant would have to bear if he was not able to repel the case. What is striking is that patent litigation is almost twice as costly as the already too-expensive litigation pertaining to trademarks, copyright and trade secrets.[7] The cumulative sum of these costs is almost unimaginable. In this regard, the Techdirt podcast reports that "patent litigation cost US business about a trillion dollars in a quarter century".[8]

This bleak reality is part of the patent landscape that seems to be considered a given. Jim Kerstetter eloquently sums up this grim reality by remarking:

> "Welcome to the patent legal industry, a high-priced, high-stakes but ultimately indispensable part of doing business in high tech or any other industry that relies on innovation. Even the staunchest defenders of the current patent system agree the litigation can be onerous and sometimes the patents that get rewarded don't make a whole lot of sense, but they argue that the anarchic alternative would be even worse".[9]

I beg to differ, with the prognosis. In my view, this reality is not the only possible outcome; a better patent system can and should be achieved. This research will hopefully contribute to this endeavor.[10]

Given this state of affairs, the rational, *albeit* undesirable, thing to do is to settle out of court. In principle a settlement can be a very good thing in that it allows the parties to reach an amicable resolution without expending costs and time in the process. Notwithstanding this rationale, a settlement that is not induced by a freedom of choice but rather imposed by the circumstances of a party is very problematic to say the least. Indeed, it causes financially weaker parties to capitulate before an opponent on the unleveled playing field on which they find themselves. In this regard Kerstetter observes, "For small companies, however, simply fighting a patent suit can be financially ruinous. That's why many are willing to settle, even if they believe they did nothing wrong."[11] Kestetter accepts that this "seems unfair, but often

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7 For the full and detailed numbers in the survey see American Intellectual Property Law Association *Id*. For a broad review *see* World Intellectual Property Organization, *IP Litigation Costs*, WIPO MAG., (Feb. 2010), http://www.wipo.int/export/sites/www/wipomagazine/en/pdf/2010/wipo_pub_121_2010_01.pdf

8 Glyn Moody, Patent Litigation Cost US Business About A Trillion Dollars In A Quarter Century, Outweighing Benefits, TECHDIRT, https://www.techdirt.com/articles/20140416/04183626928/patent-litigation-cost-us-business-about-trillion-dollars-quarter-century-outweighing-benefits.shtml

9 Jim Kerstetter, How much is that patent lawsuit going to cost you?, CNET, http://www.cnet.com/news/how-much-is-that-patent-lawsuit-going-to-cost-you/

10 The debate over the state of patent law in the U.S. and the need for rethinking some lingering issues including reform thereof is evident in the literature and in legal recourse. *See, e.g.*, Andrew Baluch, *Patent Reform 2015: A Comprehensive Guide to Current Patent Reform Developments in Congress, the Executive Branch, the Courts and the States* (Jan. 23, 2015 ed.), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2414306

11 Kerstetter, *supra* note 9.

heading into the courtroom is a roll of the dice."[12] This is another component of the grim reality of the conventional patent system.

To my mind, this reality is unacceptable. It is unacceptable simply due to the fact that, by design, patents were supposed to be a tool for sharing knowledge and were never about excessive control which sometimes seems to amount to 'hoarding' (for lack of a better term) science.[13] Patents were conceived of a true yearning to share knowledge. They were intended to be an inclusive incentive-driven system, not an exclusive cost-barricade type construct, as they have become.[14]

II. The Inadequacies of Language-Based Patent Claims

The most important section of any patent application and patent registration is the patent claims section. This section, which defines what is claimed by the inventor, is essentially the legal "fence" that the inventor erects in order to protect his invention. These patent claims utilize language; it is the tool by which patent claims are constructed and communicated. Enter the dissonance between the need for precise "fences" and the limits of linguistic expression. Indeed, the reality is that while language is rich, it is not limitless, and it is far from exact. In this regard, as the title of this research suggests, words are in and of themselves "unlimitless" in their ability to create clear-cut patent claims. Furthermore, given that various parties interact with the words in patent claims, e.g. applicant, examiner, courts, and other parties, it is no wonder that the substance of these legal "fences" is in many cases a contentious subject.

a. The Claim as the 'Source Code' of Patents

An invention is protected through the claims section in the patent. The claims section is separate from the specification (description) section, which describes in great detail how to create or build the relevant invention. In this regard, while the specification section is, in essence, the "builder's manual" of the invention, the patent claims section is where the inventor and/or patent owner stipulates that certain

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[12] *Id*. (Regarding the inherent problem of the system, Kerstetter quotes Christopher Marlett, CEO of MDB Capital Group, an investment banking firm that focuses on intellectual property: "What happens in that courtroom is that it's a very technical presentation to a jury that has no technical background, . . . In a lot of these cases, the juries say this is above my head, and the judgment goes to the lawyer they like the most. That introduces great risk into the equation." Kerstetter then states: "If these claims were decided by a panel of technical experts, the fight would be worth it. But a jury of your peers, who aren't exactly your technical peers? Maybe that's something to be avoided.").

[13] Consider patent trolls the most vivid reflection of the ugly side of the patent system.

[14] Andrew Grosvenor, Why 'Patent Trolling' by High-Tech Companies is Stifling Competition & Innovation – And What we Should Do About It, (2011), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1923989("The purpose of the patent system is to encourage innovation and to reward inventors by protecting the fruits of their labor. Abuse of this sanctioned monopoly is helping to consolidate the tech marketplace to the few large companies that are winning the patent 'arms race.'").

elements in the invention belong to them and cannot be infringed upon by others. The claim or claims in that section are intended to precisely set out the parameters of the invention. In this regard these claims are effectively the legal "fence" around the patented invention. They define the scope of the private domain that is the invention. Tun-Jen Chiang and Lawrence Solum define this important distinction between the claims and the specification: "[T]he claim and the specification both describe the invention, but they serve different roles. For legal purposes, it is the claim that defines patent scope."[15] Peter Manell observed: "The construction of patent claims plays a critical role in nearly every patent case. It is central to the evaluation of infringement and validity, and can affect or determine the outcome of other significant issues such as unenforceability, enablement, and remedies."[16] It is worth noting that ever since the United States Supreme Court's 1892 decision in *Topliff*, U.S. courts have recognized the patent application as the most difficult legal instruments that can be drafted.[17] Furthermore, Chiang and Solum explain that "claim scope equals patent scope, which makes claims very important. It is equally axiomatic that claim scope is defined by the text of the claim." [18] As such, the claims section is the most crucial section of the patent since it separates the private domain from the public domain, thus allowing users and competitors to operate within the latter while prohibiting them from operating within the former. But as clearly alluded to above, constructing a "fence" is not a technical issue. It has clear ramifications for the technological landscape, since what is enclosed within the "fence" is effectively off-limits to the world. Hence, the immense responsibility bestowed on the Patent Office of accepting or rejecting patent claims and on the courts for interpreting said patent claims. These are great responsibilities given their far-reaching impact on all parties involved. The weight of words is crucial in patent claims. According to Silverman "how a court interprets a single word in a patent claim could determine whether it concludes that patent infringement does or does not exist."[19]

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15 Tun-Jen Chiang & Lawrence B. Solum, *The Interpretation-Construction Distinction in Patent Law*, 123 YALE L.J., 530,540 (2013).

