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# The Shape of Things to Come: What We Can Learn From Patent Claim Length

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# THE SHAPE OF THINGS TO COME: WHAT WE CAN LEARN FROM PATENT CLAIM LENGTH

Kristen Osenga<sup>†</sup>

## *Abstract*

*Technology is always changing. Patent law is also constantly evolving, as the courts and Congress continue to make significant changes to this area of law. But what about patents themselves? Some studies have looked at how patent specifications have changed over time, but no one has looked specifically at the most important aspect of a patent, its claims. Given the changes in technology and law, one would anticipate patent claims to have evolved.*

*Despite the expectations, this paper concludes that patent claim shape is largely unaffected by time, technology, crowded fields, or prosecution time. This paper suggests a possible reason why claim length appears incommensurate with technology and unaffected by other factors. Specifically, patent claims are drafted to “look good,” regardless of the underlying technology or any other factor that should figure into claim length.*

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<sup>†</sup> Professor, University of Richmond School of Law. I appreciate comments from Jessica Erickson, Cynthia Ho, Corinna Lain, Edward Lee, Benjamin Liu, and David Schwartz, as well as the feedback I received from participants at the 2011 Intellectual Property Scholars Conference at DePaul University College of Law, the 2011 Patent Conference at the University of Kansas School of Law, and the 2011 Chicago IP Colloquium. I am grateful for research assistance provided by Scott Bergeson, Megan Doughty, Anthony Holman, Kyle Matowyski, Lauren Palmer, Sarah Smith, and William Miller.

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## INTRODUCTION

Imagine patent law as a three-tier pyramid. Technology forms the base level of the pyramid, since technology and the promotion of its advancement is the Constitutional basis for the patent system. The intermediate level of the pyramid consists of patents. Patents protect technologies which are unique, innovative, and worthy of a government-granted monopoly. At the pyramid's apex are patent claims. Patent claims are the most important part of a patent, carving out the precise scope of the patentee's rights.

Technology is constantly evolving.<sup>1</sup> Patent law is also changing, in part due to the progress of technology and in part due to the constantly shifting landscape of patent law as drawn by Congress and the courts.<sup>2</sup> But what about patent claims—are they also changing? Intuition tells us that patent claims should vary as technology and laws change. Likewise, we expect other factors such as the nationality of the inventor or the length of time between when the patent application was filed and when the patent issued to affect patent claims.

This Article takes a novel look at the shape of patent claims and what variables have an effect on patent claims. Measuring the shape of patent claims by word count, this Article looks at claims over a span of years, as well as across a range of technologies and other characteristics that would be expected to affect the shape of patent claims. It would make sense for the shape of patent claims to change over time, either in response to new technology, changing laws, or differing circumstances. Variability in patent claim shape should be introduced at any number of steps during patent drafting and

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1. See, e.g., John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 78 (2002) [hereinafter Allison & Lemley, *Complexity*] (“[W]e are in an era of astounding productivity attributable to technological innovation . . . .”); John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771, 799 (2003) (“Technological, industrial, and marketplace conditions change at a dizzying pace in modern life.”); Joel Achenbach, *Riches and Disasters on Exploration’s Far Frontier*, WASH. POST, Sept. 30, 2010, at AA01 (“On land, on sea, in the air, in space, in our laboratories, on our farms, we are surrounded by technologies of increasing complexity . . . .”).

2. See, e.g., Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1155, 1157 (2002) (“Fundamental shifts in technology and in the economic landscape are rapidly making the current system of intellectual property rights unworkable and ineffective . . . . The changes in an industry over time present significant structural problems for patent law . . . .”); Thomas, *supra* note 1, at 803 (“As technology has advanced, [patent] applications increasingly concern inventions of extraordinary complexity.”).

prosecution. Patent claims drafted by one attorney should be different from those drafted by another. Patent claims directed to one type of technology should be different from those drafted to cover a different technology, especially if the two technologies are quite diverse. Patent claims drafted to take advantage of certain aspects of the law should look different than patent claims drafted with different intent. Patent claims that were amended during prosecution to overcome prior art would be expected to vary from those that go through prosecution unscathed. As illogical as it may seem, however, patent claim shapes have been generally consistent over the last fifty years.

It cannot be simply happenstance that patent claims have remained the same length, given the many variables that should affect patent claims. It is also unlikely that patent claims have gravitated to this particular shape because it is optimal. In particular, the current length of patent claims may be inhibiting their comprehension. Patent claims are notoriously difficult to understand.<sup>3</sup> The difficulty in comprehending the scope of patent claims leads to problems in providing public notice and warning competitors away from the patentee's exclusive territory. One factor that affects comprehension of language is the word length of the passage to be understood. However, patent claim length seems to be artificially long despite the fact that shorter claims would seem to be more desirable than longer claims.

Therefore, there must some other reason that patent claims are largely the same length. I assert that patent claims are generally of the same shape because patent attorneys are drafting what patent examiners are expecting to see, regardless of whether this is in the best interest of the patent holder or the public. One focus of patent reform, therefore, should be a detailed look at the shape of patent claims and how a change in patent claim length might improve the understanding of patent claims.

Part I of this article describes the design and methodology of an

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3. See, e.g., Jeffrey A. Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L.J. 1141, 1160 (2008) ("Claim construction can be a difficult and unpredictable exercise."); David L. Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699, 1706 (2009) ("Although ascertaining the meaning of the phrases and words in patents may appear to be simple, in reality claim construction is perhaps the most difficult aspect of patent litigation."); see also *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010) ("[C]laim construction frequently poses difficult questions over which reasonable minds may disagree . . . .").

empirical study to consider the shape of patent claims. The results show that patent claim shape has remained consistent despite time, technology, and a variety of factors. Part II of this paper considers a possible reason for this surprising result. In particular, patent claims are being drafted to “look good,” where the shape of the patent claim is more important than making the claim proportionate with any other factor. In Part III, this Article provides a few suggestions on how to improve the comprehension of patent claims.

## I. STUDY DESIGN AND METHODOLOGY

The shape of technology and patent law are always changing. Modern patent law was codified in the Patent Act of 1952 and since that time has undergone a number of amendments.<sup>4</sup> The courts that interpret patent law have become increasingly more active, adding nuance to the law even where the statutes remain the same.<sup>5</sup> There are a growing number of patents issued and patent litigation filings have been steadily increasing.<sup>6</sup> Not only is the law itself changing, but various constituencies are having more opportunities to mold and contour the law.<sup>7</sup>

What do these changes mean for patent claims? Does changing

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4. See, e.g., Liza Vertinsky, *Comparing Alternative Institutional Paths to Patent Reform*, 61 ALA. L. REV. 501, 549 (2010) (“[T]here have been a number of amendments and codifications to the patent system in its more than 200-year-old history, including many since 1952 when the basic structure of the current Patent Act was adopted . . .”).

5. See, e.g., Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law’s Presumption of Validity*, 60 STAN. L. REV. 45, 61 (2007) (noting the Supreme Court’s more active role in reviewing patent cases); see also Jeffrey A. Lefstin, *The Constitution of Patent Law: The Court of Customs and Patent Appeals and the Shape of the Federal Circuit’s Jurisprudence*, 43 LOY. L.A. L. REV. 843, 871-79 (2010) (discussing areas where the Federal Circuit is more active or less active).

6. In 2009, the Patent Office issued 167,349 utility patents, compared to 153,485 in 1999 and 95,537 in 1989. *Table of Annual U.S. Patent Activity Since 1790*, U.S. PATENT & TRADEMARK OFFICE, [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h\\_counts.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm) (last visited Feb. 11, 2011). Patent litigation filings were up over 230% over the last 20 years. *The Increase of Patent Litigation*, ARTICLE ONE PARTNERS (Mar. 19, 2010), <http://info.articleonepartners.com/blog/bid/36672/The-Increase-of-Patent-Litigation>.

7. The Federal Circuit has long been considered the primary shaper of patent law. See, e.g., R. Polk Wagner, *The Two Federal Circuits*, 43 LOY. L.A. L. REV. 785, 790 n.18 (2010). However, the Supreme Court has taken an increased interest in recent patent cases as well. *Id.* Amicus filings in patent cases before the Supreme Court (and the Federal Circuit) are on the rise as parties outside the judiciary hope to shape patent law. See generally David Orozco & James G. Conley, *Friends of the Court: Using Amicus Briefs to Identify Corporate Advocacy Positions in Supreme Court Patent Litigation*, 2011 U. ILL. J.L. TECH. & POL’Y 107. Finally, the Patent Office also is playing a greater role in shaping substantive patent law. See, e.g., Melissa F. Wasserman, *The PTO’s Asymmetric Incentives: Pressure to Expand Substantive Patent Law*, 72 OHIO ST. L.J. 379, 384 (2011).

technology or evolving patent law alter the shape of patent claims? Perhaps more words are required to describe innovative technology. Or more words may need to be included in patent claims to keep pace with patent law's changes. Or maybe, as technology fields get more crowded, more words are needed to distinguish the claimed invention from the prior art. Before looking at how the shape of patent claims has (or has not) changed, it is important to understand why the number of words in a patent claim is worth considering.

#### A. *Why Words Matter*

There are a number of easily measured metrics of a patent. All patents necessarily include a specification, or prose description of the invention.<sup>8</sup> The specification can be measured by word, sentence, paragraph, or column length. All patents must include at least one claim, but may include as many as desired.<sup>9</sup> Each claim is comprised of one sentence,<sup>10</sup> so claim metrics include the number of claims in a patent or the length of each patent claim in words. Although other scholars have analyzed specification length and number of claims, no one has considered the shape of patent claims themselves.

Specification attributes, while easily measured, do not necessarily have any relationship to patent claims—the true heart of the patent.<sup>11</sup> Dennis Crouch studied changes in the number of words in patent specifications between 1977 and 2007. He found that from 1977 to 1987 there was essentially no change in specification length; from 1987 to 2007 there is a noticeable upward trend in the number of words in patent specifications.<sup>12</sup> Crouch notes, and I agree, that his research indicates nothing other than patent specifications are increasing in length.<sup>13</sup>

Regardless of how specification length is changing, this metric

8. 35 U.S.C. § 112 (2006) (laying out the requirements of the patent specification).

9. *See id.*

10. *See* U.S. PATENT & TRADEMARK OFFICE, MPEP §608.01(m) (8th ed. Rev. 8, July 2010).

11. It is patent claims, not specifications, which are interpreted by the courts. *See* SRI Int'l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985) (en banc) (“Specifications teach. Claims claim.”); Phillips v. AWH Corp., 415 F.3d 1303, 1320-21 (Fed. Cir. 2005) (en banc) (summarizing the role of the specification in claim construction as the “single best guide” to claim meaning).

12. *See* Dennis Crouch, *Does Size Matter? Counting Words in Patent Specifications*, PATENTLY-O (Dec. 20, 2007, 4:09 PM), <http://www.patentlyo.com/patent/2007/12/does-size-matte.html>.

