

# NARRATIVES AND EVIDENCE IN THE LITIGATION OF HIGH-TECH PATENTS<sup>1</sup>

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## **Working Abstract**

While each patent dispute is unique, most fit the profile of one of a limited number of patent litigation “stories.” Suits brought by independent inventors against large corporations are typically cast in “David v. Goliath” terms.<sup>3</sup> Patent litigation between large corporations, in contrast, has aptly been called the “sport of kings.” Corporations that build defensive portfolios do so in order to reach “patent détente.” Many are worried about “troll suits,” others are critical of the use of patent litigation to impose or exploit financial distress, or patent “predation.” In this paper, I discuss each of these patent litigation narratives, and use data on the litigation of high-tech patents from the Stanford Intellectual Property Clearinghouse to determine who brings lawsuits, and which types of suits are most prevalent.

We find that, in the past 8 years, 77% of all high-tech suits have been initiated by corporations (public or private), 18% by trolls, and 3% by individuals. When the number of suits is counted according to the number of defendants named, to take into account the common practice of naming of multiple defendants by a single troll suit, the share attributable to trolls jumped to 31%, with considerable industry variation (8% of hardware, 33% of software, and 45% of financial suits counted by number

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<sup>3</sup> Jim Offner, *ITC to Hear Prof's David v. Goliath Patent Case*, E-Commerce Times, Mar. 21, 2008, <http://www.ecommercetimes.com/story/62247.html>

of defendants). Of the three types of suits profiled - “Sport of Kings” (public v. public company) troll (troll v. company), and “David v. Goliath” (individual v. company) suits - Sport of Kings suits comprised 63% of the total, troll suits 28% of the total, and David v. Goliath suits 4%.

## **Working Table of Contents**

### **I. Introduction**

### **II. Background**

- A. Troll Suits
- B. Litigation –Avoidance/Patent Détente
- C. Sport of Kings
- D. Predation
- E. David v. Goliath
- F. Comparing the Narratives
  - 1. Figure 1: Narratives of Patent Litigation

### **III. Data and Methods**

### **IV. Results**

- A. Who Brings Computer-Related Patent Lawsuits?
  - 1. Table 1: Cases by Plaintiff (absolute number of suits)
  - 2. Table 2: Cases by Plaintiff (number of defendants sued)
- B. What is the Prevalence of Different Types of Suits?
  - 1. Table 3: Lawsuits by Category (absolute number of suits)
  - 2. Table 4: Lawsuits by Narrative (number of defendants sued)
- C. How Long Do Suits Last?
  - 1. Table 5: Average Suit Duration
  - 2. Table 6: Suit Outcomes

### **V. Discussion and Future Research**

## I. Introduction

Patent litigation has alternatively been called the sport of kings<sup>4</sup> and the business of sharks.<sup>5</sup> Some are troubled by patent wars such as the protracted, multi-patent, multi-venue, multi-million dollar dispute between wireless “kings” Qualcomm and Broadcom that do not appear to benefit consumers.<sup>6</sup> Others see the rise in aggressive and opportunistic enforcement of patents by patent “sharks” or “trolls” against established businesses, at times resulting in payments in the millions of dollars, as the real bane of the patent system.<sup>7</sup> Still others lament the recent “explosion” of patent litigation across the board and in different industries to present the greatest cause for concern, because it may discourage, rather than encourage, innovation.<sup>8</sup>

Who is right? Or, to be more precise, to what extent does each story describe the current patent litigation landscape? There are surprisingly few if any answers to this question. That’s because, although each “story” of patent litigation has been studied independently,<sup>9</sup> there has

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<sup>4</sup> Meurer, Michael J. and Bessen, James E. *Lessons for Patent Policy from Empirical Research on Patent Litigation*. Boston Univ. School of Law Working Paper No. 05-22 Available at SSRN: <http://ssrn.com/abstract=851044>

<sup>5</sup> Reitzig, Markus G., Henkel, Joachim and Heath, Christopher, *On Sharks, Trolls, and Other Patent Animals - 'Being Infringed' as a Normatively Induced Innovation Exploitation Strategy*. Available at SSRN: <http://ssrn.com/abstract=885914>

<sup>6</sup> In just one of their suits, for example, Qualcomm was ordered to pay Broadcom over \$8.5M-5 million for discovery abuses (Jerold S. Solovy & Robert L. Byman, *Qualcomm Case Sends Tremors Nationwide*, Jan. 31, 2008, <http://www.law.com/jsp/legaltechnology/pubArticleLT.jsp?id=1201687552037>). Yet that a number pales in comparison to the reported \$11.1 billion revenue that Qualcomm received in fiscal year 2008 in royalty payments from patent licenses (Press Release, Qualcomm, Inc. Qualcomm Announce Fourth Quarter and Fiscal 2008 Results (Nov. 6, 2008) (on file with author)).

<sup>7</sup> Chris Coletta, *Red Hat Among Companies In Crosshairs of License Suit*, Triangle Business Journal, May 16, 2008, <http://www.bizjournals.com/triangle/stories/2008/05/19/story13.html>.

<sup>8</sup> James E. Bessen & Michael J. Meurer, *The Patent Litigation Explosion* (October 20, 2005), Boston Univ. School of Law Working Paper No. 05-18, at 27-28. Available at SSRN: <http://ssrn.com/abstract=831685>

<sup>9</sup> Add cite.

been little if any systematic attempt to place each narrative within an overall context of all patent litigations.

This gap in understanding is problematic. It means that, even if many agree that trolls are a problem, no one really knows how big a problem they are, relative to other types of litigation.<sup>10</sup> By the same token, when a new “patent war” is started, it’s difficult to know whether or not it represents the occasional, large patent fight or is representative of how patent litigation is routinely used and, some would argue, abused. In addition, by focusing on problems associated with one or two types of patent litigation, other problems may be overlooked. The squeakiest wheel may deserve the grease, but without data it’s hard to know.