16 Peter S. Menell, et al., *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 BERKELEY TECH. L.J., 711, 714 (2010).

17 Topliff v. Topliff, 145 U.S. 156, 171 (1892) ("The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy . . . "). *See also*, Sperry v. Florida, 373 U.S. 379, 383 (1963); Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 856-57 (1988) ("This appeal again illustrates one of the many difficult dichotomies that lurk in the lacunae of patent law. On one side rests the very important, statutorily-created necessity of employing the clearest possible wording in preparing the specification and claims of a patent, one of the most difficult legal instruments to draw with accuracy.' On the other lies the equally important, judicially-created necessity of determining infringement without the risk of injustice that may result from a blindered focus on words alone."); Gene Quinn, *Patent Drafting: Not as Easy as You Think*, IPWATCHDOG, http://www.ipwatchdog.com/2014/05/17/patent-drafting-not-as-easy-as-you-think/id=49638/ (explaining that this view has remained consistent over the years).

18 Chiang, *supra* note 16, at 540.

19 Arnold B. Silverman, *Watch What You Say—Appellate Court Clarifies Standards for Interpreting Technical Patent Claim Language*, TMS, http://www.tms.org/pubs/journals/JOM/matters/matters-0604.html.

Generally, there are basic rules or steps that apply when attempting to construct a patent claim. First and foremost the claim needs to be bound by the claim language that is the meaning of the terms and words as understood by those of ordinary skill in the art.[20] Second, the courts will resort to the wording of the specification as it reflects on the claims.[21] Third, the courts will resort to the prosecution history of the invention since this reflects the intended scope of rights that the inventor sought when filing to patent his invention.[22] Furthermore, the courts may also turn, as a last resort, to the extrinsic meaning of the language of the claim (e.g. use of dictionaries, treatises, and encyclopedias).[23] This 'hierarchy' (so to speak) is crucial in providing additional proof that the wording of patent claims remains an enigma in that its interpretation is, in many cases, context-dependent and is never truly defined as a "fence" needs to be. Shawn Kolitch suggests that there should be more dominant use of the preamble of the claim in trying to define its scope.[24] I shall revisit the scope issue in the third and final chapter of this paper.

Therein lies the quandary; that while patent claims are decisive in determining the scope and strength of a patent, they are basically a language-based test and as such are not capable of pinpointing its intended accuracy. In the next chapter I shall show why this language-based system is inherently an unsuitable building material for what is supposed to be: a clearly defined and stable legal "fence". To continue the metaphor, while cement is a crucial element in erecting a strong fence, it is not sufficient in and of itself to create that fence. So it is with patent claims; that is to say: a language-based system is not enough.

b. Are Patent Claims the Only Problem?

From the outset, I should like to point out that the assertion that language-based patent claims are the source of the problem in patents is not accepted by all. In this regard, I would refer to the work by Chiang and Solum, who contend that while "ambiguity of claim language is generally considered to be the most important problem in patent law today . . . . This diagnosis is fundamentally wrong." In their view, with which I respectfully disagree, "[C]laims are not often ambiguous, and linguistic ambiguity is not a major cause of the uncertainty in patent law today."[25] In their view the problem of patents is not linguistic ambiguity but rather that "uncertainty in claim application most typically arises because judges have core policy disagreements about the underlying goals of claim construction."[26] Thus, Chiang

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[20] Shawn Kolitch, *Patent Claim Construction: The Neglected Preamble*, 8(1) INTELLECTUAL PROPERTY NEWSLETTER, http://www.khpatent.com/files/9492SJK_Patent_Claim_Construction.pdf.

[21] *Id*.

[22] *Id*.

[23] *Id*. *See also*, Ruoyu Roy Wang, *Texas Digital Systems v. Telegenix, Inc.: Toward A More Formalistic Patent Claim Construction Model*, 19 BERKELEY TECH. L.J. 153 (2004) (on the use of dictionaries).

[24] *Id*.

[25] Chiang, *supra* note 16, at 530.

[26] *Id*.

and Solum reject the proposition that underlies this work, namely that the problem with patent claims is not the language or words therein but the fact that there is no clear common policy amongst judges when constructing patent claims.[27] In this regard they argue that the root cause of difficulty in analyzing patent claims is not "linguistic indeterminacy".[28] In their view uncertainty as to patent claim interpretation "arises because judges disagree about whether to follow the linguistic meaning as a matter of normative policy."[29]

As stated above, I find myself in disagreement with Chiang and Solum's proposition. I do concede, however, that there are other problems that plague the patent system. Still, I hold fast to the view that the language-based construct of patent claims holds the lion's share of the reason why the patent system is broken.[30] While there is no doubt that a policy difference exists amongst judges in various jurisdictions, had there been clearer patent claims these policy issues would not have had a foot in the door to begin with. Had the patent claim construct been clearer to begin with, there would not have been any need, indeed any merit, for judges to weigh in with their respective policy views. Simply stated, unambiguous patent claims draw clear "fences" that lead to clear-cut decisions devoid of any policy-related intervention by judges. Thus, the policy issue, while factually correct, is merely a symptom of the ailment that is an incoherent patent system at large, with the claims being a manifestation, or even a catalyst, therein. Indeed, while attempting to limit the discussion to the issue at hand, I should like to add that the lack of a coherent and unified patent system is and will continue to preserve the complex, costly, unclear, unstable system in which our innovators, and indeed all of us, find ourselves mixed-up in. I have in the past alluded to and examined some of these issues.[31] Without opening a lengthy discussion on these issues, I will mention some of them that will need to be fixed or addressed with the conventional patent system. These, much like patent construction, remain a stumbling block in the path to a vibrant and seamless patent system.

My first assertion about the problems that plague the patent system at large is the lack of unification.[32] In a nutshell, just as there is one technology, so too there should be one single international patent office.[33] In this context my assertion is that the "traditional" or conventional mode of operation of the National Patent Office is no longer compatible with the way in which innovations are being registered, patented, protected and enforced around the world.[34] In my view, the reduced rele-

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27 *Id*. at 534.

28 *Id*.

29 *Id*.

30 The 'Broken System' narrative has resonated for the past two decades in the U.S. and elsewhere. See, e.g., ADAM B. JAFFE & JOSH LERNER, Innovation and Its Discontents: How Our Broken Patent System is Endangering Innovation and Progress, and what to Do About it, (2004).

31 *See, e.g.*, Amir H. Khoury, *The End of the National Patent Office*, 52 IDEA 199 (2012).(discussing the lack of unification in the patent system).

32 *See id*.

33 *Id*. at 202.

34 *Id*..

vance of the National Patent Office has been a direct byproduct of the cross-border nature of innovation, the world-encompassing threshold of patent registration (i.e. the international novelty requirement), and the international structure of patent protection.[35] Indeed, given the nature of patents and the centralized international patent system that is already in place, the role of the National Patent Office has become largely overshadowed by an international patent system comprising well-defined legal and administrative structures such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS); the Patent Cooperation Treaty (PCT)) as well as a 'Patent Prosecution Highway' consturc.[36]

My second assertion regarding the patent system is that the patent term of one-term-fits-all does a disservice to the promotion of technology and to the preservation of the incentive mechanism that drives it forward.[37] My view continues to be that while the scope of patent rights (patent breadth), is a crucial element in preserving the incentive to innovate, it is not sufficient to create the real balance that needs to be struck between different market players.[38] In my view the patent term (patent length) is the missing piece in the puzzle.[39] Indeed, only a synthesis between both length and breadth can ensure a real balance between patent rights and access to technology.[40] There is a need to discontinue the use of a single patent term for all types of patents since the 'Commercial Capacity' of innovations is itself differential.[41] For this purpose, I have proposed a differential patent term in which duration is contingent on the type of innovation and its underlying technology.[42]

The third element which, I think, reflects badly on the patent system at large is the inability to make room for real and pressing social interests that need to be factored in to the patent system when making determinations pertaining to compulsory licensing, etc. This is especially evident and acute when it comes to access to medicines.[43]

All of the three abovementioned elements depict weaknesses that are inherent in the conventional patent system at large. I will refrain from addressing these issues further, and remain focused here on the issue at hand. I have made note of these issues here in order to highlight the extent of deviation of the conventional patent system from its original intent, namely; to harness knowledge and to provide an incen-

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35 *Id*.