13. *See id.*

provides little information about patent claim shape. First, the claims and the specification look completely different. The claims are unwieldy single sentences; the specification, on the other hand, is written in prose.<sup>14</sup> Second, the claims and the specification serve different purposes. The specification is supposed to provide a backdrop against which to understand patent claims.<sup>15</sup> The specification is also supposed to sufficiently disclose the invention to the public, while the claims delineate the patentee's exclusive territory.<sup>16</sup> Third, the specifications (even more so than the claims) are artificially long to allow for later amendments, which are necessary to make them compliant with changes in patent law.<sup>17</sup> The specification is essentially set at the time of filing, whereas the claims can be amended during patent prosecution.<sup>18</sup> However, all claim amendments must be supported by the specification, so a more lengthy and thorough specification may allow for a greater range of amendments. Thus, while interesting, the length of patent specifications, does not tell us anything about the patent claims.

The number of patent claims, while closer to the heart of the matter, still does not look at the features of individual claims. John Allison and Mark Lemley studied the number of claims in a patent as a proxy for either complexity of technology or importance of the patent to the entity that is obtaining the patent.<sup>19</sup> Using claim count as

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14. See generally Tun-Jen Chiang, *The Rules and Standards of Patentable Subject Matter*, 2010 WIS. L. REV. 1353, 1365-66 (explaining features of patent specifications and claims).

15. See, e.g., *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-80 (Fed. Cir. 1995) (en banc) (The specification "may act as a sort of dictionary, which explains the invention and may define terms used in the claims.").

16. See, e.g., *Phillips*, 415 F.3d at 1312, 1323 (The purpose of claims is to define the right of exclusion and "the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so.").

17. See, e.g., Mark R. Hull, Note, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.: A Fog Between the Bars*, 37 AKRON L. REV. 339, 371-72 (2004) (As a result of *Festo*, "patent lawyers must consider drafting narrow claims [and] drafting longer claims."). See generally John M. Romary & Arie M. Michelsohn, *Patent Claim Interpretation After Markman: How the Federal Circuit Interprets Claims*, 46 AM. U. L. REV. 1887, 1933 (1997) (discussing that, to ensure effective claim drafting, it is critical to know how U.S. courts interpret claims).

18. Some modifications can be made, to the extent the amendments are already supported by the specification, but no new matter can be added. See 35 U.S.C. § 132(a) (2006) ("No amendment shall introduce new matter into the disclosure of the invention."); 37 C.F.R. § 1.53(b) (2010) ("No new matter may be introduced into an application after its filing date.").

19. See John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099, 2132 (2000) [hereinafter Allison & Lemley, *Who's Patenting What?*] ("The number of claims filed is directly related to the cost of prosecution, and can serve as a proxy for either the complexity of the subject matter or for the



a metric, they found that patents from the 1990s are more complex than patents from the 1970s.<sup>20</sup> Specifically, patents issued in the 1990s have 50% more claims than those issued in the 1970s, raising from an average of 9.94 claims to 14.87.<sup>21</sup> As Allison and Lemley acknowledge, the number of claims in a patent, and whether those claims are independent or dependent, vary for many reasons.<sup>22</sup> Cost is one of the most important factors; the basic filing fee for a patent application permits the inclusion of up to three independent claims and as many as twenty claims total; extra claims incur additional fees.<sup>23</sup> Cost also factors into the number of patent claims because attorney fees are generally correlated to the length of the patent application and number of claims.<sup>24</sup> The number of claims may reflect the financial wherewithal of the patentee or, as Allison and Lemley note, the presumptive worth of the patent.<sup>25</sup> The number of claims, however, is not directly related to the ease of understanding the claims.

The remaining potential metric, word count per patent claim, is the study variable used in this Article. This metric is relevant for two reasons. First, as mentioned above, the number of words is tied to comprehension, and understanding patent claims is a well-known issue. Second, the number of words in a patent claim may provide insight into the claim drafting process.

First, the shape of a patent claim is related to its readability. This is common sense: longer stories, paragraphs and sentences are more complicated and difficult to read than simpler, shorter works. Social science also tells us that a composition of more words is generally harder to comprehend. Readability, or the success with which a group

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importance of the patent to the applicant.”).

20. See Allison & Lemley, *Complexity*, *supra* note 1, at 79.

21. See *id.* at 103.

22. See John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 449 n.58 (2004).

23. The basic fee for filing a patent application is \$380 which includes three independent and twenty total claims. Additional independent claims cost \$250 per claim. Claims in excess of twenty incur a fee of \$60 each. See 37 C.F.R. § 1.16 (a), (h), (i) (2010), <http://www.uspto.gov/web/offices/ac/qs/ope/fee092611.htm> (updated fee schedule effective Sept. 26, 2011).

24. See John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 1055 (2003) (“[A]ttorney fees increase with the additional time necessary for drafting and prosecuting more claims.”); Kimberly A. Moore, *Xenophobia in American Courts*, 97 NW. U. L. REV. 1497, 1544-45 (2003) (“The PTO fees are, moreover, pennies compared to the attorney expenses associated with patent drafting and prosecution. . . . The bulk of [these] expenses are spent drafting and prosecuting the claims, so more claims will raise prosecution fees.”).

25. See Allison & Lemley, *Who’s Patenting What?*, *supra* note 19, at 2132.

of readers understands a document and reads at optimal speed, is based in part on word count.<sup>26</sup> For example, calculation of the Flesch Reading Ease score, an indication of ease of reading, includes the average sentence length (number of words divided by number of sentences) and average word length (number of syllables divided by number of words).<sup>27</sup> The more widely used Flesch-Kincaid Grade Level score uses the same indicators in its formula, but yields a “grade level” associated with the reading difficulty.<sup>28</sup> These readability tests<sup>29</sup> are used to impose or enforce a basic reading level for a wide range of applications, from the military for judging the reading difficulty of technical manuals, to insurance companies who by state regulation must provide policies written in a sufficiently simple manner.

Legal commentators have used readability measures to look at how easy it is to understand various statutes. For example, David Law and David Zaring looked at the complexity of statutes as measured by word count, using length both as a variable itself and as an input to a readability equation.<sup>30</sup> Kirk Randazzo similarly used statute word length as a proxy for detail, equating more detail with more complexity (and thus more difficult to understand).<sup>31</sup> Other scholars have looked at word count in judicial opinions and state constitutions.<sup>32</sup> Unfortunately, because patent claims are single sentences, it is not possible to apply the Flesch-Kincaid or Flesch tests

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26. See Louis J. Sirico, Jr., *Readability Studies: How Technocentrism Can Compromise Research and Legal Determinations*, 26 QUINNIPIAC L. REV. 147, 147 n.1 (2007) (citing JEANNE S. CHALL & EDGAR DALE, READABILITY REVISITED: THE NEW DALE-CHALL READABILITY FORMULA 80 (1995)).

27. R. Flesch, *A New Readability Yardstick*, 32 J. APPLIED PSYCHOL. 221, 223 (1948); David S. Law & David Zaring, *Law Versus Ideology: The Supreme Court and the Use of Legislative History*, 51 WM. & MARY L. REV. 1653, 1691-92, 1692 n.130 (2010).

28. Flesch, *supra* note 27; Law & Zaring, *supra* note 27.

29. See Law & Zaring, *supra* note 27, at 1692 n.130.

30. See generally *id.*

31. See Kirk A. Randazzo, Richard W. Waterman & Jeffrey A. Fine, *Checking the Federal Courts: The Impact of Congressional Statutes on Judicial Behavior*, 68 J. POL. 1006, 1009 (2006).

32. See, e.g., Thomas E. Baker, *Tyrannous Lex*, 82 IOWA L. REV. 689, 697, 700-01 (1997) (using the word count length of state constitutions to show the substantial number of amendments and lawyerly gibberish); Ryan C. Black & James F. Spriggs II, *An Empirical Analysis of the Length of U.S. Supreme Court Opinions*, 45 HOUS. L. REV. 621, 626 (2008) (using word count to measure length of judicial opinions, because length may embody “an opinion’s clarity, scope, and amount of dicta”); Kirk A. Randazzo, *Statutory Constraint on the Seventh Circuit: Examining Congressional Influence*, 32 S. ILL. U. L.J. 683, 688 (2008) (“It is apparent that statutes with higher word counts contained more detailed language pertaining to its legal implications.”).

in a meaningful way; however, the validity of word count as a metric does extend to patent claims.

Second, the shape of patent claims should also provide some insight into the very nature of patent claims and how they are drafted. Because of the way patent claims are drafted and their peculiar format,<sup>33</sup> this point requires a few more details. Every patent concludes with one or more claims, each a single sentence long, that particularly point out and distinctly claim what has been invented.<sup>34</sup> Each patent must have at least one independent claim; this type of claim stands on its own and does not refer to any other claim. Dependent claims, on the other hand, are additions or refinements to independent (or other dependent) claims; each dependent claim refers back to the claim from which it depends.<sup>35</sup> A patent may include any number of, including zero, dependent claims.<sup>36</sup>

33. See, e.g., 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, 369-70 (2008) (claiming that the “*lingua franca* [of the patent system] is likely to be ‘patent claim English,’ that peculiar dialect that has resulted from practice, precedent, and USPTO rules”); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1046 (2003) (noting that “patent claims are not directed at the ordinary speaker of English”).

34. 35 U.S.C. § 112 (2006) (“The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”).

35. See *id.* (noting that dependent claims “specify a further limitation of the subject matter claimed”). Because dependent claims do not add to the breadth of the patentee’s claim scope, these generally only act as a hedge against a finding of invalidity of the independent claim from which the dependent claims depend. See Allison et al., *supra* note 22, at 452 n.68.

36. An overly simplistic example set of patent claims is provided below:

1. A chair comprising:  
     a seat, having a top and a bottom; and  
     a plurality of leg members, extending downwards from and connected to the bottom of the seat.  
 [Independent claim]
2. The chair of claim 1, where the seat is made of walnut wood.  
 [Dependent claim, refining the independent claim]
3. The chair of claim 1, wherein the seat has multiple edges, and further comprising a back, connected to an edge of the top of the seat.  
 [Dependent claim, adding an additional limitation]
4. The chair of claim 1, wherein the plurality of leg members includes three legs.  
 [Dependent claim, refining the independent claim]
5. The chair of claim 4, wherein the three legs each include a foot member at the end of the leg distal to the seat.  
 [Dependent claim, adding an additional limitation or refining dependent claim 4, take your pick]
6. A chair with a multiple edged seat, and comprising:  
     a seat, having a top and a bottom;  
     four leg members, extending downwards from and connected to the bottom of the seat;  
     a cushion attached to the top of the seat; and  
     a back, connected to an edge of the top of the seat.  
 [Independent claim]

The inventor's exclusive territory is defined by the claims, so there is incentive to draft broad claims. However, the claims may not cover things that are already known, or in the prior art. Successful claims will carve out space between and around the prior art, and most patents include claims of varying breadth.<sup>37</sup>

Consider the following example: take a new technology area, such as nanotechnology.<sup>38</sup> The first inventors in nanotechnology are approaching the patent world with a blank slate (see Fig. 1).<sup>39</sup> There are very few, or maybe even no, other inventions in the field.