Yet understanding the reach of each patent litigation story is important as each has its own culprit and call to action. Those who bemoan the rise of patent trolls, for instance, feel it imperative to cut off the ability of trolls to sue in inconvenient venues. Such a change would be at the expense of patentees who benefit from patent law’s broad jurisdiction rules, however. Proponents of damages reform, on the other hand, argue that the current law does not properly account for the increasingly complex and overlapping nature of rights in technology products. This has allowed patentees to command disproportionately large royalties, the costs of which will be borne by the consumer. Opponents of such reform believe that such “extreme” cases are rare, and that the system should be left alone.

This paper attempts to put these concerns into context by identifying the major narratives of patent litigation and then matching actual suits, based on party profile, to these narratives. Using data from the Stanford Intellectual Property Litigation Clearinghouse, launched publicly in December 2008, and drawing upon related empirical research, it attempts to answer the questions: who initiates patent lawsuits, and what types of suits are the most common? Unlike earlier studies of patent

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<sup>10</sup> The estimates range from 5% in 2000, 2002 (Kesan and Ball) to 18% in 2008 (Patent Freedom), see notes \_\_\_ infra.

litigation, it tracks not only the number of cases filed, but the number of defendants sued. This approach captures the burdens associated with litigations that name multiple defendants, the majority of troll suits.

The paper focuses on the litigation of high-tech (also referred to as “computer-related”) patents covering hardware, software, and financial inventions. Patenting behavior in each of these industries has been the subject of considerable academic study, providing a rich background to the current effort. Part II reviews this background, identifying the dominant patent litigation narratives. Part III describes the data and methods I analyzed to develop a patent litigation landscape based on these narratives. Part IV reports my results and Part V concludes.

## II. Background

While each patent dispute is unique, most fit the profile of one of a limited number of patent litigation “stories.” For instance, suits brought by independent inventors against large corporations are often cast in “David v. Goliath” terms.<sup>11</sup> In contrast, if the parties are evenly-matched, comprising two large, deep-pocketed corporations, the result can be a “patent war.” To avoid such wars, many companies have defensively built their patent portfolios in an attempt to reach “patent détente.” Ironically, many of these companies end up in court anyway, according to the by-now familiar, many would say too-familiar, “troll” story. Finally, companies that sue their less-established rivals hoping to impose or exploit financial distress have been accused of “predation.”

This collection of patent stories (troll suits, patent détente, patent war/“sport of kings” suits, predation, and “David v. Goliath” suits) is not exhaustive.<sup>12</sup> However, many have found them to represent some of the

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<sup>11</sup> Jim Offner, *ITC to Hear Prof’s David v. Goliath Patent Case*, E-Commerce Times, Mar. 21, 2008, <http://www.ecommercetimes.com/story/62247.html>

<sup>12</sup> Many patent suits could be said to represent “garden variety” business disputes between small- and medium-sized companies, for instance. Others pit university patentees against various defendants. Such suits have attracted criticism because although universities can and do bring patent suits, they can ward off any suits brought

most troubling uses of the patent system. Troll and predatory suits have been called “opportunistic and anti-competitive,” not only failing to help innovation but getting in its way.<sup>13</sup> Independent inventor plaintiffs or “David”s, on the other hand are often portrayed as virtuous users of the patent system; their suits evidence that the patent system is “working.”<sup>14</sup> In this section, I discuss each of these patent litigation narratives, and what previous empirical research has told us as it pertains to the high-tech industries.

## 1. Different Types of Narratives

### A. *Trolls Suits*

Since the term was coined in 1991,<sup>15</sup> patent “trolls” have become perhaps the most controversial and least popular group of patent plaintiffs.<sup>16</sup> The term “patent troll” generally refers to patentees that do not make products;<sup>17</sup> the definition has been further narrowed to exclude “legitimate” actors in the innovation enterprise that also engage in significant research and development activities<sup>18</sup> and individual inventors

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against them through the defense of sovereign immunity. [add article cite] Though controversial for this reason, universities bring only a small fraction of computing patent suits; in the present analysis, universities were responsible for less than 1 % of such suits. See *infra*, section \_\_\_\_ .

<sup>13</sup> Cite to Meurer.

<sup>14</sup> Add cite.

<sup>15</sup> Timothy J. Haller & Sally Wiggins, IP Value 2006,

[http://www.buildingipvalue.com/06US\\_Can/113\\_116.htm](http://www.buildingipvalue.com/06US_Can/113_116.htm)

<sup>16</sup> Indeed, also called names such as “patent extortionist,” “patent terrorist,” and “blackmailer” (Magliocca, p.3) But see James F. McDonough III, *Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 201 (2006) (calling trolls “patent dealers”); Haller & Wiggins, *supra*, \_\_\_\_\_,

[http://www.buildingipvalue.com/06US\\_Can/113\\_116.htm](http://www.buildingipvalue.com/06US_Can/113_116.htm) (claiming the troll “problem” is a myth).

<sup>17</sup> **FIND CITE. Indeed, “trolls” are also known as “non-practicing” entities.**

<sup>18</sup> E.g. universities (*see, e.g.* Mark Lemley, *Are Universities Patent Trolls?*, Stanford Public Law Working Paper No. 980776, Apr. 11, 2007 (concluding that they are not), <http://ssrn.com/abstract=980776>); and research and licensing companies like Tessera and Rambus.

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who seek to commercialize their inventions.<sup>19</sup> A troll, therefore, is a company whose primary revenues are generated through patent enforcement, rather than the commercialization of inventions.” In support of this business model, companies have been formed to engage in such diverse activities as organizing patent auctions, acquiring patent assets, asserting patent portfolios, and underwriting enforcement activities.<sup>20</sup>

Who do trolls sue and what form do their suits take? Like their mythical counterparts, patent trolls surprise their targets,<sup>21</sup> typically mature companies that have already developed and sold allegedly infringing products. Because trolls have no products of their own, they can not be countersued for patent infringement. Trolls do not risk disruption to their core business – patent enforcement *is* their core business.<sup>22</sup> To hedge their bets, trolls typically target multiple defendants and seek settlements. For every defendant that is actually sued, many more demands are made.<sup>23</sup>

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<sup>19</sup> James McDonough, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*. 56 Emory L.J. 189, 189

2006 (“A patent troll is a person or entity who acquires ownership of a patent without the intention of actually using it to produce a product.”)