36 *Id*. at 199 (". . . the National Patent Office is now on its way to becoming a mere relic of a territorially-oriented framework—an anachronism that must be changed to promote useful science and innovation around the world.")

37 Amir H. Khoury. *Differential Patent Terms and the Commercial Capacity of Innovation*, 18 TEX. INTELL. PROP. L.J. 373 (2010).

38 *Id*. at 374.

39 *Id*. at 374-76.

40 *Id*.

41 *Id.*

42 *Id*.

43 Amir H. Khoury, *The 'Public Health' of the Conventional International Patent Regime & the Ethics of 'Ethicals'*, 26 CARDOZO ARTS & ENT. L.J., 25, 26 (2008).

tive for innovation. Indeed, the overriding theme of those preceding research projects, and of this current project, is that all barriers to knowledge and to sharing of knowledge should be removed in a manner that increases the chances of technological innovation, renders the system less costly, more attainable and accessible by all and for the collective benefit of society.

c. The Limits of Language in Patent Claims

The first thing that is striking about patent claims is the attempt to express technology in words. Indeed, to erect a "fence" that is supposed to be solid and well defined by using words. Evidently, this is virtually impossible! This is because words are not limitless. Their ability to convey exact ideas are limited by linguistic constraints as well as personal connotations.[44] Language is a tool to express ideas but these ideas involve at least two parties. The speaker (or writer) who has an idea which he wishes to convey by using certain words; and the receiver (or reader) of said words who will engage in his own interpretation of the same. As such language is not a binary code or GPS system that denotes an exact reference to a number or position in space. Rather words are sounds that are expressed by one and received by another. Thus, the chance of misunderstanding, misinterpreting or miss construing an idea is far greater in the case of words. So while patents attempt to establish clear lines of division between that which is private and that which is public, those building blocks with which they attempt to do that are simply not suited for the task. Words cannot create a clear line of separation between public and private domains. In fact the amount of effort that has been exerted in crafting the word-claim structure shows that this is virtually impossible. Consider, for example, Robert Faber's analysis and compilation of the various terms that are commonly used in constructing patent claims.[45] Furthermore, Chiang and Solum recognize the academic discussion regarding the inherent problems of patent claims; they explain that "It is generally regarded as very important that patent scope be entirely independent of the policy judgment of individual judgesFalse Yet despite these routine pronouncements by courts that they are rigidly adhering to claim text, it still seems that claim scope is wildly unpredictable."[46]

The awareness of the inherent weakness of words to convey clear-cut ideas is not new. Over the years philosophers, linguists, and courts have had to struggle with this reality. Justice Frankfurter, in the context of interpreting statutes, remarked that words are "symbols of meaning" that "seldom attain more than approximate precision."[47] This applies in the case of patent claims as well. The following examples highlight some specific mechanisms for dealing with this difficulty in the context of patents.

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[44] Svetlana Sheremetyeva, *Natural Language Analysis of Patent Claims* (2003), *available at*, http://dl.acm.org/citation.cfm?id=1119311.

[45] ROBERT C. FABER, LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING (5th ed. 2008).

[46] Chiang, *supra* note 16, at 540.

[47] Felix Frankfurter, *Some Reflections on the Reading of Statutes*, 47 COLUM.L. REV. 527, 528 (1947).

i. Use of Open-Ended Terms

Use of open ended terms is prevalent in patent claims. Consider the terms 'consisting' and 'comprising'. While these words, linguistically speaking, are seen as synonymous, the same does not apply in the patent context. In patent claims, those two words are deemed to have different meanings. While the former is held to denote a very broad and open claim, with possibly unspecified elements, the latter is deemed to be narrower in scope and containing the materials specified therein. Both terms allow for interpretation and, in some cases, the inclusion of additional elements that are otherwise not mentioned therein.

ii. Use of Constructive Ambiguity

In the case of constructed ambiguity, patent claims can be used to expand the technological envelope that surrounds the patent. The prominent term in this regard would be the term **"preferably"**. In this case it is possible to understand from the patent term that the component is optional but not essential. Effectively this means that additional components could be used. This obviously leaves the patent owner protected even if a competitor introduces a new component.

iii. Use of False-Positive Terms

False-Positive terms, such as "may", "might" etc., can be used in patent claims. Such terms not only carry the possibility of occurrence but also the lack thereof. Thus, such a claim would cover both incidents. Again, it is noticeable that the use of such terms would invite not only much interpretation but also can induce a lack of clarity as to the scope of incidents that are covered by the patent.

The linguistic challenge that is posed by the patent claims also manifests itself on the chronological level. The interpretation that should be given to a certain term is affected by time. Mark Lemley observes that, "In order to construe the claims of a patent, the court must fix the meaning of the claim terms as of a particular point in time."[48] In his view: "Both the knowledge of the PHOSITA in a particular field and the meaning of particular terms to that PHOSITA will frequently change over time."[49] But he too is aware of the chronological element when he ponders the question: "But at which point in time shall we fix the meaning of the claims?"[50] Still, the issue is much deeper; indeed it appears that the court's interpretation of claim terms is contingent on time as well as the legal issues that are in contention (e.g. novelty or non-obviousness; enablement or written description).[51] This, coupled with ambi-

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48 Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 MICH. L. REV., 101, 102 (2005).

49 *Id*. (the term PHOSITA denotes a "person having ordinary skill in the art.").

50 *Id*.

51 *Id*. at 103. (Lemley observes that "It is a fundamental principle of patent law that the time as of which we determine the meaning of claim terms varies depending on what legal rule is at issue. Where the question is one of novelty or nonobviousness - whether the invention is truly new - the

guity and the self-interest of the inventor, as well as other parties, leads to a problematic concoction whereby the "fences" (i.e. the patent claim) are seen through the eyes of the beholder.

Another manifestation of the weakness of language is reflected in the ever-growing length of patent applications. Dennis Crouch alerts us to the reality that U.S. patents are increasing in size and complexity.[52] Thus, not only has the length of the specification increased over time, but the number of patent claims has also been on the rise.[53] These findings are yet another indication of the complex nature of patents, and the rising costs associated with the prosecution and litigation of the same. This serves as an additional indication of the direct correlation between the inadequacy of words *per-se* and the complexity of patents. Logic dictates, and the facts show that, where words fail to provide clear-cut protection more words are needed to fortify the claims from all possible avenues of interpretation; it is a cascade effect of sorts. When the building blocks of the legal "fence" are not adequate more blocks are needed to strengthen the "fence" in order to render it impregnable. These attempts are also destined to fail or at least to encounter challenges. Justice Frankfurter observes that, "If individual words are inexact symbols, with shifting variables, their configuration can hardly achieve invariant meaning or assured definiteness."[54] Furthermore, in *Autogiro Co. of Am v. United States,* the court went on to observe that, "the very nature of words. . . make[s] a clear and unambiguous claim a rare occurrence." [55]

I should like to state that while I do not condone such use on the macro-policy level, I understand it completely. It is, after all, a logical tendency of those who are engaged in writing such claims; in their endeavor to expand their (private) domain and to cover their territory lest it be invaded by other contenders or competitors and to make room for judicial discretion that keeps the invention within the scope of patent protection.[56] While this is logical, its ramifications are clear: the inclusive na-

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courts compare the patented invention to the prior art as both were understood at the time of the invention. Where the question is one of enablement or written description - whether the inventor understood and described the invention in sufficient detail - courts evaluate the adequacy of the disclosure based on the meaning of the claims at the time the patent application was filed. Where the question involves the meaning of a special patent claim element called a means-plus-function claim, courts evaluate the scope of that claim element at the time the patent issues. And where the question involves alleged infringement of the patent, courts evaluate infringement in at least some circumstances based on the meaning of the claim at the time of infringement.").