Figure 1. The World of Nanotechnology in the Beginning



An inventor seeking to patent in this space has significant flexibility to claim what he has invented. In fact, subject to other patentability requirements, he can claim an area as large as what he has invented—for simplicity, imagine a circle (see Fig. 2).<sup>40</sup> What is contained within the circle is the exclusive territory of the patentee;<sup>41</sup> areas outside the circle, to the extent they are known, belong either to the public or to some other patentee.

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37. See Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 405 n.232 (2008) (“The conventional wisdom is that a lawyer should seek to advance a range of claims, from the very broad to a ‘picture claim,’ i.e., the narrowest claim that still has some commercial significance.”).

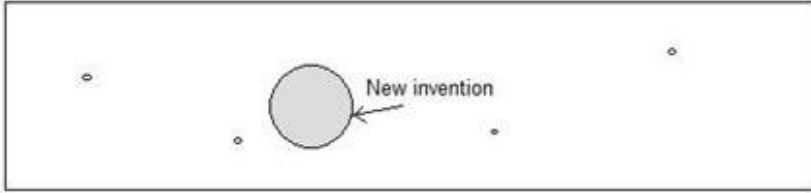
38. Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 780 (2009) (differentiating “nascent industries, such as nanotechnology” from mature industries where “the field is crowded with incremental inventions”).

39. See *id.* (noting that new industries often “lack substantial prior art”). Fromer notes, however, that this is a problem and suggests an alternative claiming scheme, central claiming, to avoid the problem of “pioneering” patents being too broad in scope. *Id.*

40. This is the problem identified by Fromer. *Id.* The patentee is constrained by the ability to enable and describe his invention. See 35 U.S.C. § 112 (2006).

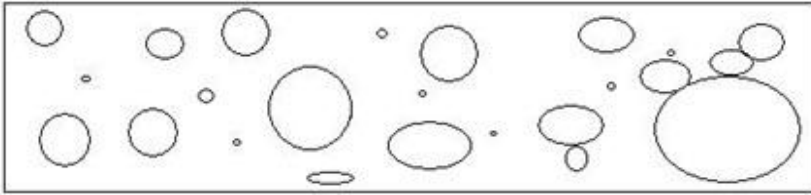
41. Throughout this Article, I make reference to inventor, applicant, and patentee interchangeably. In more accurate nomenclature, however, the inventor is the person who conceives the invention. The applicant is the person who applies for a patent, which in current United States practice is the inventor. The patentee is the person or entity able to exercise the patent's exclusive right. The patentee is often an assignee who receives rights from the inventor. The assignee may step into the shoes of the applicant for all intents and purposes, directing prosecution of the patent application.

Figure 2. The World of Nanotechnology with New Invention



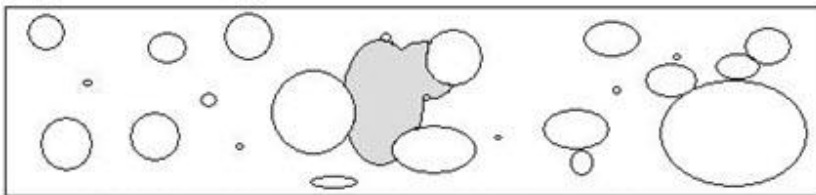
After a while, though, the world of nanotechnology is filled with patents covering territory allotted to various inventors (see Fig. 3).<sup>42</sup> Because each circle represents the scope of a patent and the scope of the patent is exclusive, there can be no overlap.

Figure 3. The World of Nanotechnology - a Few Years in



Confronted with a field that is not brand new and that has multiple areas of exclusive territory already allotted for a number of inventors, it becomes more difficult for an inventor to claim space for his invention. In this case, the territory covered no longer looks like a circle, but rather like some irregular shape (see Fig. 4).

Figure 4. The World of Nanotechnology - Patenting Our Invention



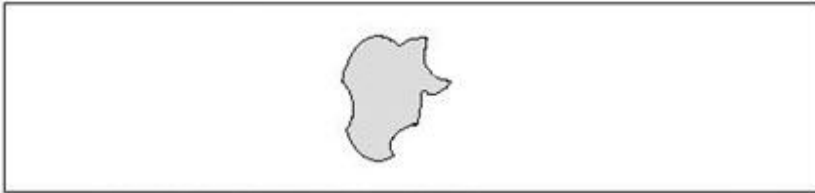
During prosecution, the applicant is attempting to walk a fine line between achieving the greatest possible claim scope for his

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42. This figure is not exactly accurate, because there is no box constraining inventive activity. New inventions may also arise outside of the box.

invention while avoiding the prior art. An increased amount of prior art requires the patentee to wend their way around, defining a territory that encompasses as much of their invention as possible (to capture the greatest territory), without overlapping the prior art.<sup>43</sup> In real life, the patentee's exclusive territory ends up looking like a piece of Swiss cheese or some other irregular shape (see Fig. 5).

Figure 5. Defining the Bounds of Our Invention



Consider how these ideas might affect word count. If we were drafting a claim to cover the new invention in Fig. 2, it might be as simple as “I claim a circle.”<sup>44</sup> But to cover the invention in Fig. 5, it would be much more difficult. For example, “I claim a vertical oval, with a crescent moon attached at the two-o’clock position, a small divot at the five-o’clock position, and a large divot at the eight-o’clock position.” In this example, the word count of the claim covering Fig. 2 is four words; the word count for Fig. 5 is twenty-nine words. Surely there are other ways to draft a claim to cover the area in Fig. 5, but it is almost certain the claim will be significantly longer than the one required for Fig. 2.

### B. The Data Sets

My data set includes 4500 patents, representing 150 randomly selected patents for each year included in the study.<sup>45</sup> Patents are

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43. See, e.g., Greg R. Vetter, *Claiming Copyleft in Open Source Software: What If the Free Software Foundation's General Public License (GPL) Had Been Patented?*, 2008 MICH. ST. L. REV. 279, 294 (2008) (noting that “adding more elements/limitations decreases the probability that a prior art reference anticipates”); F. Russell Denton, *Plumb Lines Instead of a Wrecking Ball*, 16 J. INTELL. PROP. L. 1, 21 n.76 (2008) (“[G]iven the amount of prior art, newer patents necessarily claim a narrower range . . . or recite more limitations.”).

44. On the other hand, describing an invention in a new technology area might be difficult if the jargon to explain the invention has not yet been developed.

45. The Patent Office identifies which patents are issued each year by listing a starting patent number and a finishing patent number. See *Table of Issue Years and Patent Numbers for Selected Document Types Issued Since 1836*, U.S. PATENT & TRADEMARK OFFICE, <http://uspto.gov/patents/process/search/issuyear.jsp> (last visited Jan. 7, 2012). For example, the

included from the years 1958, 1968, and 1978 (to provide historical data) and then every year from 1982 until 2008. Why these years? At the beginning point, 1952 marks the beginning of the “current” patent era, with the enactment of the Patent Act of 1952. When initially gathering data, I chose to only look at patents from every ten years. Because 2008 was the last year for which starting and ending patent numbers were available on the Patent Office website, I went backwards by decade from 2008 until 1958. After the initial data run, I decided to gather data on a yearly basis, using 1982 as a starting period for annual study because 1982 marks the first year the Court of Appeals for the Federal Circuit was in existence.

For each patent included in the data set, I collected information about the patent claims, including: number of claims in the patent, number of words in all of the claims combined, the number of independent claims, the number of words in the first independent claim, the number of words in the first dependent claim, and the number of words in the last dependent claim. From this data, I calculated the average number of words per independent claim, the number of dependent claims, and the average number of words per dependent claim.

For each of these patents, I also collected other characteristic data: the date the patent was applied for, the date the patent issued, United States and international technology classifications, nationality (US, non-US, or both) of inventorship, nationality (US, non-US, or both) of first filing (based on claimed priority), nationality of assignment (US, non-US, or both) of the patent rights at time of issue, and indication of legal representation.<sup>46</sup> I also collected the number of words in the entire patent, the number of patent references cited, the number of non-patent references cited, and whether the patent was a continuation or divisional of another patent application. From this data, I calculated the number of words in the specification, the total number of references cited, and the time the patent spent in

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patents issued in year 2008 started at patent number 7,313,829 and ended at 7,472,427. Within the range for each study year, 150 patents were chosen using a random number generator. The random numbers were generated using the random number generator from Stat Trek, with the input parameters of 150 numbers, beginning patent number for the year in question, end patent number, and prohibiting duplicate numbers. See *Random Number Generator*, STAT TREK, <http://stattrek.com/Tables/Random.aspx> (last visited Jan. 7, 2011).

46. All nationality variables are coded as a two-digit binary, with the first digit representing a United States response (1 0) and the second digit representing a non-United States response (0 1). In cases where parties from both the United States and a foreign country are listed for a particular variable, both variables are positive (1 1).

prosecution in days.

Most of the characteristic data is available from the face of the patent (via LEXIS or the Patent Office website in the few instances the patent was unavailable on LEXIS). For some variables, the coder was required to count, such as the number of patent references or the number of independent claims. To determine the various word count variables, portions of the patent (e.g., the entire patent or the claims) were pasted into a blank Microsoft Word document. The relevant portion, such as the first independent claim, was then highlighted and the number of words was obtained using Word's word count function. The data are subject to virtually no interpretive intervention, rendering less possibility of error. However, the data were subject to inter-coder reliability checks.

Although this method of data selection is not subject to coder discretion, the data and this study are still limited. Particularly, some 400,000 patent applications are currently filed per year and around 200,000 patents issued.<sup>47</sup> A sample size of 150 patents per year is unlikely to be an ideal generalization of that year's patent base. Further, patents were selected for inclusion in the database based on the year of issuance. The process of examination, which precedes the grant of a patent, can last anywhere from one year to over ten years.<sup>48</sup> During the intervening time between filing and issuance, it is likely that the law or technology changed. Also, different technology areas are subject to different lengths of prosecution.<sup>49</sup> Finally, because the number of patents issued each year varies, the selection represents varying percentages of the whole. Despite these limitations, the study is sufficiently suitable that the results prove to be of value.<sup>50</sup> An additional concern is the limitations of using word count as a proxy for comprehension. To be sure, there are short sentences and paragraphs that are difficult to read; just as there are longer sentences and paragraphs that are easy to read. However, number of words in a passage has long been an input into readability equations developed

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47. See *U.S. Patent Statistics Chart, Calendar Years 1963-2011*, U.S. PATENT & TRADEMARK OFFICE, [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us\\_stat.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm) (last modified Mar. 27, 2012).

48. See, e.g., Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 70 fig. 1 (2004).

49. See *id.* at 115 (noting that "the mean amount of time an application spends in prosecution varies somewhat by technology").