<sup>20</sup> *FTC Hearing on the Evolving IP Marketplace*, December 5, 2008 (p. 11 of presentation of Peter N. Detkin entitled “To Promote the Progress...of Useful Arts, Investing in Invention”), available at

<http://www.ftc.gov/bc/workshops/ipmarketplace/docs/pdetkin.pdf>; see generally *FTC Hearings on the Evolving Marketplace, Dec. 5, 2008*, (presentation of Raymond Millien entitled “The IP Marketplace Players”), available at

<http://www.ftc.gov/bc/workshops/ipmarketplace/docs/rmillien.pdf> (further describing the diversity of patent licensing and enforcement business models).

<sup>21</sup> The New Dictionary of Cultural Literacy, Third Edition, Houghton Mifflin (2002) (defining trolls as “In Norse Mythology, repulsive dwarfs who lived in caves or other hidden places. They would steal children and property but hated noise.”) [find better cite referencing the “surprise” factor]

<sup>22</sup> CITE

<sup>23</sup> Meurer, Michael J., Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation. \_\_\_\_ Boston College Law Review \_\_\_\_ 2003 (describing the example of Dataquest, that allegedly sent 75,000 demand letters resulting in several licenses and a suit against 41 companies) (at 8-9). Available at SSRN: <http://ssrn.com/abstract=361760>.

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Trolls are accused of asserting weak patents<sup>24</sup> whose validity is unlikely to be decided by a court. This follows from a business model based on generating licensing revenue rather than getting an injunction to prevent defendants from making or selling their products. Patent holding company Intellectual Ventures has been cited as using this approach, by developing and attempting to license a large number of patents. If a fraction of these attempts result in a license, a revenue stream can be developed without resort to litigation.<sup>25</sup> Research company Patent Freedom, which focuses on non-practicing entities (“NPEs”), contrasts this “portfolio” approach to the strategy it believes is followed by the majority of NPEs. This strategy involves acquiring relatively smaller numbers of strong, not weak, patents that can withstand invalidity challenges.<sup>26</sup>

Trolls have focused on high-tech inventions,<sup>27</sup> for several reasons. First, they have historically sourced their patents from distressed or bankrupt companies, principally casualties of the Internet bubble. Second, products in computer and semiconductor related industries tend to be covered by many patents, giving patentees greater leverage.<sup>28</sup> Finally, in high-tech or “predictable arts,” it is arguably easier to file a paper patent that can be bought and sold free of the underlying technology, as compared to, for instance, biotechnology inventions that have more

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<sup>24</sup> Sarah Lai Stirland, *Trolling for Patents*, The Seattle Times, Nov. 14, 2005. Available at <http://community.seattletimes.nwsources.com/archive/?date=20051114&slug=patent14>.

(Or more precisely, “broadly written patents with questionable claims” examined by “harried, time-starved patent examiners”); [see also](http://www.security.ithub.com/article/Intellectual+Security+Patent+Everything+You+Do+Before+Someone+Else+Does/167480_2.aspx) [http://www.security.ithub.com/article/Intellectual+Security+Patent+Everything+You+Do+Before+Someone+Else+Does/167480\\_2.aspx](http://www.security.ithub.com/article/Intellectual+Security+Patent+Everything+You+Do+Before+Someone+Else+Does/167480_2.aspx)

<sup>25</sup> <https://www.patentfreedom.com/research-phl.html>

<sup>26</sup> <https://www.patentfreedom.com/research-phl.html>

<sup>27</sup> *See, e.g.*, <https://www.patentfreedom.com/research.html> and <https://www.patentfreedom.com/research-pc.html> (showing high-tech product categories such as semiconductors, software, consumer electronics, and software to dominate the patent acquisitions, and high-tech companies, such as Matsushita, Sony, and Toshiba, to dominate the list of most pursued companies)

<sup>28</sup> Mark Lemley & Carl Shapiro, *Patent Holdup & Royalty Stacking*, 85 TEX. L. REV. 1991, \_\_\_\_\_ (2007).

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stringent enablement and written description standards difficult to meet without having reduced the invention to practice.

Non-producing entities are well-poised to enter into other industries, however. As the patent marketplace evolves, so likely will business models to support the enforcement or licensing of biotech and other inventions.<sup>29</sup> In addition, in an economic downturn, startups and companies in all industries are more likely to cash in their patents, rather than letting them sit on the shelf.<sup>30</sup>

There have been a number of attempts to quantify the size and scope of the troll phenomena. In 2007 and 2008, a website, Patent Troll Tracker<sup>31</sup> tracked newly-filed “troll” litigations across the country. Unfortunately, this effort was discontinued when the site was the subject of a defamation lawsuit.<sup>32</sup> Kesan and Ball completed a study in 2008 estimating that 5% of suits in 2000 and 2002 were brought by patent licensing firms.<sup>33</sup> Patent Freedom has placed the figure of troll suits much higher, at 18% in 2008. Both of these numbers seem relatively small in proportion to the attention trolls have attracted. Thus while many find the troll phenomenon increasingly worrisome,<sup>34</sup> others have claimed “if you look at the statistics, it's not obvious that there's a problem at all.”<sup>35</sup>

#### *B. Litigation-Avoidance/Patent Detente*

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<sup>29</sup> Find/cite to biotech troll.