52 DENNIS D. CROUCH, THE RISING SIZE AND COMPLEXITY OF THE PATENT DOCUMENT, UNIV. OF MO. SCH. OF LAW LEGAL STUDIES RESEARCH PAPER NO. 2008-04 (2008), *available at*, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095810.

53 *Id*; *see also* John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 88 B.U.L Rev., 77, 97 (2002).

54 Felix Frankfurter, *supra* note 48 at 528.

55 384 F.2d 391, 396 (1967).

56 William Redin Woodward, *Definiteness and Particularity in Patent Claims*, 46 MICH. L. REV., 755, 755 (1948) ("[T]he habit of using out-of-the-way verbiage may lead the practitioner by force of habit to pass over a simple term like "sleeping car" in favor of a more elaborate phrase like "a communal vehicle for the dormitory accommodation of nocturnal viators ").

ture of patent language is intended to create a closed domain in knowledge. Herein lies the dichotomy; using words in an inclusive manner in order to create an exclusive domain.

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It is important to note that the ambiguity of the text and the way in which to interpret patent claims has had far-reaching effects and has become part of a debate within the Federal Circuit.[57] Craig Nard identifies two schools of thought on how patent claims need to be interpreted: "hypertextualism" and "pragmatic textualism."[58] Nard notes that hypertextualism remains the predominant interpretive approach to claim interpretation.[59] In his view, "[T]his overly formalistic and acontextual approach is misguided and self-contradictory. It proclaims to read claim language as a person of ordinary skill in the art would but, at the same time, eschews the use of extrinsic evidence, thus distancing itself from the very industry its ultimate interpretation will most directly affect."[60] Nard favors "pragmatic textualism", because it is "consistent with the patent code and contemporary legal and hermeneutic philosophy."[61] In his view, "The pragmatic textualist judge not only understands the importance of textual fidelity, but he also embraces technologic context and is sensitive to process considerations such as institutional competence."[62] This separation within U.S. courts reflects the reality that words in and of themselves fail to clearly draw the parameters of the legal "fence" that is the patent claim. Golden confirms the existence of this division within the court.[63] Golden also acknowledges various steps that have been undertaken with the purpose of bringing "greater predictability and rationality to claim construction".[64] The most notable of these, according to Golden, is the creation of the United States Court of Appeals for the Federal Circuit in 1982, which acts as an appellate court with exclusive jurisdiction over appeals in cases that arise under federal patent law. Golden also refers to the 1996 the Supreme Court opinion in *Markman v. Westview Instruments, Inc.*, which affirmed the Federal Circuit's holding that claim construction is a task for judges rather than juries.[65] But despite both of these steps, Golden concludes that "claim construction jurisprudence continues to bear hallmarks of unpredictabil-

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[57] *See generally*, Stephanie Ann Yonker, *Post-Phillips Claim Construction: Questions Unresolved*, 47 IDEA 301 (2007) (surveying Federal Circuit jurisprudence on claim construction). *See also*, Ehab M. Samuel, *Phillips v. AWH Corp., Inc.: A Baffling Claim Construction Methodology*, 16 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 519 (2006) (discussing the Phillips v. AWH Corp., Inc. distinctions on the "specification-based approach" v. the "claim-based approach").

[58] Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH 2, 82, (2002).

[59] *Id*.

[60] *Id*.

[61] *Id*.

[62] *Id*.

[63] John M. Golden, *Construing Patent Claims According to Their "Interpretive Community": A Call for an Attorney-Plus-Artisan Perspective*, 21 HARV. J.L.& TECH. 321, 324-25 (2008).

[64] *Id*. at 323

[65] *Id*. at 323-2.

ity."[66] He explains that "reversal rates of district court claim constructions stand at roughly 34%," and that Federal Circuit judges do not apply similar claim construction methodologies.[67] This also proves that the problems with the patent claim system are not contingent on the court's membership or on the fact that juries were involved; the problems are much more deeply rooted, and effectively relate to the fact that patent claims in their linguistic construct fail, by definition, to attain clarity. It is worth noting that even the *Phillips* case did not do much by way of sidestepping these challenges. In *Phillips*, the court ruled that intrinsic evidence, such as claims and prosecution history, are very important for claim interpretation.[68] In that respect the court stated that the "context in which a term is used in the asserted claim can be highly instructive."[69] But the court also maintained that extrinsic evidence, such as use of dictionaries, can be useful in shedding light on the meaning of a claim term.[70] Evidently, the courts have not fashioned a clear-cut set of tools that can be utilized when constructing patent claims. This problem does not lie in the court's lack of ability to decide, but rather in the fact that words have a limited power to act as clear building blocks for constructing the "fence" that is the patent claim. As the title of this work suggests, words are "unlimitless" in their impact. Hence, a new fresh approach is needed, one in which words, whether intrinsic or extrinsic, are not the only factor to be considered.

III. Conceptions of a New Model for Patents

In trying to resolve this crisis in the language-based patent system, the courts have resorted to a few measures. While these measures have not been effective in resolving the inherent weaknesses, they do reflect the extent of the problem.

The first of these measures, which has been undertaken by courts, pertains to prior judicial definitions of terms, or expressions appearing in claims. That is to say, courts have resorted to looking at how prior courts have interpreted a given term. This practice is logical and warranted, yet it does not resolve the problem at its core. That is because all of the parties engaged in a given patent related proceeding (i.e. conflict) cannot predict, (know in advance), what a court will decide to do; that is to say, will a court place its ruling on prior judicial definitions or will the court go it alone in interpreting the wording of a patent claim? Also, the parties in these cases are likely to find themselves involved in a secondary tussle over the nature of the judicial sources on which the court will have to base its interpretation. Evidently, this is a paradox, or at least a bottomless pit, which leads to the same problem to

66 *Id*. at 324.
67 *Id*. 324-25.
68 Phillips v. AWH Corp. (Phillips II), 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc).
69 *Id*. at 1314.
70 *Id*. at 1318.

begin with: Who has the authority to provide an interpretation for a given word? And what is the authoritative interpretation? [71]

The second type of measure that courts have utilized is the attempt to formulate general rules for the interpretation of claims, is the basic rule of interpretation stipulates according to which: terms need to be construed literally, barring any Patent Office proceedings or by prior art, or by judicial determination to the contrary. In simpler terms, the idea behind this rule is that a patentee is bound by the language and terms of his claim. Unfortunately, this rule, despite its best intentions, is at best circular. That is to say, it does not prescribe who should determine the patentee's actual intent? It also, does not specify at what point in time did that intent culminate? Furthermore, this rule itself is not applied in the same manner by all courts. Indeed, it has been shown, time and again, that these rules can vary from one court to another.[72]

The third of these measures is the development of specific doctrines, which reflect the general dissatisfaction with the limits of patent claims and the problems, referred to as "friction blocks," that they entail. The most prominent of these doctrines is the Doctrine of Equivalents, which allows courts to expand the scope of patent rights granted by the Patent Office.[73] But this comes with a cost and is viewed by some as unsuitable and even contrary to the patent claim rationale (i.e. the notice function) of clearly defining the scope of the private domain.[74]

As I have already stated, these measures are also insufficient to remedy the existing challenges of relying solely on words within patent claims. Therefore, the initial problem (that is the inherent weakness of a langue-based patent system) persists: The ability to describe technology with words in not limitless. Words are "unlimitless", they are limited in what they can do. Thus, the "fences," which are initially intended to be built with words are nothing more than smokescreens. Bluntly speaking, nothing is truly defined in the patent field; most of it is open to interpretation and as such patent claims, despite the best intentions, are ultimately one of

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[71] This complexity is similar to that found in private international law over issues of forum as well as the applicable substantive law.