50. Although a relatively small number of patents are included in the data set, the results are so consistent that it is unlikely that including a greater number of patents per year would demonstrate any significant trend.



by scholars of psychology and linguistics.<sup>51</sup> Thus, while word count may not be a perfect proxy for comprehension, it is a relevant component. Further, it is interesting to look at word count versus the other measured patent metrics, such as specification length and number of claims.

### C. *The Results*

Common sense dictates that patent claim shape would be influenced by any number of factors. After all, claims are drafted by different attorneys at different times covering different technologies. The claim shape should further be influenced by the governing law at the time, the purposes for which the claims are being drafted, and the pathways the patent application took to and through the Patent Office. We should be able to see evidence of these intuitive differences in the word count of patent claims. Interestingly, none of these factors seem to have any effect on patent claim shape.

#### 1. Time

There are a couple of hypotheses that can be drawn about patent claim shape over time. First, patent claims should be getting longer over time because technology today is more complicated than the technology of the past, so it should require more words to describe.<sup>52</sup> Second, patent claims should be getting longer over time because technology fields are becoming increasingly more crowded as time goes on, thus requiring more words to circumvent the growing amount of prior art. To consider these issues, I analyzed the average number of words per patent claim per year.

Considering each claim of a patent on equal footing is not an accurate depiction of how patent claims work. Independent claims do not make reference to any other claim—that is, they are self-contained—and are therefore more likely to include many more words. Dependent claims, on the other hand, refer to either an independent claim or an earlier dependent claim, and thus generally include fewer words. A simple graph showing the average number of words per independent claim, by year, illustrates that the number of words per claim is not increasing (see Fig. 6).<sup>53</sup>

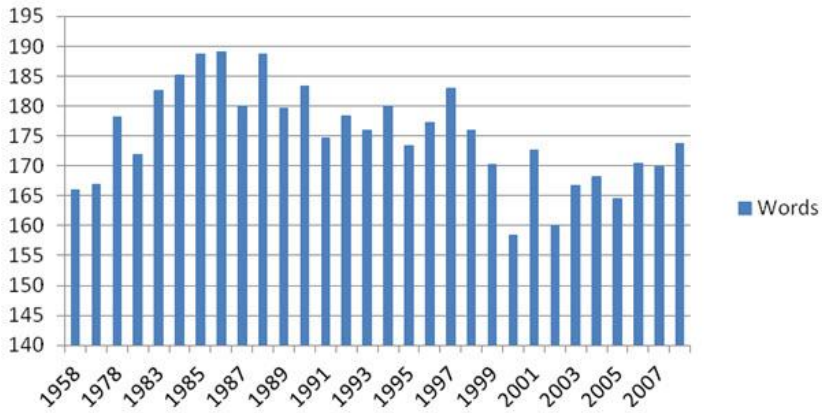
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51. *See supra* Part I.A.

52. One pushback on this point is that the technology of any given year was the most complicated technology to date and so an increase in word count over time would not be expected.

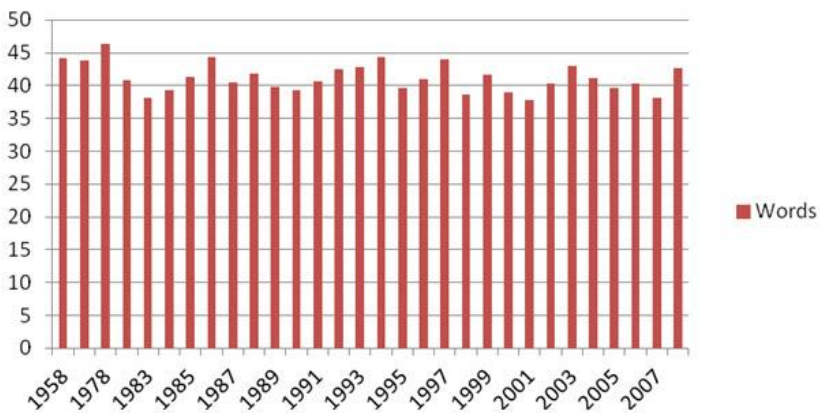
53. The average number of words per independent claim, per year, is 175.1253 words,

Figure 6. Average Words per Independent Claim



A graph of average number of words per dependent claim shows a similar lack of upward trend (see Fig. 7).<sup>54</sup>

Figure 7. Average Words per Dependent Claim



Within a single patent, there may be great variation across

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with a standard deviation of 8.1437. The median number of words per independent claim, per year, is 175.3066. Viewing each patent in the data set individually, the average number of words per independent claim is 176.526 words (standard deviation of 99.0393, minimum number of words = 2, maximum number of words = 1177).

54. The average number of words per dependent claim, per year, is 41.22297 words, with a standard deviation of 2.17834. The median number of words per dependent claim, per year, is 40.92147. Viewing each patent in the data set individually, the average number of words per independent claim is 40.78806 words (standard deviation of 23.74, minimum number of words = 2, maximum number of words = 262.83).

independent claims or across dependent claims. Each patent must include at least one independent claim, and by convention, this first claim is generally the broadest claim.<sup>55</sup> Thus, the first independent claim in each patent should include the least limitations and the least number of words of all of the independent claims of that particular patent. For the same reason, the first dependent claim of each patent may include, generally, the least number of words and the last dependent claim may include the most number of words.<sup>56</sup> To account for the differences in claim shape within patents and to compare apples to apples, I analyzed the shape of the first independent claim of each patent over time. Similarly, I compared the shape of the first dependent claim of each patent and I compared the shape of the last dependent claim of each patent.<sup>57</sup>

## 2. Technology

Although the length of patent claims in general is not increasing over time, viewing technologies independently may expose results that are not evident in the overall analysis. It would be expected, as individual technology areas increase in complexity, the number of words per claim within a particular category of technology would increase in a way not apparent when viewing the data set as a whole. Similarly, as a particular technology field grows more crowded, it would be expected that the number of words per patent claim in those areas would increase. As a rough classification by technology, the patents in the data set were simply coded using the International Patent Classification (IPC) Section categories (see Table 1).<sup>58</sup>

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55. See ROBERT C. FABER, *FABER ON MECHANICS OF CLAIM DRAFTING* § 2:3 (6th ed. 2010) (“The usual practice is to begin with the broadest claim and proceed to the narrowest . . . .”); U.S. PATENT & TRADEMARK OFFICE, *MPEP* § 608.01(m) (8th ed. Rev. 8, July 2010) (“Claims should preferably be arranged in order of scope so that the first claim presented is the least restrictive.”). This is, of course, convention; some practitioners file detailed first independent claims.

56. This point is complicated by the fact that a dependent claim can depend from another dependent claim, such that while the last dependent claim has multiple additional limitations, the claim itself may only be adding the ultimate limitation and thus not contain a large number of words.

57. The average number of words per first independent claim is 172.907; the average number of words per first dependent claim is 39.634; and the average number of words per last dependent claim is 39.398.

58. See *International Patent Classification (IPC)*, WORLD INTELLECTUAL PROP. ORG., <http://www.wipo.int/classifications/ipc/en/> (last visited Feb. 2, 2011). The patents in the data set were also coded by United States PTO Main Class categorization, as listed on the face of each patent. The basic level USPTO classification system is more complex, and more controversial, than the IPC Main Classification scheme. See generally *Classes Within the U.S. Classification*

Table 1. IPC Classification Categories

Category	Included Subject Matter
A	Human Necessities
B	Performing Operations; Transporting
C	Chemistry; Metallurgy
D	Textiles; Paper
E	Fixed Constructions
F	Mechanical Engineering; Lighting; Heating; Weapons; Blasting
G	Physics
H	Electricity

Admittedly, these categories are very coarsely defined. Even the finer classifications that descend from the IPC Main categories were not developed for the purpose of identifying any particular field of technology.<sup>59</sup> However, as a basis for simple comparison, this information demonstrates no significant variation across any given technology over time. While there appears to be wide variance within each of the IPC Categories across the decade data, there is no technology area that illustrates a general upwards trend over time (see Fig. 9).<sup>60</sup>

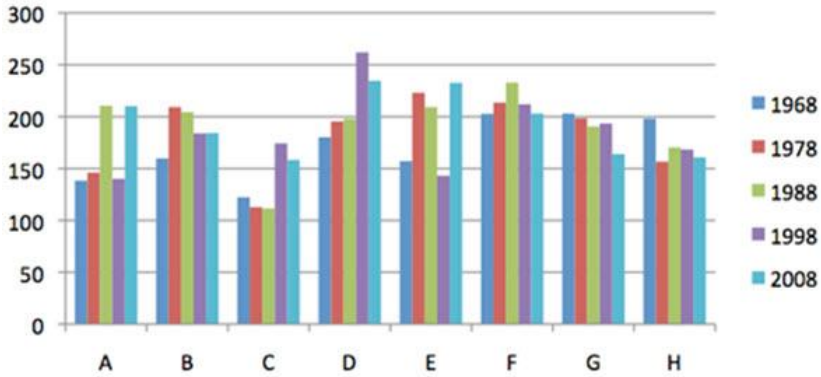
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System, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/patents/resources/classification/classescombined.pdf> (last visited Mar. 15, 2011).

59. See John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729, 785-86 & n.138 (2006) (noting that the classification of the Patent and Trademark Office (PTO) is not suitable for identifying particular technology areas and that, while considered better designed than the PTO system, the IPC system is equally inapt). These classification schemes were instead created to help find prior art during the examination of a patent application. John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 1027-28 (2003) (same).

60. For ease of viewing, a summary of the number of words, per independent claim, per decade, in each technology is depicted. Analysis of yearly data for each IPC Category reflects similar, non-trending variation.

Figure 9. Average Words per Independent Claim per IPC Main Category over Time



Another hypothesis is that some technologies are simply harder to describe than other technologies. To analyze this, I considered the word counts of patents from all years in each technology category. By removing time from the equation, it appears that one technology category, C – Chemistry and Metallurgy, consistently has claims that are shorter than the other technology areas (see Figs. 10 and 11). One reason for this is that chemical patents are often claimed via formula, which looks to Microsoft Word’s word count feature to be a single word. If those claims were removed from the data set, the claims for IPC Category C would likely be quite similar to those of the remaining technology categories.