<sup>30</sup> *See, e.g. William-Arthur Haynes, “Mining IP Stash for Cash” Daily Journal, November 21, 2008, 1 (describing the sale of patents in*

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<sup>31</sup> Now shut down, selected pages archived at <http://people.ffi.org/~zoobab/bh.udev.org/filez/swpat/TrollTracker/> (last visited November 8, 2008).

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<sup>32</sup> Troll Tracker Sued For Defamation By Patent Attorneys In East Texas, <http://techdirt.com/articles/20080312/020814510.shtml> (Mar. 12, 2008).

<sup>33</sup> Gwendolyn Ball and Jay Kesan, “Transaction Costs and Trolls: Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation” (2008), p.13 [I think this is publicly available but I also have a copy on file].

<sup>34</sup> *See, e.g. http://www.accessmylibrary.com/coms2/summary\_0286-15215099\_ITM; 40 Ariz. St. L.J. 289 (2008); 17 Alb. L.J. Sci. & Tech. 407 (2007).*

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<sup>35</sup> Stirland, *supra* note \_\_\_\_.

Another story told about the patent system is that many companies are engaged in defensive patenting. This strategy compels firms to patent now in order to avoid litigation later. By building portfolios of patents, companies can discourage or neutralize threats of suits brought by their competitors. In “thicket” industries where many patents may cover a single product, a company considering initiating litigation must weigh the potential financial and business expense if the other party counterclaims.<sup>36</sup> These include impact to stock value, reputational damage, and shut-down or interruption of product supply and distribution chains.<sup>37</sup> Instead, the hope is that the parties, both “well-armed,” will reach a standoff, or patent détente.

The defensive patenting phenomenon has been well-documented in the semiconductor industry.<sup>38</sup> The accumulation of large patent portfolios has also been noted in industries that obtain most software patents, namely the computer, electronics and instrument industries.<sup>39</sup> Financial industries have also experienced a “patent flood” or rush to patenting, observers claim, in order to avoid damaging litigation.<sup>40</sup> The desire to avoid patent litigation explains why companies in the semiconductor industry obtain patents even while rating them as ineffective relative to other ways of

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<sup>36</sup> See, e.g. James Bessen & Michael J. Meurer, *Patent Failure* 137 Table 6.2 (Princeton University Press) (2008) (reporting that plaintiff and defendant public firms lose a combined 1-3 % of their value when patent lawsuits are filed).

<sup>37</sup> Josh Lerner, *The Litigation of Financial Inventions* (Harvard Business & Nat’l Bureau of Econ. Research, Working Paper No. 09-027, 2008), around p.6.

<sup>38</sup> See, e.g. Bronwyn Hall and Rosemarie Ham Ziedonis, *An Empirical Analysis of Patent Litigation in the Semiconductor Industry*, paper prepared for the 2007 annual meeting of the American Economic Association, at 3 (noting “evidence from our prior study suggests that patent reforms led capital-intensive firms in [the semiconductor industry] to “ramp up” their patent portfolios more aggressively – largely to reduce litigation risks”).

<sup>39</sup> James Bessen & Robert Hunt, *An Empirical Look at Software Patents* (Federal Reserve Bank of Philadelphia, Working Paper No. 03-17 (2004) at p. 4, available at <http://ssrn.com/abstract=461701>.

<sup>40</sup> See, e.g. see comments of John Squires from Goldman Sachs, October 3, 2008 Berkeley Roundtable on Patentable Subject Matter.

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gaining advantage.<sup>41</sup> The goal instead has been to, where necessary, exchange licenses with low or no royalties attached to them.<sup>42</sup> The companies that engage in defensive patent tend to be large. This makes them vulnerable to patent litigation, but also gives them the ability to underwrite large patent portfolios.

Despite the importance of defensive patenting strategies among high-tech companies, the number of suits involving hardware and software inventions has actually risen, not declined. According to Hall and Ziedonis, the probability that semiconductor firms will be involved in lawsuits as targets of litigation grew from 1973-2001 [add actual statistic?].<sup>43</sup> Bessen and Meurer likewise note that the percentage of suits involving software patents as compared to overall suits has risen, from less than 5% in 1984 to 26% in 2002.<sup>44</sup> Why are companies who acquire patents in order to avoid being in court nevertheless ending up there? It is currently unclear whether greater activity by trolls, a failure of defensive patenting, growth trends in the industry, and/or something else are to blame.

### C. *Sport of Kings*

When corporations do sue each other, the result can be a “patent war,” involving competing claims, multiple patents, and huge teams of lawyers. Patent litigation is complicated, risky, and expensive. In cases in which \$1 million - \$25 million is at stake, the cost of litigation averages between \$2 million - \$3 million.<sup>45</sup> When even more is at risk, average costs

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<sup>41</sup> Wesley M. Cohen, Richard R. Nelson, & John P. Walsh, *Protecting Their Intellectual Assets: Appropriability Conditions and Why US Manufacturing Firms Patent (or Not)* (Nat'l Bureau of Econ. Research, Working Paper No. W7552, 2000). <(referenced in Bessen and Hunt (2004) at p.6, bottom paragraph.>

<sup>42</sup> Mark Lemley & John Allison, *Valuable Patents*, 92 GEO. L.J. 435, \_\_\_\_ (2004), at n.147.

<sup>43</sup> Hall and Ziedonis, *supra* note \_\_\_\_, at 1.

<sup>44</sup> *Patent Failure*, *supra* note \_\_\_\_, at 191.

<sup>45</sup> *2007 Economic Survey* (American Intellectual Property Association), 2007, at I-91

jump to \$5.5 million.<sup>46</sup> Given these pricetags, it is no wonder that patent litigation among large companies has been called the “sport of kings.”