[72] *See supra* Chapter 2.

[73] *See* Michael J. Meurer & Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L.J. 1947, 1948 (2005).

[74] See *id*. at 1947, 1951. ("The friction theory suffers from three main weaknesses. First, the theory is implausible on empirical grounds. The frictions that supposedly block proper claim breadth, [such as limits of language, mistake, and unforeseeability,] are missing from the leading cases. Second, there is not a convincing answer to the question of why the doctrine of equivalents, rather than some other doctrinal approach, should be used to overcome the frictions. The frictions can be overcome, or at least mitigated, for example, by astutely amending claims during prosecution; . . . through a reissue proceeding after the patent issues; or through artful claim drafting as an initial matter. Third, proponents of a far-reaching DOE fail to pay adequate attention to the notice function of patent claims and are insufficiently sensitive to patent law's delicate incentive dynamic.").

the main reasons that the patent system is broken; the other three primary reasons have been briefly discussed above.[75]

As we have seen thus far, a language-based patent claim system is part of this problem. Therefore, the patent system is in dire need of more stability. It is worth noting that the idea of seeking stability in patents is already finding root in the conventional patent system. Consider, for example, the principle whereby parties to a patent dispute are not at liberty to argue for more than one meaning to a patent claim that will apply to both validity and infringement. Similarly, the courts give a single meaning to a patent claim in any given case. This idea of singularity reflects the need to construe a clear borderline between the private domain, which is the patent claim and the public domain, which is beyond its coverage.

Thus, what I aim to do in this chapter is to give rise to this approach of singularity. My intent is to advance a clearer, more transparent, and less costly patent system by dealing head-on with the main problem as I see it: the inadequacy of a language-based patent claim/s system. Indeed, in order to fix the patent system, one needs to fix the reasons that caused it to be broken in the first place. This chapter is devoted to that end. In my view, my research project here blends well with previous research projects that have addressed methods that are intended to simplify the patent claims system.[76] For example, Svetlana Sheremetyeva has considered methods aimed at facilitating the cognitive process of understanding the innovation that is described within patent claims.[77] In that research Sheremetyeva has proposed two levels of simplification: the macro-level and the micro-level.[78] Her proposed macro-level simplification relates to the visualization of the hierarchy of multiple claims.[79] The micro-level simplification, on the other hand, includes visualizing the claim terminology, simplifying the sentences structure of claims (shorter sentences), and building a graph depicting the interrelationship amongst the invention's elements.[80] In her view, with which I agree, achieving such simplification "could increase the overall productivity of human users and machines in processing patent applications."[81] The solution that I suggest is based on similar principles, but is different in

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75 *See supra* Part 2.2.

76 *See* Svetlana Sheremetyeva , *Automatic Text Simplification for Handling Intellectual Property (The Case of Multiple Patent Claims)*, PROCEEDINGS OF THE WORKSHOP ON AUTOMATIC TEXT SIMPLIFICATION: METHODS AND APPLICATIONS IN THE MULTILINGUAL SOCIETY 41 (Constantin Orasan, Petya Osenova & Cristina Vertan eds., 2014), http://www.aclweb.org/anthology/W14-5605;, JOE BLOG, SIMPLIFICATION OF PATENT CLAIM SENTENCES FOR THEIR MULTILINGUAL PARAPHRASING AND SUMMARIZATION, http://webcache.googleusercontent.com/search?q=cache:HV2ywgSKyd4J:www.taln.upf.edu/system/files/biblio_files/Bouayad-Agha%2520et%2520al.%2520-%25202009%2520%2520Simplification%2520of%2520Patent%2520Claim%2520Sentences%2520for%2520their.pdf+&cd=1&hl=en&ct=clnk&gl=us;, Nadjet Bouayad-Agha et. al, *Simplification of Patent Claim Sentences for Their Paraphrasing and Summarization* (2009), http://www.aaai.org/ocs/index.php/FLAIRS/2009/paper/viewFile/101/306.

77 Sheremetyeva, *supra* note 77, at 41.

78 *Id*.

79 *Id*.

80 *Id*.

81 *Id*.

its application. In a nutshell, my view is: Patent claims need to be shorter in length, more exact in coverage, and based on mathematical and/or scientific considerations rather than word connotations. Specifically, I would suggest the following elements to be introduced:

a. Visual Aided Claims (VAC)

I think that there needs to be broader use of claim drawings, visual aids to substantiate the text in the claims. Granted, drawings in patent applications are not compulsory and have presently no real legal weight in determining the actual scope of the patented invention. Presently, drawings are used to assist in understanding the invention and especially the specification. But given that the claims are intended to reflect the elements within the specification claimed by the inventor, it follows that attempting to visualize patent claims, by inserting drawings therein, and by making drawing an integral part thereof, is only logical. This does not undermine the patent claims section. In fact, there is no real rationale as to why patent claims need to be in writing. The main aim of patent claims, as I understand it, is to ensure that what is claimed is indeed valid and can withstand a challenge to the contrary. This, in many cases, could be attained by merging the linguistic with the visual. In fact, this merger is likely to reduce linguistic ambiguity and clarify many claims in every given invention.[82] Indeed, I believe that while the patent claims are the legal "fence", they remain contingent on the other elements. It is a symbiotic relationship; the claims should not be out-side the limits of the invention as detailed in the specification section. As such, I support the view that is well articulated by Arnold Silverman: "[I]t is important to employ in the claims technical terms, the meanings of which are clear. One also may employ the specification and, where appropriate, the drawings to make sure that the technical disclosure is clear." [83] In this regard, Christopher Cotropia emphasizes the interconnectivity between the speciation and the claims; he sees the specification as a low-cost source of information for interpreting patent claims.[84] In his view: "The information in the specification is already tailored to and in context with the claim under interpretation. In addition, the specification provides invention-specific information in a low-cost fashion and includes information that caters to an interpreter's familiarity and ease with understanding 'things'".[85]

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[82] Bernadette Marshall, *Good Patent Drawings Make a Better Patent Application*, NB GRAPHICS & ASSOCIATES, INC. (2009), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1477386 ("[N]arrative language, discussion and descriptions must be clear and unambiguous." But, in her view, "Imagery is just as critical but is regularly included somewhat as an afterthought." She emphasizes "patent drawings are an integral part of the process and should be considered with the same care as the rest of the patent application.")

[83] Arnold B. Silverman, *Watch What You Say—Appellate Court Clarifies Standards for Interpreting Technical Patent Claim Language*, THE MINERALS, METALS & MATERIALS SOC'Y (Apr. 2006), http://www.tms.org/pubs/journals/JOM/matters/matters-0604.html.

[84] Christopher A. Cotropia, *Patent Claim Interpretation and nformation Costs*, 9 LEWIS & CLARK L. REV. 57, 59 (2005).