Figure 10. Average Words per Independent Claim per IPC Main Category

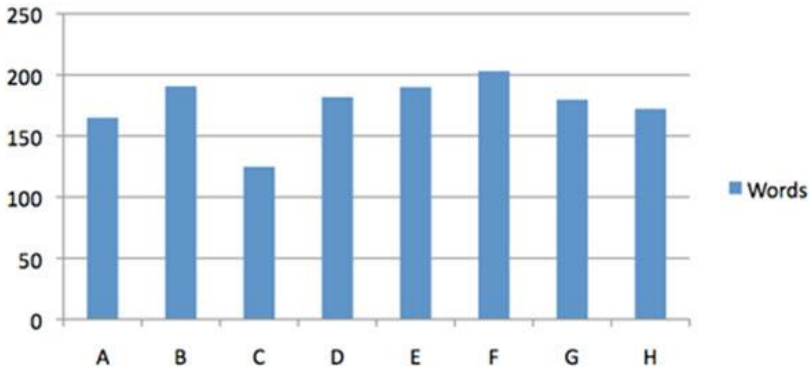
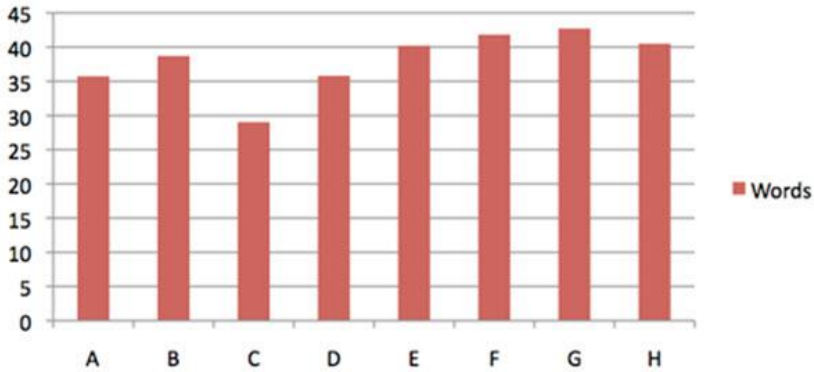


Figure 11. Average Words per Dependent Claim per IPC Main Category



### 3. Foreign Actors

If the evolution of technology over time and variations across different types of technology do not affect patent shape, perhaps there are factors in the process of patent prosecution that do influence the number of words per patent claim. One factor is where, and by whom, the patent was first filed. A characteristic that would be expected to affect the shape of patent claims is the presence of a foreign actor, such as a foreign inventor or a foreign assignee. Either of these factors should increase the likelihood that the United States patent was first filed in, or claims priority to a patent application filed in, a foreign country.<sup>61</sup>

The reason that these indicators may affect the shape of patent claims is that, while patent law has become increasingly more harmonized, there still remain differences that impact prosecution of patents in various countries. For example, until recently, Japanese patent law only allowed for very narrow patent claims;<sup>62</sup> therefore patent claims filed in Japan would likely have more limitations and more words. If the patent was first filed in Japan and then filed in the United States claiming priority to the patent application filed in Japan, it would likely be filed with lengthier claims. Similarly, the presence of a non-United States inventor or the assignation of the patent rights

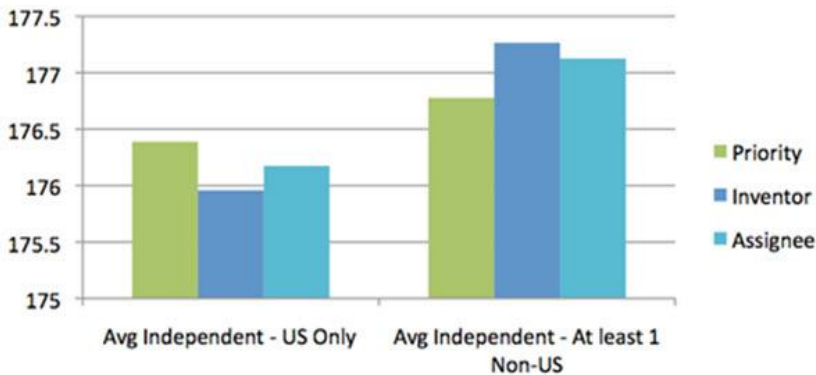
61. Each of these factors is independent. A foreign inventor does not guarantee a foreign assignee or foreign priority. However, the presence of either a foreign inventor or a foreign assignee increases the likelihood that there is a claim of foreign priority.

62. See, e.g., WILLIAM KINGSTON, BEYOND INTELLECTUAL PROPERTY: MATCHING INFORMATION PROTECTION TO INNOVATION 77 (2010).

to a non-United States entity may have a similar effect of increasing the word count of patent claims.

The average number of words per independent claim was analyzed based on the presence of, respectively, at least one non-United States priority claim, inventor, and assignee (see Fig. 12). Although at first blush it appears that the involvement of a non-United States actor is associated with an increased number of words, the difference in each case is not statistically significant.<sup>63</sup>

Figure 12. Average Words per Independent Claim Based on Actor

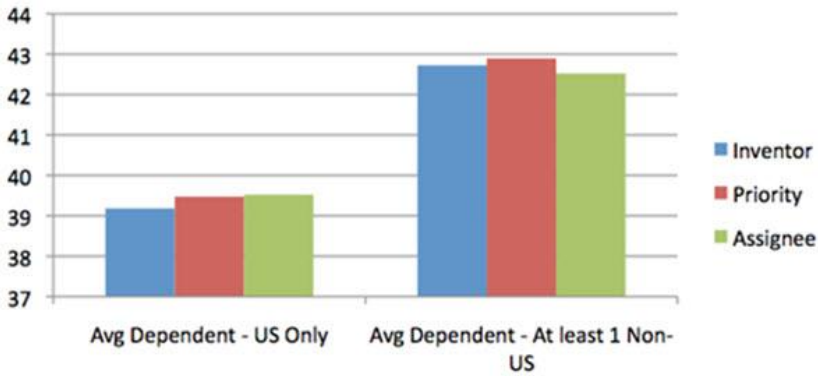


The average number of words per dependent claim was similarly analyzed (see Fig. 13). However, in the case of words per dependent claim, the presence of a foreign actor was significant—in each case, the data strongly suggested an association.<sup>64</sup>

63. Specifically, the two-tail probabilities, or *P*-values, calculated when measuring the effect of a non-United States priority, inventor, or assignee on average number of words per independent claim are 0.9, 0.7, and 0.8, respectively. All of these values are well outside of the standard measure of  $P \leq 0.05$  to consider the effect significant.

64. Specifically, the *P*-values for the effect of a non-United States priority, inventor, or assignee on average number of words per dependent claim are 0.0004, 0.0002, and 0.0030, respectively.

Figure 13. Average Words per Dependent Claim Based on Actor



Interestingly, and perhaps in explanation, the presence of a non-US actor in the role of priority, inventor, or assignee also has an effect on the number of dependent claims per patent. The average number of dependent claims in the presence of a non-US actor in any role is 9.90 claims, whereas patents that include only United States actors include an average of 11.05 dependent claims. The effect on the number of dependent claims for patents having at least one foreign actor is significant for every role—inventor, priority, or assignee.<sup>65</sup> It is possible that patents having fewer dependent claims require more words per dependent claim to approximate the same scope of patent coverage. Simply put, the patents filed by or on behalf of non-United States actors may be cramming more information into fewer claims, resulting in a higher average word length per claim.

#### 4. Prior Art

For the reasons discussed above, it would make sense if more words per claim were required in fields that are crowded by the prior art. One proxy for a crowded field is how many references are cited on the face of the patent. The cited references include prior art found by the examiner during prosecution, as well as prior art submitted by the patentee under the duty of disclosure. The claims of the issued patent must necessarily carve out an area of patent scope that excludes the territory covered by the prior art, and so the more prior

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65. Specifically, the *P*-values, calculated when measuring the effect of a non-United States priority, inventor, or assignee on average number of dependent claims per patent are 0.001, 0.011, and 0.013, respectively. These values are below the standard 0.05 level of significance.



art that is cited, the more difficult it may be to describe the patentee’s territory.

The average number of words per independent claim was analyzed based on the number of references cited on the face of the patent. (See Fig. 14). A similar analysis was performed with respect to dependent claims. (See Fig. 15).

Figure 14. Average Words per Independent Claim per Total References Cited

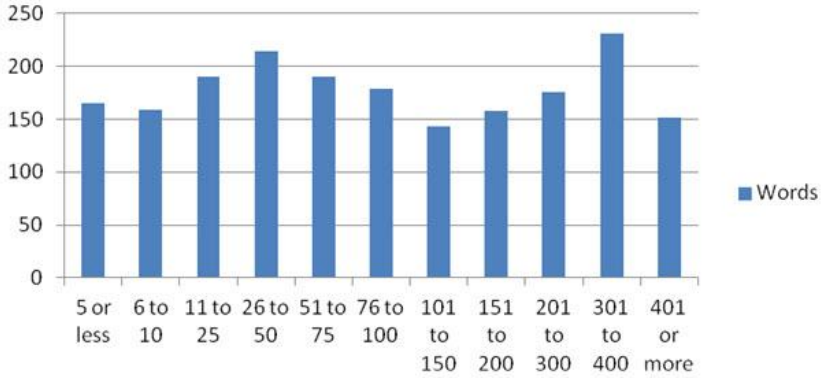
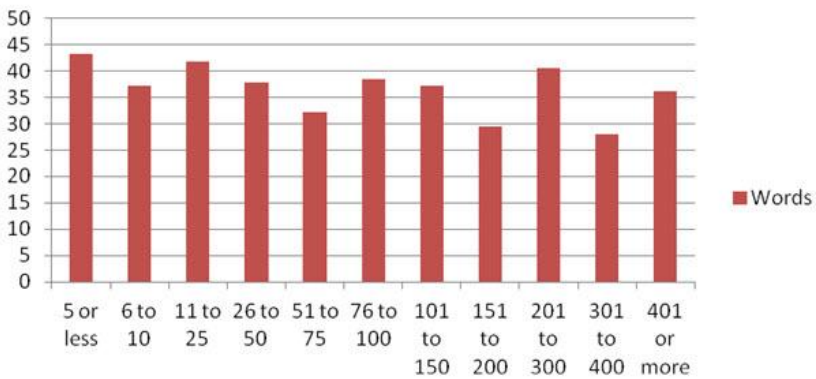


Figure 15. Average Words per Dependent Claim per Total References Cited



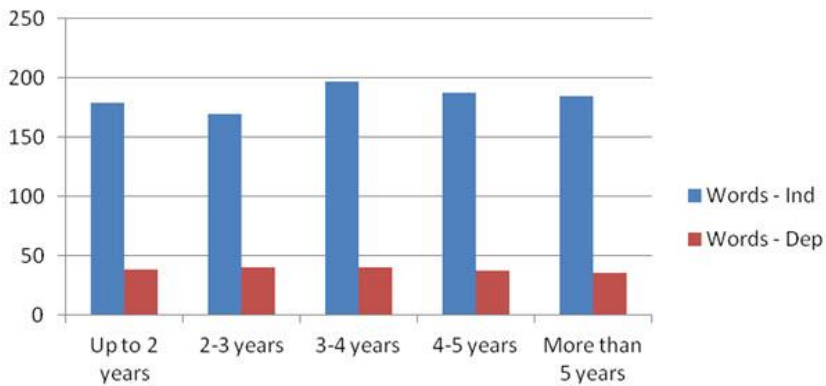
There appears to be no correlation between the number of references cited on the face of the patent and the number of words per independent or dependent claim.