Patent battles between Creative and Apple, and Qualcomm and Broadcom fit into this class of disputes. In both cases, the litigants compete in the marketplace – Creative and Apple sell rival mp3 players, while Qualcomm and Broadcom both make chipsets for cellphones that can operate on 3<sup>rd</sup> generation (3G) networks. Thus, the patent disputes were part of a broader competition between the firms. In both cases, litigation was initiated in multiple district court and ITC venues<sup>47</sup> and involved claims and counter-claims. While the Apple suit was settled for \$100 million,<sup>48</sup> the Qualcomm-Broadcom dispute has continued now for several years, and is still ongoing. Yet suits between large firms may not be strictly competitive in nature. Hall and Ziedonis describe a case in which a large, ailing company mounted an aggressive patent enforcement against other firms just prior to filing for bankruptcy.<sup>49</sup> This was well after the company’s position as a viable competitor had eroded.<sup>50</sup>

Though impressive, litigation between large firms are not perceived to be the norm. Relatively few companies can afford to engage in such all-out “patent wars,” and many who end up in court disclaim any

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<sup>46</sup> *Id.*

<sup>47</sup> *In the Matter of Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips, and Products Containing Same, Including Cellular Telephone Handsets*, U.S. International Trade Commission, Inv. No. 337-TA-543 (June 2005), Cases No. 8:05cv00467 and 8:2005cv00468 in the Central District of California (both filed May 18, 2005), case No. 3:2005cv01958 in the Southern District of California (filed October 14, 2005), and Case 3:2005cv03350 in the District Court of New Jersey (filed July 1, 2005); *Creative Technology Ltd. v. Apple Computer, Inc.*, No. 06cv3218, US District Court, Northern District of California (San Francisco); and *In the Matter of Certain Portable Digital Media Players*, U.S. International Trade Commission, Inv. No. 337-TA-573 (June 2006).

<sup>48</sup> Press Release, Apple, Inc., Apple and Creative Announce Broad Settlement Ending Legal Dispute Between the Companies (Aug. 23, 2006), available at: <http://www.apple.com/pr/library/2006/aug/23settlement.html>

<sup>49</sup> Hall and Ziedonis, *supra* note \_\_\_\_, at 17.

<sup>50</sup> *Id.*

desire to be there.<sup>51</sup> One would therefore expect patent battles between large companies to be the exception, rather than the rule.

#### *D. David v. Goliath*

A “David v. Goliath” suit pits individual inventors against large corporations accused of profiting from the inventors’ technology. Such underdog suits provide a counterweight to the perceived attempt of corporations to “fight down the inventor and rob him of all of the benefits of his invention.”<sup>52</sup> The 2008 movie, *Flash of Genius*, popularized one archetypal “David”, independent inventor Robert Kearns, who accused Ford Motor Company and others of stealing his idea for the intermittent windshield wiper.<sup>53</sup> Kearns ultimately received millions of dollars in royalty payments.<sup>54</sup> The David v. Goliath story is compelling, not only to moviegoers, but to juries as well, who are perceived as more sympathetic to independent inventors who have personal stories rather than to faceless corporations.<sup>55</sup> This dynamic in part may have motivated consumer electronic companies Sony and Sanyo to settle the dispute brought against them by Gertrude Neumark Rothschild, an emeritus professor at Columbia University who claimed to have made “seminal breakthroughs in the production of blue and ultraviolet LEDs.”<sup>56</sup>

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<sup>51</sup> NetApp Sues Sun for ZFS Patent Infringement, <http://blogs.netapp.com/dave/2007/09/netapp-sues-sun.html> (September 5, 2007) (describing how NetApp had no choice but to sue Sun for declaratory judgment of infringement of NetApp’s patents after Sun halted communication).

<sup>52</sup> 37 CONG. REC. 3952 (-Representative Robinson, testifying on patent reform 37 CONG. REC. 3952), cited in Magliocca, FN 17.

<sup>53</sup> John Seabrook, *The Flash of Genius*, *The New Yorker*, January 11, 1993, at \_\_\_\_\_, available at [http://www.newyorker.com/archive/1993/01/11/1993\\_01\\_11\\_038\\_TNY\\_CARDS\\_000363341](http://www.newyorker.com/archive/1993/01/11/1993_01_11_038_TNY_CARDS_000363341)

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* [add add’l examples of underdog inventors/independent inventor lore]

<sup>56</sup> Grant Gross, *Sony, Sanyo, Others settle LED Patent Complaint*, *PC World*, May 27, 2008, at \_\_\_\_, available at [http://www.pcworld.com/businesscenter/article/146353/sony\\_sanyo\\_others\\_settle\\_led\\_patent\\_complaint.html](http://www.pcworld.com/businesscenter/article/146353/sony_sanyo_others_settle_led_patent_complaint.html)

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A number of empirical studies have found individuals and small companies more likely to sue on their patents than large companies.<sup>57</sup> This is particularly true in the financial industry, where patents assigned to individuals are an estimated five times more likely to be litigated than those held by public corporations.<sup>58</sup> The intermediary market for patent enforcement discussed above, including trolls, supports such litigiousness by underwriting litigation that might otherwise be unaffordable for individual inventors.<sup>59</sup> It may also further blur the line between “underdog” and troll that in some cases is already hard to find. Take for example the case of tech start-up turned patent enforcement company Burst.com, founded by individual inventor Richard Lang. According to one account, though the company initially tried to commercialize and market Lang’s network transmission technology, it ran into competitive obstacles. After obtaining a \$60 million settlement from Microsoft for infringement of its patents, Burst.com decided to turn to patent enforcement full-time, trimming its staff from 110 employees to two.<sup>60</sup>

Despite cases like this, suits brought by trolls and suits brought by individual inventors differ in important ways. First, some independent inventors are perceived as seeking not only money, the main objective of licensing shops, but also justice or vindication by a court.<sup>61</sup> In addition, an independent inventor is likely to present a more compelling plaintiff to a court than a licensing shop assignee. Finally, an individual inventor with fewer resources is likely to be more selective, both about its targets and, in light of its smaller patent portfolio, the patents it asserts.