[85] *Id.*

The correlation between the quality of a patent and the quality of the drawing therein has already been alluded to. Bernadette Marshall contends that: "'[A] picture speaks a thousand words.' That ancient adage certainly holds true in the case of patent drawings. An invention can often be more easily explained through drawings than in reams of description. Accurate, clear drawings strengthen and enhance patent applications, helping overloaded patent examiners to understand inventions faster."[86] But Marshall also states that the drawings not only benefit the patent system on the technical level, (i.e. the patent specification) they also, and in my opinion more importantly, benefit the patent system on the legal level.[87] Here Marshall explains that, "Simple, clear and precise images also help to instruct judges in cases of patent infringement, often clarifying the patent owners' claims and clinching the decision in their favor."[88] Thus, by making room for drawings in patent claims, the entire process of patent construction would be rendered simpler and more precise. In this regard, patent drawings can reflect the interaction between the patent and prior art. The drawings can more precisely, and I would say, more easily, illuminate this connection by adding specific views in order to "illustrate a problem the invention solves, a particular advantage it offers or a need it fulfills."[89]

I also agree with Marshalls auxiliary remarks whereby clear drawings and (effectively, as a direct result) unambitious patent claims can act as a deterrent to potential infringers, who would otherwise lurk in murky waters. What is more such a clear patent claims construct would also guide other infringers, who might otherwise have stepped into the private domain based on a faulty assessment as to the scope of the patent.[90] In all, the drawings, once formally added into the patent claim system as I submit here, will relieve the patent claims from much of their inherent ambiguity. It is a win-win situation for the inventors, patent examiners, judges, and even competitors acting in good faith. It is justified both in the micro and in the macro-levels of patent policy. Here one might also entertain an idea that visually supported patent claims would also facilitate more effective and less costly computer aided patent searches. Where computers, (just as humans) might not be able to analyze and effectively compare complex language-based claims, they might more easily find similar drawings depicting identical or similar technology. While the final determination as to similarity might be on the individual (examiners, judges etc.), still the initial task of surveying and mapping would be more effectively and speedily achieved using a computer aided program that is geared to identifying

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86 Bernadette Marshall, *Better Drawings Make a Better Patent*, WIPO MAG., 20 (Apr. 2010), http://www.wipo.int/wipo_magazine/en/2010/02/article_0008.html

87 *Id*.

88 *Id*. at 21.

89 *Id*. ("Prior art can be used to show contrast or to differentiate a new invention from an older one or, for a new invention consisting of an improvement to an existing one, the drawings can show the improved portion with enough of the old invention to demonstrate the connection.")

90 *Id*. at 20 ("Drawings can also work to the advantage of patent holders in negotiating damages or a settlement. Even more important, meticulously prepared drawings that make the patent understandable and unambiguous may mean potential infringers will think twice about copying. The earlier infringement is deterred the better it is for patent owners.").

"similar" drawings, that themselves constitute or at least are strongly indicative of the 'intention' of the language in a given patent claim.

In order to render this suggestion operable, there will need to be a unification of the drawing requirements in all countries, regions, as well as within the PCT. It is clear that while this is not an easy endeavor it is one that is needed and that is attainable given that the basic drawing requirements are similar in most jurisdictions. Indeed, even now there is already some harmony amongst national patent laws over the form of drawings. In many jurisdictions the respective patent offices requires clear drawing, in black and white with solid black lines on white paper. In those jurisdictions the main difference, as it stands, is the size of the paper.[91]

I should clarify here, that my proposal applies equally to utility patents as well as to design patents, where patent drawings are already widely used and in some cases constitute a requirement for filing.[92] In both cases, drawing should be allowed and even encouraged due to the benefits that can be derived from them.[93] With that being said, the drawings should not be a compulsory part of all patent claims given that in some cases they might not be needed or might even be irrelevant, for example in the case of an active ingredient in a chemical product. Thus, the system needs to make room for drawings in all relevant types of patents, but not to make it a requirement for all patents, because in some cases the patent does not require this.

And on an end note, in this discussion pertaining to drawings, I see no conceptual problem with expanding these visual aids to encompass an audio visual claim system, namely, a short film (animated or otherwise) regarding the working of the invention. Such a system would be of relevance to both the specification decision and to the claims section. In a nutshell, in a world where visual communication has become so dominant, accessible, and developed, there is no reason to keep a language based patent system that is effectively stuck in the nineteenth century!

b. Harmonized Jargon

Another tool that needs to be employed towards creating a more exact patent claim system pertains to the use of a harmonized jargon manual where terms used in patent applications are based on the same exact definitions therein. What I am referring to here is not a jargon of legalistic wording, such already exists; rather my pro-

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91 The USPTO allows letter size paper or A4 (with constant margins). 37 C.F.R. § 1.84(f), (g). However, the PCT only accepts size A4. WIPO, PCT r. 11.5, *available at* http://www.wipo.int/pct/en/texts/rules/r11.htm.

92 Marshall, *supra* note 87 at 21 ("According to USPTO guidelines, 'the drawing disclosure is the most important element of the application,' and the drawings in design patent applications 'constitute the entire visual disclosure of the claim.' In well-executed drawings 'nothing regarding the design sought to be patented is left to conjecture.").

93 *Id*. ("Placing an invention in its intended environment can make it more easily understandable, and the drawings themselves can be arranged in such a way that it helps readers to better understand the invention. Plan or elevated views, perspective views, isometric projections, sectional views and exploded views can be used as well.").

posal relates to technical words and their meaning and connotation.[94] This, I believe, will assist all concerned in avoiding misunderstandings and sidestepping disagreements. Typically, said disagreements arise in relation to what the patent attorney (or inventor) meant to say and, more importantly, what the patent registrar granted based on the wording of the claim. The jargon can become the patent system's "friend" and ally rather than its burden.[95] Such a jargon-manual would be a rolling project, meaning that it can start with a few basic terms and over time include more terms. The main benefit of a jargon manual would be that all who are engaged in the drafting or interpretation of patent claims would adhere to the meaning therein, thus rendering the terms more harmonized and predictable in their meaning or scope. What is more, as technology progresses, so too new terms will need to be defined as well. In order to lower transition costs, the jargon would only apply to new applications and patents, such that within two decades of its introduction all existing patents will be subject to it. Ideally, this project should be delegated to qualified patent attorneys, each in his or her scientific fields of expertise. It would be, metaphorically speaking, the rock on which all claims would be erected; a farcry from the ambiguity, and sporadic nature, of the terminology now being used. In this regard, Lee Petherbridge highlights the existence of the problem of ambiguity by observing: "Perhaps the most obvious way to achieve interpretive flexibility is to seek vagueness when claiming and describing an invention. The use of vague claims increases flexibility because vagueness can enable various arguments to be advanced when seeking the meaning of terms that appear claim terms . . . ".[96] It is worth noting that the *Texas Digital Systems, Inc. v. Telegenix, Inc.*,[97] ruling reflects this tendency to also resort to a formalistic approach of interpretation. In that ruling the court reaffirmed the presumption of the ordinary meaning of a claim and explicitly elevated the dictionaries' role in claim construction.[98] My proposal regarding the establishment of an agreed upon jargon or, if you will, a comprehensive world dictionary, would be a further step toward an external, objective, and consistent interpretation of claims and terms therein.

c. Classification of Claims

Another tool that is intended to create an easier method of communication for patent claims is classification. Every claim would further be classified in a number code that reverts to the Strasbourg Agreement or a classification type that is similar thereto. In my view, the cheapest system for attaining a viable Patent Claim Classi-

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94 See, e.g.,Arnold B. Silverman & George K. Stacey, Understanding "Patentese"—A Patent Glossary, http://www.tms.org/pubs/journals/jom/matters/matters-9609.html (an example patent glossary).

95 Woodward, *supra* note 57 at 755 ("[P]rofessional jargon, if properly used, may aid rather than detract from certainty of interpretation and can save a great deal of expensive effort on the part of those most concerned.").

96 Lee Petherbridge, *Sympoosium: on the Development of Patent*, 43 LOY. L.A. L. REV. 893, 902 (2010).

97 308 F.3d 1193 (Fed. Cir. 2002); *See also,* Jennifer R. *Johnson, Out of Context: Texas Digital, the Indefiniteness of Language, and the Search for Ordinary Meaning*, 44 IDEA 521, 532 (2004).