## 5. Prosecution Time

Another proxy for the crowdedness of a technology field is the amount of time a patent application spends in prosecution before being issued as a patent. The idea is that the more crowded the field, the more time it will take for the applicant to traverse the prior art. Of course, there are other reasons why a patent may spend a long time in prosecution, such as the workload of the examiners in that particular technology area, the timeliness of the applicant responses, and the quality of the claims—each of which having nothing to do with crowdedness or prior art.

The average number of words per independent and dependent claims was analyzed with respect to the amount of time the patent application spent in prosecution (See Fig. 16). To the extent that length of prosecution is a proxy for crowdedness of field, there appears to be no relationship between crowdedness and patent claim shape.

Figure 16. Average Words per Independent and Dependent Claim Based on Prosecution Time



Using length of time in prosecution as a proxy for crowdedness is not ideal. Going forward, I plan to look at differences in word length between claims as originally filed and claims as issued to examine this area in greater detail.

## 6. Other Potential Factors

None of the factors expected to influence the shape of patent claims have the anticipated effect of increasing the length of patent claims. In fact, these factors seem to have no effect at all. Patent

drafting is a mystifying and highly technical activity, with multiple moving parts.<sup>66</sup> While I am conducting additional research to look at patent claim shape from different angles, I also think there may be other, unmeasured (and immeasurable) factors shaping patent claims that should be considered.

One possible explanation is that there are a number of factors that come into play in patent claim drafting that cannot be quantified or measured. For one example, consider the Patent Office rules regarding antecedent basis.<sup>67</sup> These rules impose formalities on claim drafting to avoid ambiguity that may result in more words per claim. For example, the antecedent basis rules compel the use of “a” preceding the first introduction of an element and “the” or “said” preceding subsequent mentions of the same element.<sup>68</sup> This would not have an effect on claim length. However, the antecedent basis rules also require that different elements of the same type each have different names, such as “the first lever” and “the second lever,” or “the proximal surface” and “the distal surface.”<sup>69</sup> Over the course of a long patent claim, the requirement for these labels may significantly increase the length of the patent claim. The actual effects of the antecedent basis rules on patent shape, however, are difficult to gauge.

Another explanation is that patent claims may also be shaped by various incentives that alter the number of words used in each claim.<sup>70</sup> On one hand, patentees have an incentive to attain the broadest possible claim scope, often by drafting vague patent claims and hoping the court will construe generously.<sup>71</sup> Patentees have also

66. See, e.g., Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CALIF. L. REV. 803, 811-12 n.19 (1988) (“Patent claim drafting and construction is an arcane specialty.”); William Redin Woodward, *Definiteness and Particularity in Patent Claims*, 46 MICH. L. REV. 755, 765 (1948) (characterizing patent claims as “highly technical in many respects as the result of special doctrines relating to the proper form and scope of claims that have been developed by the courts and Patent Office”).

67. See U.S. PATENT & TRADEMARK OFFICE, MPEP § 2173.05(e) (8th ed. Rev. 8, July 2010).

68. See *id.*

69. See *id.*

70. See, e.g., Michael Risch, *The Failure of Public Notice in Patent Prosecution*, 21 HARV. J.L. & TECH. 179, 180-81, 188 (2007); Note, *The Disclosure Function of the Patent System (Or Lack Thereof)*, 118 HARV. L. REV. 2007, 2025 (2005) (noting that “the goals of clarity and brevity take a back seat to drafting strategies meant to ensure that patents are interpreted broadly by the courts”).

71. See, e.g., Jay Dratler, Jr., *Alice in Wonderland Meets the U.S. Patent System*, 38 AKRON L. REV. 299, 320 (2005); Lorie Graham & Stephen McJohn, *Thirty-Two Short Stories About Intellectual Property*, 3 HASTINGS SCI. & TECH. L.J. 1, 47 (2011).

purposefully drafted poor claims to take advantage of the doctrine of equivalents, a mechanism where infringement can be found where the accused device or product does not fit squarely within the scope of the patentee's exclusive territory.<sup>72</sup> On the other hand, claims may be drafted to avoid falling within disadvantageous rulings of the courts by including quite specific terminology.<sup>73</sup> Some of these rules include subject matter eligibility,<sup>74</sup> transnational infringement, and implied licensing.<sup>75</sup> These different incentives likely affect claim length, but would be unexpected to support a relatively unchanging patent claim shape. In fact, because different patent claims are drafted for different reasons, this factor should instead compel widely varying claim shape.

Yet another explanation for why claim lengths have not increased over time is because specifications are becoming longer. As noted above, Dennis Crouch found that specifications have noticeably increased since 1987. Patent claims are to be read in light of the specification.<sup>76</sup> Perhaps, as patent specifications become longer, the work of explaining the inventions is occurring there rather than in the patent claim. The patent claim, then, is serving as shorthand for the invention, to be fleshed out via the increasingly long specifications. While this explanation has some appeal, it does not explain the consistency of claim shape during the period before 1987, when Dennis Crouch saw little variation in specification length. It is also impossible to measure this effect.

There are two other explanations for the consistent length of patent claims that may warrant further investigation. First, it is true

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72. See, e.g., 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, 1973 (2005); F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55, 109-10 (2003).

73. See generally John R. Thomas, *Of Text, Technique, and the Tangible: Drafting Patent Claims Around Patent Rules*, 17 J. MARSHALL J. COMPUTER & INFO. L. 219 (1998).

74. See, e.g., Thomas F. Cotter, *A Burkean Perspective on Patent Eligibility*, 22 BERKELEY TECH. L.J. 855, 885 n.156 (2007); Mark D. Janis, *Sustainable Agriculture, Patent Rights, and Plant Innovation*, 9 IND. J. GLOBAL LEGAL STUD. 91, 96-101 (2001) (discussing drafting claims to avoid patent eligibility issues).

75. See, e.g., Christina M. Sperry, Note, *Building a Mystery: Repair, Reconstruction, Implied Licenses, and Hewlett-Packard Co. v. Repeat-O-Type Stencil Manufacturing Corp.*, 5 B.U. J. SCI. & TECH. L. 9, ¶34 (1999) ("Patentees can avoid the problems associated with implied licenses if they draft their patent claims carefully . . .").

76. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)) ("[T]he specification 'is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term.'").

that not all words are equal—for example, technology-specific jargon may encapsulate a bigger idea than a single commonly-used word. For this reason, it may be useful to look at the number of jargon words versus the number of common words per claim. Unfortunately, identifying jargon words introduces an aspect of subjective judgment to the study. Further, jargon often changes over time as previously technological words become more commonplace. Second, the type of claim may have an effect on the shape of the claim. Patent claims can cover methods, machines, articles of manufacture, or compositions of matter.<sup>77</sup> It is possible that method claims are consistently of a different shape than machine claims. For the most part, identifying the type of invention being claimed is simple but there are some inventions that would require subjective judgment. Both of these ideas deserve additional research.

## II. WHY PATENT CLAIMS ARE NOT CHANGING SHAPE

There is something going on that is influencing claim shape. Since factors that would be expected to affect claim length are not determinative, perhaps there is something about how claims are drafted that is driving their shape. Consistent claim shape would seem to signal that there is an accepted method of claim drafting that has little to do with these factors.

If time, technology, and other factors change, but patent claim length does not, it is helpful to look at what else does not change over the study period. That thing that has remained constant over time is the social community formed by patent attorneys and the Patent Office. A norm has arisen out of these parties' ongoing relationship that manipulates how they interact, leading to universally-shaped patent claims and possibly leading to claims that are not of an optimal length. This section explores the basics of social norm literature and then goes on to explain why a social norm is effective in the patent prosecution community. Finally, this section explains how the patent drafting norm results in patent claim lengths that are consistent over time.

### A. *How Social Norms Work*

Law and social norms scholarship starts from the rational choice perspective, that individuals act in a way to maximize utility and

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77. 35 U.S.C. § 101 (2006).

minimize cost.<sup>78</sup> To this typical economic analysis, social norms theory adds a psychic layer, including in the analysis the benefits of esteem and the costs of ostracism.<sup>79</sup> Social norms are generally defined as non-legal rules or obligations that members of a community feel compelled to follow based on the benefit or cost associated with this psychic layer.<sup>80</sup>

In order to reap the social benefit (or suffer the social cost), initial social norms scholarship suggested that a close-knit community was required.<sup>81</sup> A close-knit community has been defined as “a network in which power is broadly distributed and information pertinent to informal control circulates easily among network members.”<sup>82</sup> Further, the community tends to be made up of “repeat players who can identify one another.”<sup>83</sup> The prototypical close-knit community is Robert Ellickson’s cattle ranching neighbors in isolated Shasta County.<sup>84</sup> Within these close-knit communities, norms work because “individuals’ dependence on one another makes them value their reputations, and the cost of obtaining and exchanging information about a group member’s reputation is low.”<sup>85</sup>

Recently, however, scholars have looked at whether social norms have a similar impact in less closely-knit groups. Lior Strahilevitz identified two such groups, the loose-knit group and the intermediate-knit group.<sup>86</sup> The loose-knit group is composed of members who do not expect to be repeat players, who cannot readily identify each other, and among whom information about control does not easily circulate.<sup>87</sup> An example of a loose-knit community may include a group of commuters.<sup>88</sup> The intermediate-knit group is one that meets

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78. Ann E. Carlson, *Recycling Norms*, 89 CALIF. L. REV. 1231, 1237 (2001).

79. *See id.* at 1237-38.

80. *Id.* at 1238-39.

81. *See* Lior Jacob Strahilevitz, *Social Norms from Close-Knit Groups to Loose-Knit Groups*, 70 U. CHI. L. REV. 359, 359 (2003).

82. *Id.*

83. *Id.*

84. *Id.* (citing ROBERT C. ELICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* (1991)).

85. Alex Geisinger, *Are Norms Efficient? Pluralistic Ignorance, Heuristics, and the Use of Norms as Private Regulation*, 57 ALA. L. REV. 1, 5 (2005); accord Robert C. Ellickson, *Law and Economics Discovers Social Norms*, 27 J. LEGAL STUD. 537, 539-41 (1998); Eric A. Posner, *The Regulation of Groups: The Influence of Legal and Nonlegal Sanctions on Collective Action*, 63 U. CHI. L. REV. 133 (1996).

86. Strahilevitz, *supra* note 81, at 359-60.

87. *Id.*

88. *Id.* at 362.

two conditions: 1) even if a member does not expect to be a repeat player, his group interaction is witnessed by companion peers with whom he expects to interact again; and 2) information flows easily between him and his companions, even if it does not flow easily between him and other members of the group.<sup>89</sup> Exemplary intermediate-knit groups include rioting mobs and bone marrow donors.<sup>90</sup> Strahilevitz argues that even these more loosely-knit groups will exhibit cooperative behavior *a la* social norms.<sup>91</sup>

### B. What Gives Rise to the Patent Drafting Norm

The patent prosecution community is a close-knit group, or at the very least it is an intermediate-knit community. In either case, the group is such that individual members will engage in cooperative behavior to maintain their reputation within the community, even if that behavior is not the best choice for patent law.