The number of David v. Goliath type suits is unknown. Individual inventors, once a dominant source of new inventions, now only generate 12% of patents.<sup>62</sup> In addition, intellectual property-savvy companies may opt to acquire, rather than litigate, patents as well as the know-how that

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<sup>57</sup> *Valuable Patents*, *supra* note \_\_\_\_, at 40; Lerner, *supra* note \_\_\_\_, at \_\_\_\_ .

<sup>58</sup> Lerner, *supra* note 16, at \_\_\_\_ .

<sup>59</sup> Cite to *supra*, notes on the patent intermediary market.

<sup>60</sup> Peter Burrows, “Underdog or Patent Troll?” *Business Week*, April 24, 2006.

<sup>61</sup> Seabrook, *supra* note 42.

<sup>62</sup> *Patent Failure*, at 170.

can come with them. Yet, along with the American notion of the genius of the small or basement inventor, the David v. Goliath story remains an important narrative in patent litigation.

### *E. Predation*

Another, less-studied but perhaps more troublesome form of patent litigation involves the use of litigation by established companies to quash financially-disadvantaged rivals.<sup>63</sup> In such suits, patentees aim not only to enforce patents but to impose financial distress on defendants. By suing less established firms, predatory plaintiffs can use the costs of litigation to threaten their rivals' survival, for instance by shutting down major parts of their operations for months or years while the suit is being resolved.<sup>64</sup> The resulting loss of revenue and costs of litigation are disproportionately harmful to early stage companies with fewer resources. As one account describes it, predatory litigation can damage a defendant's credit rating, divert customers from the defendant, and disrupt its relations with its investors,<sup>65</sup> all of which may be vital to a defendant's survival.

Verizon's suit against Vonage provides a case study. Vonage, a pioneering internet telephone business, presented a competitive threat to the business of Verizon, a telecommunications giant. When Verizon sued Vonage for patent infringement, it was described as the attempt of the "deep-pocketed incumbent to drive an innovative competitor out of business."<sup>66</sup> The court ruled that Vonage's products were infringing three of Verizon's patents, and ordered Vonage to pay \$58 million, a significant setback to its attempt to turn a profit.<sup>67</sup> More damaging, however, was a

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<sup>63</sup> Documented in Lanjouw & Lerner (2001) and Meurer (2003), *infra*.

<sup>64</sup> Jean O. Lanjouw & Josh Lerner, *Tilting the Table? The Use of Preliminary Injunctions*, 44 J.L. & ECON. 573, 573-604 (October 2001).

<sup>65</sup> Michael J. Meurer, *Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation*, 44. B.C.L. Rev 509, \_\_\_\_\_ (2003).

<sup>66</sup> Timothy B. Lee, *Vonage Is The Latest Victim of Patent Abuse*, Apr. 24, 2007, <http://www.american.com/archive/2007/april-0407/vonage-is-the-latest-victim-of-patent-abuse>

<sup>67</sup> Marguerite Reardon, *Vonage to pay \$58 million in Verizon patent case*, Mar. 8, 2007, [http://news.cnet.com/2100-1036\\_3-6165747.html](http://news.cnet.com/2100-1036_3-6165747.html).

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court injunction barring Vonage from signing new customers. While the injunction was ultimately stayed through the unusual intervention of the Federal Circuit,<sup>68</sup> it demonstrated the financial and operational risks associated with patent litigation. Ultimately, this suit did not succeed in driving Vonage out of business, as was feared,<sup>69</sup> but it and numerous suits by other incumbents that followed continued to burden Vonage.<sup>70</sup>

Although patent predation has received relatively little scholarly attention, several aspects of the Vonage case reinforce what others have observed. First, established plaintiffs seem to use injunctions in particular to carry out predatory strategies.<sup>71</sup> In addition, predation strategies appear relatively more common in high-tech industries like internet telephony.<sup>72</sup> This is because innovation in those industries is incremental, thereby increasing the risk that a new entrant will tread upon previous advances. In addition, the incidence of defensive patenting in these industries makes it more likely that large companies will obtain patents over even small advances.<sup>73</sup>

## 2. Comparing the Narratives

These narratives can be compared with reference to the corporate profile of the parties. (Fig. 1) Together with a team of research assistants, I analyzed each dispute in two different ways – with respect to who brought each suit, and also with respect to each suit’s plaintiff-defendant pair, or “case-pairing.” The first analysis, of who brought each suit, was accomplished by placing each plaintiff into one of a limited number of categories: individual, troll, nonprofit (university and other nonprofits), or

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<sup>68</sup> CAFC Stays Permanent Injunction against Vonage Pending Appeal, [http://patentlyo.com/patent/2007/04/vonage\\_gets\\_sta.html](http://patentlyo.com/patent/2007/04/vonage_gets_sta.html) (Apr. 25, 2007), see court order at 228 Fed. Appx. 986 (2007) (unpublished decision).

<sup>69</sup> Tim Lee, *A Patent Lie*, N.Y. Times, June 9, 2007, at A15.

<sup>70</sup> Cite to descriptions of litigation brought by AT&T, Sprint, and others.

<sup>71</sup> Lanjouw and Lerner, *supra* note\_\_\_\_, at 573.

<sup>72</sup> Meurer, *Controlling Opportunistic*, (2003).*supra* note \_\_\_\_ , at \_\_\_\_.

<sup>73</sup> Lee, *supra* note 36.

corporation (private or public non-troll company), and was performed on the entire universe of cases (N=3,194).<sup>74</sup>

To complete the second analysis, focused on plaintiff-defendant pairs, we profiled the parties to each suit, and then matched the party profiles to a number of the narratives described above. Before we did so, however, we excluded cases that involved private companies because of the wide range of private company profiles, and, therefore, the difficulty of characterizing suits brought or defended by private companies.<sup>75</sup> For instance, depending on the parties' characteristics, a suit pitting one private company against another could as easily fit into the "Sport of Kings," as the "David v. Goliath" category. This reduced the sample size considerably (N=1,463), and make the statistics reported in this section more useful as a relative, rather than absolute, description of litigation behavior. Finally, in addition to profiling each suit, based on plaintiff profile and case pairing, we captured information about the duration of completed suits, and their outcomes. This provided a more complete picture of not only what suits were filed, but how they resolved.