98 *See* Ruoyu Roy Wang, *Texas Digital Systems v. Telegenix, Inc.: Toward A More Formalistic Patent Claim Construction Model*, 19 BERKELEY TECH. L.J. 153 (2004).

fication (PCC) would be by resorting to and expanding on the already existing classifications of patents as set by the *Strasbourg Agreement Concerning the International Patent Classification*[99] of 1971, and as amended in 1979 (IPC). This agreement, to which 62 countries are now parties, is used by the patent offices of more than 100 countries as well as four regional offices and the secretariat of the World Intellectual Property Organization (WIPO) under the Patent Cooperation Treaty.[100] The *Strasburg Agreement* (IPC) has proved its worth in the retrieval of patent documents when searching for *prior art.* It is widely used by patent-issuing authorities; potential inventors; research and development units; and others concerned with the application or development of technology. The international classification is dependable because it is continuously revised.[101] This classification applies to various documents relating to patents for invention including published patent applications, inventors' certificates; utility models and utility certificates. It is open to all countries that are member of the *Paris Convention*.[102] As such, this system of classification facilitates **"**an effective search tool for the retrieval of patent documents by intellectual property offices and other users, in order to establish the novelty and evaluate the inventive step or non-obviousness (including the assessment of technical advance and useful results or utility) of technical disclosures in patent applications".[103] Furthermore, the *Strasbourg Agreement* can be utilized in order to achieve other goals, namely to facilitate access to the technological and legal information contained therein.[104] The IPC is sufficiently detailed so as to allow for a precise

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99 Strasbourg Agreement Concerning the International Patent Classification, Mar. 24 1971, 26 U.S.T. 1793, 1160 U.N.T.S. 483.

100 *See Summary of the Strasbourg Agreement Concerning the International Patent* Classification (1971), WIPO, http://www.wipo.int/treaties/en/classification/strasbourg/summary_strasbourg.html., (the *Patent Cooperation Treaty* established a system for attaining multiple registrations of patents around the world by using WIPO International Bureau).

101 *Id*. (the current 9th Edition entered into force on January 1, 2009; the revision is conducted by a Committee of Experts in which all member states are represented).

102 *Id*. *See also* Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S.305. English and French are the working languages of that agreement. Strasbourg Agreement Concerning the International Patent Classification art 3(1), Mar. 24 1971, 26 U.S.T. 1793, 1160 U.N.T.S. 483. Pursuant to Article 3(2) of the Strasbourg Agreement, official texts of the Classification may be established in other languages.

103 WIPO, *International Patent Classification* (*Version* 2015), *Guide*, 1, WIPO, http://www.wipo.int/export/sites/www/classifications/ipc/en/guide/guide_ipc.pdf. (The text of the first edition of the Classification was established pursuant to the provisions of the European Convention on the International Classification of Patents for Invention of 1954. Following the signing of the Strasbourg Agreement, the International (European) Classification of Patents for Invention, which had been published on September 1, 1968, was as of March 24, 1971, considered and referred to as the first edition of the Classification. Guide to the IPC (2015).).

104 Its other aims are intended to include the creation of a basis for selective dissemination of information to all users of patent information; investigating state-of-the-art technology in given fields; the preparation of industrial property statistics which in turn permit the assessment of technological development in various areas. *Id*. at 1. Between 1974-2005, the IPC has been periodically revised in order to improve the system and to take account of technical development. *Id*. at 2-3. Following the conclusion of its reform in 2005, the IPC was divided into core and advanced levels. *Id.* at 2. Specifically the core level is updated once every three years and the advanced level is continually revised. *Id*.

classification of all patentable subject matter. The IPC provides for a detailed hierarchal structure of classification. The highest part of that hierarchy is comprised of 8 broad sections. Each section is designated by one of the capital letters A through H. Each section carries a title that provides a broad description of the relevant section, namely. A: Human Necessities; B: Performing Operations and Transporting; C: Chemistry and Metallurgy; D: Textiles; Paper; E: Fixed Constructions; F: Mechanical Engineering, Lighting, Heating, Weapons, and Blasting; G: Physics; H: Electricity.[105] Each section is subdivided into classes which are the second hierarchical level of this system of classification. Each class symbol consists of the section symbol followed by a two-digit number. The class title gives an indication of the content of the class.[106] Each class, in turn, comprises one or more subclasses which are the third hierarchical level in this method of classification. The subclass title indicates as precisely as possible the content of the subclass.[107] Each subclass is broken down into subdivisions referred to as "groups," which are either main groups (i.e., the fourth hierarchical level of classification) or subgroups.[108] The subclasses are further divided into subgroups. In all, the IPC creates approximately 70,000 subdivisions.[109] As such, the IPC provides an internationally uniform classification of patent documents and functions as an effective search tool for the retrieval of patent documents by intellectual property offices.

My proposal is to extend the patent classification further into each patent claim. I believe that the IPC's meticulous system of classification can be utilized, as a basis for classifying patent claims. For this purpose, the same body of experts that are entrusted with the task of classifying patents can now be delegated the task of further classifying patent term types.[110]

My proposed system of classification would also need to address two more challenges: the possibility for multiple classifications of a single patent claim and the prospect of changes in the field of innovation. In my opinion the first challenge can be tackled by opting for a system that would be contingent on the *dominant*

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[105] *Id*. at 4. Each section title is followed by a summary of the titles of its main subdivisions; within sections, informative headings may form subsections, which are titles without classification symbols (e.g. Section A (Human Necessities) contains the following subsections: Agriculture; Foodstuffs; Tobacco; Personal or Domestic Articles; Health; Amusement. *Id*.

[106] E.g. H01 Basic,Electric Elements.

[107] E.g. H01S Devices Using Stimulated Emission; *see supra* note 105 at 5. Most subclasses have an index which is merely an informative summary giving a broad survey of the content of the subclass. *Id*. The electronic version of the IPC allows users to view the content of a subclass also by order of complexity of the subject matter.

[108] *See supra* note 105 at 5. Each group symbol consists of the subclass symbol followed by two numbers separated by an oblique stroke e.g. H01S 3/00. *Id*.

[109] *See Summary of the Strasbourg Agreement Concerning the International Patent Classification* (1971), WIPO, http://www.wipo.int/treaties/en/classification/strasbourg/summary_strasbourg.html (The appropriate IPC symbols are indicated on patent documents (published patent applications and granted patents), of which over 2,000,000 are issued each year. The appropriate symbols are allotted by the national or regional industrial property office that publishes the patent document).

[110] Understandably, the determination of the respective patent terms for each class of patent claims may require consulting with experts who are familiar with the particular market at issue.

technology that exists within the invention. As for the second challenge, I would propose a mechanism for the periodical review of the *technology*. Thus, any change in the field of technology of a certain innovation can be immediately translated into the new classification for the patent's duration.