#### 1. A Close-Knit Community

Patent prosecution is essentially a conversation between a patent attorney and an employee of the Patent Office. While an inventor is permitted to pursue a patent *pro se*, the vast majority of patents are sought by a patent attorney or agent who represents the inventor before the Patent Office.<sup>92</sup> Most commonly, the inventor will deal with a patent attorney; the attorney will then interact with an examiner, an employee of the Patent Office assigned to work in a particular technology area.<sup>93</sup> This argument is focused on the relationship between the attorney and the examiner, and thus will refer to their interaction. It should be understood, however, that patent applications are filed in the name of the inventor and that the attorney is supposed to serve as a liaison between the inventor and the

89. *Id.* at 360.

90. *See id.* at 367-71.

91. *See generally id.*

92. *See* Rules of Practice in Patent Cases, 37 C.F.R. § 1.31 (2011) (noting that a patent applicant may file and prosecute a case *pro se* or may give power of attorney to a patent practitioner). It is not clear what percentage of patent applications are filed *pro se* each year; the Patent Office does not track this statistic. *See* Paul M. Swamidass, *Reforming the USPTO to Comply with MPEP § 707.07(j) to Give a Fair Shake to Pro Se Inventor-Applicants*, 9 J. MARSHALL REV. INTELL. PROP. L. 880, 882 (2010). Although it is permissible, inventors filing *pro se* may be discouraged by the Patent Office. *See* U.S. PATENT & TRADEMARK OFFICE, MPEP § 401 (8th ed. Rev. 8, July 2010) (including form paragraph 4.10 for examiners to include in correspondence to *pro se* applicants, noting that “lack of skill in [prosecuting patents] usually acts as a liability in affording the maximum protection for the invention disclosed”).

93. *See, e.g.,* Allison & Hunter, *supra* note 59, at 735 n.17.

examiner.

This extended relationship between patent attorneys and examiners has given rise to a close-knit community that drives the members' behaviors. The community of attorneys and examiners has broadly distributed power and information about power circulates easily among the members—both qualities of a close-knit group.<sup>94</sup> Power to find patent applications allowable is spread throughout the patent examining core; although there is oversight, the first line of power resides in individual examiners.<sup>95</sup> But the patent attorneys also wield some power—the power to file applications, the power to game the system so that certain types of examiners are avoided (by drafting the patent to look more like one thing than another thing), and the power to make the patent examiners' lives easier by drafting applications and amendments amenable to easy disposal. Information flows easily between examiners and between patent attorneys based on work conditions, informal and formal groups, and electronic chitter-chatter.<sup>96</sup> Other circumstances also support this close-knit community of patent attorneys and examiners, such as the existence of barriers to entry,<sup>97</sup> shared backgrounds, a high interdependence amongst the members, and repeated and frequent interactions—all characteristics of a close-knit community.

Although the members of the patent prosecution community may not be as closely-knit as the cattle ranchers in Shasta County, they are certainly more closely tied than the groups that Strahilevitz identifies as intermediate-knit. Each member, whether attorney or examiner, is not acting alone; each one's behavior can be seen by other members with whom repeated interaction is expected. For example, a number of attorneys work in law firms. Their success or failure to interact

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94. See Strahilevitz, *supra* note 81, at 359. Even if it is hard to believe that the relationship between patent attorneys and examiners is a close-knit group, social norms function in less closely-knit groups as well. See *id.*

95. See U.S. PATENT & TRADEMARK OFFICE, MPEP § 1302.01 (8th ed. Rev. 8, July 2010) (“When an application is apparently ready for allowance, it should be reviewed by the examiner to make certain that the whole application meets all formal and substantive (i.e., statutory) requirements . . .”).

96. See generally USPTO EXAMINERS, <http://usptoexaminers.com> (last visited Mar. 11, 2012) (public website “designed for professionals to anonymously review, rank, and learn about” patent examiners).

97. Both examiners and attorneys must have scientific training at the undergraduate level or higher; attorneys must also pass an examination prior to being admitted to practice before the Patent Office. See U.S. PATENT & TRADEMARK OFFICE, GENERAL REQUIREMENTS BULLETIN FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE IN PATENT CASES BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE 4-8, 18-20 (2011), available at <http://www.uspto.gov/ip/boards/oed/grb.pdf>.



well with the Patent Office will be observed by other attorneys at their firm. Attorneys that do not work in firms may feel this less strongly, but there is still the opportunity for repeat interaction with particular examiners at the Patent Office. Within the Patent Office, each examiner's behavior is observable by fellow examiners, as well as by supervisory examiners. Information pertinent to social control flows easily among various members of law firms. Information also flows amongst employees of the Patent Office. Thus, at the least, the attorney/examiner relationship comprises an intermediate-knit group.

Because the Patent Office (as represented by the examiners) is always a party to patent acquisition, and because patent attorneys are likely to be repeat players in the patent system, it is unlikely that either side is willing to risk the damages associated with violating the norm. Further, their behavior is observable by other members of the group and so there is at least the enforcement mechanism of esteem. In addition to esteem, there are tangible rewards for being "good citizens" of the community because attorneys and examiners have the power to make each other's jobs a bit easier through cooperation.

## 2. Behavioral Control

Based on the parties' ongoing relationship, their behavior during negotiation of patent claims is likely to be driven by informal and implicit mutual understandings.<sup>98</sup> This informal behavior manifests in how both parties approach patent claims. The patentee has incentive to draft broad, vague claims.<sup>99</sup> The flipside is that the Patent Office has limited incentive to examine patent applications.<sup>100</sup> The relationship between the parties imparts a mutual understanding that, if the patentee comes to the negotiation with an application that "looks good," the examiner will be more likely to grant that application. Although the behavior is not sanctioned by existing law or regulation, the parties adhere to it.

The patentee is encouraged to draft claims that "look good," regardless of whether the drafted claims are the most efficient, most effective, or most easily understood. There are two potential reasons that this type of claim drafting is a matter of cooperation between the

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98. See, e.g., Ethan J. Leib, *Contracts & Friendship*, 59 EMORY L.J. 649, 654-55 (2010) (discussing the relational view of contract negotiation).

99. See Abramowicz & Duffy, *supra* note 37.

100. Lee Petherbridge, *On the Development of Patent Law*, 43 LOY. L.A. L. REV. 893, 901 (2010) ("Limiting these sorts of expenditures [related to detailed examination of individual patent claims] can, therefore, be understood theoretically as fairly sound social judgment.").

attorney and the Patent Office.

First, the longer and more detailed a document is, the more likely a lay audience will find it impressive. Few regular citizens will read or understand any given patent. Therefore, the fact that patent claims are lengthy and inclusive of numerous limitations will be enough to impress. Based on a few recent, and heavily publicized, missteps by the Patent Office, such as granting a patent on a crust-less peanut butter sandwich, the public has grown suspicious of patents. The Patent Office has incentive to grant patents that look impressive to appease the suspicions of the public. The patentee has incentive to submit applications written in a way the Patent Office can easily grant.

Second, when trying to make sure an object looks superficially “good,” it is often sound practice to make it look similar to another object that has been previously judged “good.” For this reason, a patentee has an incentive to draft claims that look like claims that have previously been issued by the Patent Office, and in the same respect, the Patent Office feels safe in granting claims that look similar. The artificial complexity of claims is a win-win situation for the patentee and the Patent Office. Unfortunately, complex patent claims present a losing situation for patent comprehension, not to mention efficiency or effectiveness—which would be rational choices.

### III. A FEW SUGGESTIONS

If the drafting of patent claims is being shaped by a behavioral norm, then one option is to reorient the norm, hopefully with the goal of drafting patent claims of an optimal length. Because the parties are already operating under an extra-legal set of rules, there must be some incentive that will make compliance with a new set of rules more attractive than the system that is currently in place.

#### A. *Why Should They Change*

Incentives must be changed to encourage the parties to overcome the current system of drafting patent claims that “look good,” regardless of whether the technology being described requires such a lengthy claim. One incentive would be to make patents easier to invalidate.<sup>101</sup> Allowing for simpler invalidation would upset the

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101. Because of the expertise of the Patent Office, a granted patent is presumed valid and must be overcome by clear and convincing evidence. *See* 35 U.S.C. § 282; Lichtman & Lemley,

current balance by shifting power and esteem. Attorneys would have more incentive to provide comprehensible claims to prevent losing their patents in court. Examiners would be held to a higher scrutiny if their work was being “double-checked” by an outside party, the courts, having a different relationship to attorneys and the Patent Office. The Patent Office looks competent because patents are not invalidated and the patentees do not lose rights because the patents are not invalidated—a win-win for both patentee and Patent Office. This incentive may also have a feedback effect on the parties’ relationship. If the patentee is providing sufficient information, the Patent Office will be appreciative. If the Patent Office is granting good patents, the patentee will be pleased. Because the parties have an on-going relationship, this buildup of good will between the parties should accrue.

### *B. How Should They Change*

Patent law is not the only field that involves government-specified, lawyer-drafted text that is subsequently approved by an executive agency. We can use these mandated disclosures from other areas of law as a template for improving the shape of patent *claims*.

To be clear, I am not referring to the disclosure rationale of patent protection,<sup>102</sup> or the statutory disclosure requirements of the specification.<sup>103</sup> Rather, I am referring to using mandated disclosures from other areas of law<sup>104</sup> as a template for improving the shape of patent *claims*. Mandated disclosures are regulatory requirements that aim to improve relational decisions.<sup>105</sup> The purpose of disclosures is to encourage the discloser to provide sufficient information for the recipient of the information to make an informed decision.<sup>106</sup> For example, these disclosures are often required to be included in loan agreements, medical consent agreements, and purchase agreements. The idea is that the disclosers are in the position of greater

*supra* note 5, at 47. Other scholars have proposed easier invalidation of patent claims for many reasons. *See id.* at 47-49. *See generally* Shubha Ghosh & Jay Kesan, *What Do Patents Purchase? In Search of Optimal Ignorance in the Patent Office*, 40 HOUS. L. REV. 1219 (2004).

102. Note, *supra* note 70, at 2008-09.

103. 35 U.S.C. § 112 (2006) (“The specification shall contain a written description of the invention . . . as to enable any person skilled in the art . . . to make and use the same . . .”).

104. *See* Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 650 (2011).

105. *See id.* at 649-650.

106. *See id.*

knowledge.<sup>107</sup> Without this knowledge the recipient will be unable to make a rational decision and may decide based on other, irrelevant (or even detrimental) factors.<sup>108</sup> This is precisely the current situation in patent law. The claims represent the bulk of the information that the Patent Office needs to make an informed decision of whether to grant the claims of any given patent. The patentee has the best information about the invention, but is not disclosing it effectively, whether innocently or by design;<sup>109</sup> in the absence of this information, the Patent Office is making decisions based on irrelevant factors, such as how a patent looks.