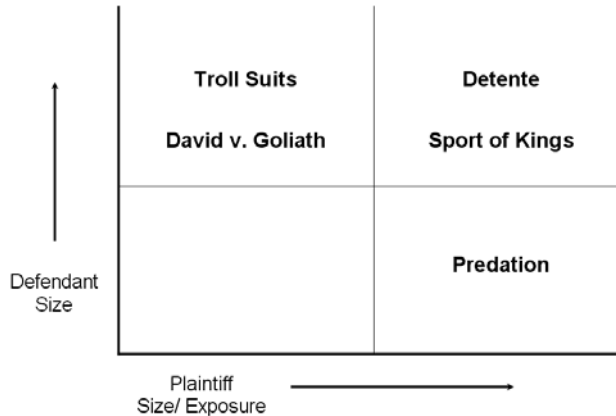
As noted before, previous discussions of patent litigation tend to focus on one or a few litigation stories in isolation. The present analysis, in contrast, analyzes different types of suits together and attempts to provide an empirical context for comparing them. Figure 1 presents a framework for thinking of these types of suits.

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<sup>74</sup> See *infra*, Table XX.

<sup>75</sup> For instance, Freescale Semiconductor is privately held, and, according to its website, employs 24,000 people with FY2007 worldwide revenues of \$5.7B; in contrast the private company \_\_\_\_\_ is estimated to have \_\_\_\_\_ employees, and annual revenues of \$.

**FIG. 1 Narratives of Patent Litigation**



*Small plaintiff – large defendant*

Two litigation “stories” fit within the case pairing of “small plaintiff – large defendant.” Squarely belonging to this category are “David v. Goliath” suits, which archetypically feature an individual inventor suing a large corporation. Most troll suits, which involve small licensing shops that sue mature, well-established companies, also fit the “small plaintiff – large defendant” profile. Not all trolls are small, however – for instance, Acacia Research Corporation (NASDAQ: ACTG) is publicly-traded with deep pockets.<sup>76</sup> However, like their small company counterparts, such trolls, because they do not make products, remain “small” in terms of their exposure to counterclaims. In the present analysis, companies were placed in the “troll” category as described below, whether they were large or small.

*Large plaintiff – large defendant*

With respect to the category of “large plaintiff-large defendant” disputes, this paper has described two ways in which patent disputes

<sup>76</sup> E.g., Acacia Research Corporation (NASDAQ: ACTG),

between large parties may resolve. If defensive patenting is successful, most suits between such players should be avoided, and instead result in a détente scenario of cross-licenses or stand-off. However in some cases, companies may also choose to follow an offensive strategy of suing other large companies who may also be competitors. This is the Sport of Kings situation where suits are more likely to be complex and potentially protracted, with multiple claims of infringement on both sides.

*Large plaintiff – small defendant*

Predatory plaintiffs target less financially-established defendants. Predatory suits, therefore, typically involve a larger firm suing a smaller one. However, since financial health is not always correlated to size, it is difficult to identify predatory suit based solely on gross categories such as whether a plaintiff is “large” or a defendant is “small.” In the example provided above of Verizon suing Vonage, for example, defendant Vonage, was a large, public company, yet still relatively weaker financially than Verizon. Thus, the placement of “predation” suits into the “large plaintiff-small defendant” category is at best a crude approximation, likely under-inclusive and perhaps in some cases over-inclusive as well. Because of these difficulties in isolating “predatory” suits, we did not code for them in the present analysis.

*Small plaintiff – small defendant*

The lower left hand quadrant, featuring suits brought by small plaintiffs against small defendants, is not associated with any dominant patent narrative. There are likely to be relatively fewer disputes of this kind as there is arguably less revenue at risk. The costs of litigation likely also pose a significant barrier – for suits in which less than \$1 million is at risk, the average pricetag is \$461,000 per suit to the end of discovery, and \$767,000 per suit inclusive of all costs.<sup>77</sup>

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<sup>77</sup> AIPLA Report of the Economic Survey (2007), at I-91.

What does the empirical data tell us about the relative prevalence of these different types of suits? In the following section, I describe how we obtained the data and performed the methods used to answer this question, and, in the section following, the answers the data provides.

### III. Data and Methods

To develop a profile of litigation behavior in various computer-related industries, I used data from the Stanford Intellectual Property Litigation Clearinghouse (“IPLC”).<sup>78</sup> The IPLC dataset includes all patent infringement lawsuits, including declaratory suits for non-infringement filed from January 1, 2000 to the present. The case data used in the present analysis was initially pulled around September 30, 2008 and covers a period of nearly eight years. Outcomes were also coded, as they became available, in the beginning of 2009. The underlying data is derived from Public Access to Court Electronic Records (“PACER”), an electronic reporting service of the US court system. Based on a manual checking process, the IPLC excludes false positive cases (e.g., miscoded cases, patent licensing cases, etc.) and includes false negative cases (infringement cases never before coded as such).