To sum up, the use of the existing IPC would entail fewer costs and can be more easily introduced into the respective national laws of countries. The IPC's well-established structure; within the international patent regulative framework make it the cheapest and most accessible method for classifying technology for my proposed model. But above all, my proposed system of classification would allow inventors to state a clear classification for each patent claim thus clarifying the intent with respect to the said claim, and rendering the patent claims a stronger "fence" in the face of those seeking to infringe the invention. Such a clearly marked fence around the invention can prevent the trespass by others who might otherwise act using the pretense of vague patent claim language. A good and viable system of classification would thus be a win-win for all, except for premeditated infringement; wherein said (classified) claims would act as a more effective deterrent. This patent claim classification PCC would not only assist in patent searches and in finding prior art but would also, metaphorically speaking, place the invention or a specific claim in a more exact point in the innovative space; a sort of three-dimensional placement of the claim in the technological sphere. This classification is intended to bring all forms of scientific discovery into a clearer realm.

d. Condensing Claims

Another tool, which I suggest to employ, involves the way patent claims are worded. Specifically, my proposal here is to reduce every claim to one clear sentence where possible, so as to reduce the problem of defining, explaining or interpreting long sentences or photographs. The approach to wording patent claims needs to be primarily qualitative rather than overly quantitative. It is important to note that a one sentence rule formally exists where, at least in the case of USPTO, there is a requirement according to which each claim in a patent must be written as a single sentence, although sub-paragraphing is encouraged.[111] It is worth noting that this is not easy to apply. Indeed, patent attorneys have found ways in which to circumvent this rule by creating virtually unreadable patent claims.[112] In my view, this is unacceptable. Thus, shorter (and clearer) sentences and terms as described

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[111] *See, e.g.*, THE USPTO MANUAL OF PATENT EXAMINING PROCEDURE, SECTION 608/01(M) FORM OF CLAIMS (R-1), (9th ed. 2014). ("While there is no set statutory form for claims, the present Office practice is to insist that each claim must be the object of a sentence starting with 'I (or we) claim, 'The invention claimed is' (or the equivalent) . . . Each claim begins with a capital letter and ends with a period. Periods may not be used elsewhere in the claims except for abbreviations . . . Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.").

[112] D. C. Toedt, For faster, clearer patent applications, defy the USPTO's Single-Sentence Rule, ON CONTRACTS (Dec. 10,2007), http://www.oncontracts.com/multi-sentence-claims/.

above are likely to further assist in alleviating the potential for complicated and long sentences under which much ambiguity can 'take flight'.

e. Modular Structure for Claims

Another method that should be employed, and which I believe can reduce the interpretation burden in patent claims is to invoke a modular structure for claims, that is, to divide any invention into three claim segments: the structural, the functional and the material. An inventor needs to place each of his claims into any one of the three segments. The first segment is focused on the structural, that is to say, elements that are used to build the structure of the patented invention. For example, in the context of a frying pan this would include matters such as the length of the handle, the size of the pan, its depth and other dimensions. Second, the functional part would describe what is claimed by way of its functionality. For example, assume that we are dealing with an invention of a solar-powered frying pan. In this case the structural segment in the patent claim section would deal with the size and dimensions of the pan. The structural segment would create an exclusion for the dimensions of the pan, if it has one or two handles, or any other defining structural element that is claimed. In the functional section the inventor will claim the elements in his invention that allow the transformation of solar energy into heat, and thus to fry foods. And last, in the material section, the inventor can claim certain materials or types of materials that can be used to manufacture the pan (e.g. glass, porcelain, aluminum, steel etc.). In this way, and by looking at any invention as a three-tier construct, it is possible to at least have an indication, when constructing a given patent claim, as to its intended overall aim of coverage. This would ultimately compel inventors, and their patent agents, to be more precise in their claims and leave less room for linguistic ambiguity. In essence it would help create a stronger and more exact "fence". That would guard the inventor from the public domain, and would also protect the public domain from potential intrusion by the private domain. It is worth noting that this endeavor of erecting the "fence" correctly is intended to ensure that the inventor does not receive protection that is broader in scope than his contribution to the art. This was made evident in *EXXON/Fuel Oils*[113] where the Technical Board of the European Patents Office (EPO) stated: "[C]laims must be supported by the description, in other words it is the definition of the invention in the claims that needs support. . . [T]his requirement reflects the general legal principle that the extent of the patent monopoly, as defined by the claims, should correspond to the technical contribution to the art in order for it to be supported, or justified."[114] This view embodies the doctrine of "sufficiency".[115]

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[113] See, Decision T409/91, *EXXON/Fuel Oils* 1994 O.J. E.P.O. 653.

[114] *Id*. at 659.

[115] For more on the doctrine of Sufficiency see Sivaramjani Thambisetty , The Evolution of Sufficiency in Common Law, London School of Economics and Political Science (2013), LSE Legal Studies Working Paper No. 6/2013; Robin Feldman , The Inventor's Contribution, 6 UCLA Journal of Law & Technology, (2005) ; Timothy R. Holbrook , Patents, Presumptions, and Public Notice, 86 Indiana Law Journal, 779, (2011).

f. Auxiliary Tools

In addition to the four primary tools that constitute the core of my proposed model, there are additional auxiliary tools, which I believe, can also contribute to the success of the proposed model.

i. Applicant Record Indication

A more personalized tool to combat patent claim ambiguity is, where applicable, to subject any given claim to identical wording in other patents owned or registered by the same applicant. That is to say, patent owners would not be allowed to suggest alternate meanings to terms in patent claims that they have previously used. This binds an applicant and holds him to his own words; under this approach an applicant is deemed to aim for a specific meaning for every term or word that he uses. In this way applicants will need to think well before stating a certain word, phrase or term in a specific context. This also allows for a certain stability in the text and maintains coherence across claims and even separate patent registrations.

ii. Patent Domain Dispute Procedure

Another way to preempt costly conflicts over patent claims and solve potential problems in this regard, would be to create a patent claim dispute settlement procedure. Such a procedure would be geared toward settling claim-related disputes before they mature into full-fledged problems. This is to try to preempt larger legal disputes down the road. It seems to me that *ad-hoc* arguments or disputes over specific claims need to be handled without delay and addressed from the outset. Just as with trademarks, a determination of non-distinctiveness needs to be resolved for patent claims. The faster such issues are set aside and dealt with amicably, the less potential for costly, complicated litigation down the road, when the parties are already deeply invested in the technology and in its use. It is worth noting that in the case of trademarks the WIPO Domain Name Dispute Settlement Process could act as a useful example to a professional dispute settlement. A professional impartial entity can deal with it in an efficient manner. The semi-privatization of patent claim disputes may also alleviate the workload of patent examiners and patent registrars.

iii. Progressive Fees

Finally, I would suggest setting progressive patent fees that are based on the level of complexity and length of the patent claims therein. This might create an incentive for inventors to work more diligently to produce shorter, more concise, and clearer patent claims. This approach is also logical in that it not only creates an incentive but also factors in the time that examiners will need to invest in order to examine the patent application and the claims therein. Granted, utilizing monetary incentives in this context may be a risky tool, since, some inventors will not be deterred by large sums of monetary fees if the patent that they seek is worth more to

them. This would fit into the logic of efficient breach.[116] Indeed, it is hard from the beginning to foresee the impact of such progressive fees that cannot in and of themselves deter this practice of complicated and expansive language in patent claims. Yet, in addition to the other tools used here, the use of progressive fees could create a sufficient incentive towards the simplification of patent claims.

Summary

In this paper, I have argued that patent prosecution and litigation is far too expensive and complex. This is owed to various factors, predominantly the conventional system of language-based patent claims. The power of words is not limitless, and when it comes to patent claims ambiguity has been and remains a substantial block in erecting the legal "fence" around innovation that comprises patent claims that are the building blocks of the patent system. In this research, I have proposed methods to render the patent system more exact and less costly. I have done this in chapter three where I have suggested ways in which to shift away from total reliance on a language-based system to a multitier system where words are only one competent of the patent claim. It is my belief that this proposed model can overcome the inadequacies of the language-based patent system and make up for the "unlimitless" power of words in patent claims.

[116] See generally,Stephen Michael Waddams, Breach of Contract and the Concept of Wrongdoing, 12 S.C.L.R. , 1, (2000) (this doctrine has for over five decades been a point of contention between two schools of thought).