There is literature that demonstrates that mandated disclosures do not work. The basic reasons are that the disclosers do not always provide the requisite information; that the recipients do not read or do not understand the information and that the recipients either do not use the information or the information does not improve their decision making.<sup>110</sup> One problem will always be willful or strategic failure to act accordingly. However, even if the discloser and recipient are making efforts to draft and understand the disclosure, they need specific instructions of what to do.<sup>111</sup> Because the discloser and recipient in this case, the patentee and the Patent Office, have an ongoing relationship it will be easier to align their understanding of the disclosure required and the objectives of decision-making based on the information. While specific instructions will be helpful, the situation is much different from other mandatory disclosure requirements, where the parties have a single or sporadic interaction at best and are not working together.

What should these instructions look like? The discloser has three primary duties: to understand the disclosure requirement; to gather the data to disclose the information; and to effectively disclose the information.<sup>112</sup> First, the patentee already knows what the disclosure

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107. *See id.*

108. *See id.*

109. Note, *supra* note 70, at 2023-26.

110. *See* Ben-Shahar & Schneider, *supra* note 104, at 665. Ben-Shahar & Schneider provide many examples. For just a few, including that the bulk of information provided to consumers via Truth In Lending Acts (TILA) is not read or understood. *Id.* at 666. Doctors have difficulties providing sufficient information in the case of informed medical consent. *Id.* at 667-68. Also, patients often make decisions for reasons unrelated to the information provided by the doctor. *Id.* at 668-69. For extensive discussion of mandated disclosures in various areas of law and why they do not work, Ben-Shahar & Schneider's article is comprehensive.

111. *See id.* at 679.

112. *See id.* at 692-704.

requirement is: he must include “claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”<sup>113</sup> Of course, like many statutes, this provision is not as clear as it could be, but it is not necessary to change the statute to effectuate these proposals. Rather, the reorientation of the norm should clarify what information a claim must include. To start, claims need to be less ambiguous. Second, the reason that the mandated disclosure analogy is apt is because the patentee is in possession of the best information about the invention and the unique scope of the invention that can be claimed. Further, the claims can only be amended in limited ways, so the patentee’s burden of updating the information is small. The difficulty of gathering and updating information that plagues other mandated disclosures is not present for patent claims. Third, and the most important for patent claims, is effectively implementing the mandate. The disclosure requirement is not fulfilled if the recipient is unable to understand the information provided.<sup>114</sup>

To achieve better disclosure of patent claims, there are at least two suggestions supported by the previously discussed research that would bolster understanding. First, the patentees should have a list, made in conjunction with and kept current by the Patent Office, of terms that represent commonly used phrases in patent claims. These terms are often made unnecessarily complex because of Patent Office rules requirements or poor claim drafting.<sup>115</sup> Take for example the term “attached.” A quick, inexhaustive scan through a list of cases retrieved from a LEXIS search of Federal Circuit cases shows the use of terms such as “hingedly attached,”<sup>116</sup> “removably attached,”<sup>117</sup> “slidably” and “operatively” attached,<sup>118</sup> “releasably attached,”<sup>119</sup> not to mention numerous instances of “directly” or “indirectly” attached.<sup>120</sup> It would be useful for many of these instances to be

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113. 35 U.S.C. § 112.

114. See Ben-Shahar & Schneider, *supra* note 104, at 698.

115. See U.S. PATENT & TRADEMARK OFFICE, MPEP § 2173.05(e) (8th ed. Rev. 8, July 2010) (Lack of Antecedent Basis).

116. *Becton, Dickinson & Co. v. Tyco Healthcare Grp.*, 616 F.3d 1249, 1255 (Fed. Cir. 2010).

117. *Andersen Corp. v. Pella Corp.*, 300 Fed. Appx. 893, 894 (Fed. Cir. 2008); *Dorel Juvenile Grp. v. Graco Children’s Prods.*, 429 F.3d 1043, 1044 (Fed. Cir. 2005).

118. *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1367 (Fed. Cir. 2005).

119. *V-Formation, Inc. v. Benetton Grp. SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005).

120. See, e.g., *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325 (Fed. Cir. 2010).

covered by a standard definition of “attached.”<sup>121</sup> The common definition would decrease the number of words per claim, decreasing complexity and increasing comprehension. The standard definition would also become commonplace, so that it would be consistently recognized by both patentees and the Patent Office, decreasing ambiguity and increasing comprehension. Finally, this tool could be used to eliminate some of the patent “legalese” that is often put in patent claims simply because it looks good.<sup>122</sup>

This problem of “legalese” also leads to the second point. The patentees, or more specifically their patent attorneys, must approach claim drafting differently. I am not the first to suggest that claim drafting must be improved in order to increase comprehension;<sup>123</sup> however, I recommend a whole-sale change. Patent claims will not be improved by the blanket charge of adding specificity. That may address the issue of ambiguity, but it also will add additional words to patent claims.<sup>124</sup> Real change in the comprehension of patent claims will be more likely if there are fewer words.

The suggestion of a list of commonly used terms is one step, but patent attorneys (or other drafters) must begin claims with a blank slate. For a claim to a machine, the drafter’s first claim should simply be “I claim: A [machine], comprising component 1, component 2, component 3, etc.” For a process, the claim would similarly include simply a list of steps at their most basic level.

This simple claim must be narrow enough to cover only the patentee’s invention, so more components may be added than is usual

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121. Please note, however, that I am not calling for a standardized dictionary, as has been done by others. *See generally* Joseph Scott Miller & James A. Hilsenteger, *The Proven Key: Roles and Rules for Dictionaries at the Patent Office and the Courts*, 54 AM. U. L. REV. 829 (2005). Rather, I am suggesting that a list of commonly used terms be codified. I have made this suggestion before in relation to Federal Circuit understandings of commonly used terms. *See generally* Kristen Osenga, *Linguistics & Patent Claim Construction*, 38 RUTGERS L.J. 61, 89-91 (2006).

122. *See generally*, Claire A. Hill, *Why Contracts Are Written in “Legalese”*, 77 CHI-KENT L. REV. 59 (2001). Although Hill is discussing contracts, much of her article is applicable to patent claims, including writing to avoid bad outcomes (rather than to attain good outcomes) and writing with deference to senior members of the law firm by using their work as a template.

123. *See, e.g.*, Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUS. L. REV. 1165, 1171 (2008); S. Jay Plager, *Challenges for Intellectual Property Law in the Twenty-First Century: Indeterminacy & Other Problems*, 2001 U. ILL. L. REV. 69, 72 (2001) (“There can be little doubt that a considerable improvement would be to have more understandable, more coherent claim drafting . . . .”); Thomas Chen, Note, *Patent Claim Construction: An Appeal for Chevron Deference*, 94 VA. L. REV. 1165, 1191 (2008).

124. *See* Kelly Casey Mullally, *Patent Hermeneutics: Form and Substance in Claim Construction*, 59 FLA. L. REV. 333, 378 (2007).

to start, but notice there are no words of connection or elaboration. These non-component words cause patent claims to be verbose.

Following the simple claim, the patentee should include claims that refine that claim, but only addressing one alteration at a time. For example, the claims following the one above may include:

- The [machine] of claim 1, where component 1 and 2 are connected.
- The [machine] of claim 2, where the connection is rope.
- The machine of claim 1, where component 1 is metal.

This is not dissimilar to the current practice of independent and dependent claims. However, the current practice does not specify any relationship between the independent and dependent claims, except that the dependent claim includes all of the elements of the independent claim to which it refers. The proposed system has two benefits over this. First, the drafter will be less inclined to take an existing patent claim as a template for his first, simple claim, because there will be no template needed to list a bunch of components. Second, the Patent Office is receiving the information in comprehensible chunks, rather than trying to understand the scope of an entire patent claim at once.

During patent prosecution, because the examiner has simple chunks of information to work with, it will be easier for him to determine which information is different than the prior art and then signal that back to the patentee. Of course, it may turn out that the broader levels of the claims submitted are found in the prior art. The patentee can then go back and draft a claim that includes enough elements to make the claims patentable over the prior art. But in going back, the drafter is simply adding in, in a rational fashion, the simple bites of information. For example, if the examiner finds prior art that includes a connection of components 1 and 2 of a material other than rope, then the patentee can simply add, “where components 1 and 2 are connected with rope” to his broadest, simple claim. While this does add words to the patent claim, it adds them minimally. One tweak that would need to be made to patent law is a change in the fee structure of patent applications. More claims must be permitted to be filed without financial penalty.<sup>125</sup> This is not counterproductive, because part of the reason for charging for additional fees is the

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125. See *supra* text accompanying note 23.

difficulty imposed on the examiner. If the examiner were instead dealing with the small chunks of information, it will be less onerous, even if the number of claims is much higher.

The recipient of the information similarly has a number of duties: to acquire the information; to understand the information; and to analyze and act on the information.<sup>126</sup> The acquisition of information by the Patent Office is necessary for the patentee to obtain a patent. So long as the patentee is providing the information as discussed above, the Patent Office does not need to work to acquire it. The difficulties for the Patent Office lie in understanding and acting on the information. By presenting the information in small chunks, the Patent Office's understanding should be improved. Further, the proposed list of commonly used terms will aid in the examination process. Unlike consumers or patients, who are the recipients of general mandated disclosures, the Patent Office repeatedly receives information from patentees and should have some experience with the process. As far as acting on the information, a long-time complaint is that patent examiners have insufficient time to do their work of examining.<sup>127</sup> In addition to changes in Patent Office management that addresses examiner workload,<sup>128</sup> the chunking of information for the examiner to consider will also allow him to work more efficiently.

## CONCLUSION

Scholars have long looked at technology and law as reasons for the lack of comprehension of patent claims. But in focusing on these aspects, they are missing a potentially large source of confusion—the claim itself. Even as technology and patent law have evolved, patent claims look the same. The shape of patent claims, as measured by word length, is not changing over the parameters of time, technology, actor, or crowdedness of the field.

Because patent claims are not changing, there must be another factor driving complexity. The relational consistency between the

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126. Ben-Shahar & Schneider, *supra* note 104, at 709-729.

127. See, e.g., Eric B. Chen, *Conflicting Objectives: The Patent Office's Quality Review Initiative and the Examiner Count System*, 10 N.C. J. L. & TECH. ON. 28, 32-33 (2009), [http://www.ncjolt.org/sites/default/files/Chen\\_ConflictingObjectives\\_10NCJOLTOlineEd28.pdf](http://www.ncjolt.org/sites/default/files/Chen_ConflictingObjectives_10NCJOLTOlineEd28.pdf).

128. See Peter Zura, "That's One Small Step . . ." *Kappos Starts PTO Reform by Tweaking Examiner Productivity Metrics*, THE 271 PATENT BLOG (Oct. 1, 2009), <http://271patent.blogspot.com/2009/10/thats-one-small-step-kappos-starts-pt.html>.



patentee and the Patent Office creates an association between the groups over technology and time that has resulted in a behavioral norm that affects patent claims. It is unlikely that patent claims will become more comprehensible without directly addressing this norm by reorienting what behavior we expect from the parties. Regardless of the means chosen, it is time to bring patent comprehension back to the drafting table.