I selected cases involving hardware, software, and financial process patents based on primary United States Patent and Trademark Office (“USPTO”) patent classification of the litigated patents, as coded by the IPLC. Scholars have used a variety of different criteria to select patents belonging to various industries, each with its own shortcomings. Selecting patent and litigation cases based on company,<sup>79</sup> for instance, can blur the distinction between industry sectors as large companies often have multiple lines of business. For example, General Electric has diversified beyond power generation into fields ranging from medical imaging to media content to financial services, defying attempts to classify it into a

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<sup>78</sup> Described further at Mark A. Lemley & J.H. Walker, *Intellectual Property Litigation Clearinghouse: Data Overview* (2007 Kauffman Symposium on Entrepreneurship and Innovation Data, Stanford Law Working Paper No. 1024032, November 2, 2007), available at SSRN: <http://ssrn.com/abstract=1024032>

<sup>79</sup> E.g. as Ham and Ziedonis do, *supra* note 17.

single industry. “Meta classifications” that aggregate USPTO classifications such as those offered by the National Bureau of Economic Research are generally too large to facilitate in-depth study of particular industries. However, on the opposite extreme, studies based on manually reading and classifying each case yields a classification scheme that cannot be replicated, thereby making comparisons with other analyses difficult.<sup>80</sup> Selecting patent and litigation cases based on keyword searching of the claim language is likely to be more precise, but is prone to produce under -- or over - inclusive results depending on the number of keywords used.<sup>81</sup>

**Figure 2: Data - Description**

“High-tech” patents

- Hardware: semiconductors, digital processing, solid-state technologies, optical waveguides
- Software: data processing, user interfaces, graphics, operating systems, cryptography
- Financial: financial, business practice, management, or cost/price determination

Industry Category	All Suits (used for plaintiff profile analysis)	Suits Excluding Private Corporations (used for case pairings analysis)
Financial	514	198
Hardware	679	308
Software	2001	957
Total	3194	1463

In this analysis, I applied a “compromise approach” of selecting a limited number of USPTO classes that describe computer-related hardware, software, and financial inventions.<sup>82</sup> The hardware category

<sup>80</sup> E.g. as used in *Valuable Patents*, *supra* note 10.

<sup>81</sup> E.g. Bessen and Hunt methodology, *supra* note 18.

<sup>82</sup> Informed by my experiences prosecuting patents in these fields while a **full-time** patent practitioner.

includes patents classified by the USPTO as covering semiconductor technologies, memory, and digital processing (chip) architectures and design.<sup>83</sup> The software category covers patents covering user interfaces, database technology, software development, computer graphics, and cryptography.<sup>84</sup> The financial inventions category includes patents classified by the USPTO as financial process, business practice, management or cost/price determination data processing inventions.<sup>85</sup> Though USPTO classification schemes have also been criticized for misclassifying cases into one class rather than another, I have attempted to limit the impacts of this problem by aggregating related classes.

I and my team of research assistants further profiled each litigation based on the plaintiffs and defendants named in each case. Public companies, including their subsidiaries, were identified based on the Securities and Exchange Commission website and classified as “public.” Universities and governments were identified by name, and placed together with nonprofits identified by their websites in the category “nonprofit.” Named individuals, including individuals listed as “dba” (doing business as) a corporate entity, were coded as “individuals”. Other nonprofits were identified by referencing an organization website or other Internet description. Trolls, a subset of public<sup>86</sup> and private companies, were identified through a combination of methods. A party was coded as a troll if the company website described or pleadings alleged that the company was primarily an IP holding or patent licensing entity. Parties were also coded as trolls if they were identified as such by the press or websites.<sup>87</sup> Universities and university affiliates were not classified as

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<sup>83</sup> [Classes 716, 385, 712, 438, 257, and 340.](#)

<sup>84</sup> [Classes 703, 717, 324, 369, 700, 701, 709, 704, 711, 713, 710, 345, 715, and 707. In 2005, Graham and Mowery did a study of software patents based on list of USPTO classes, 75% of which are included in the current sample. \(See Stuart Graham and David Mowery, “Software Patents: Good News or Bad News” \(May 2004\), at p. 14.](#)

<sup>85</sup> [Class 705.](#)

<sup>86</sup> For example, Acacia is publicly-traded yet is considered a troll.

<sup>87</sup> Archived copies of the Patent Troll Tracker website available at

<http://people.ffii.org/~zoobab/bh.udev.org/filez/swpat/TrollTracker/> were culled, for example, for the names of parties identified by the website as trolls. Referred to *supra*, note \_\_\_\_.

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trolls. This methodology is likely to understate the number of real “trolls” for several reasons. First, many licensing shops do not advertise, making it difficult to verify what they do.<sup>88</sup> Second, given the controversy generated by “trolls,” companies that might fit the definition have an incentive to hide information that would make it easy to put them in the “troll” category. It is also possible that some suits brought by individual inventors are actually underwritten by “trolls,” who represent part of the interest in suit. I classified companies that did not fit into any of the aforementioned categories as private corporations. This was generally confirmed by reference to the company website, complaints posted to the IPLC or PACER, or other Internet description. After the initial coding was complete, the codings were reviewed and corrected for accuracy.<sup>89</sup>

Where an individual party belonged to several classes, a hierarchy was used to place it into the most specific applicable category. Thus, trolls and universities/non-profits were identified and coded first. Public companies were coded next, then individuals. If the party fell into none of these categories, it was classified as a private company. In addition, in a subset of cases, there were multiple plaintiffs or defendants. This information was captured in several ways. First, the number of distinct defendants<sup>90</sup> in each litigation was counted and recorded, and used to generate statistics in order to compare case counts based on the absolute numbers of cases filed and number of defendants in cases filed. This was done to give another view of the “litigation burden” associated with each dispute as a single suit may impose costs on many defendants. Second, the analysis took into account the reality that among multiple co-parties to a suit, often the larger entity is the “real” target or promulgator (or at least the deep pocket) of the suit. Specifically, where a suit was brought against

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<sup>88</sup> *E.g.* NTP, the licensing entity that sued Research in Motion, does not have a website.

<sup>89</sup> Need to do.

<sup>90</sup> In coding I attempted to determine the number of “distinct” rather than absolute defendants. This distinction mattered most in cases where individuals were named in addition to their corporate identity or alter ego (e.g. Stephen Conner and The Conner Group were counted as a single defendant), or where multiple corporate entities, all belonging to the same parent entity (e.g. Daimler Benz AG and Mercedes-Benz USA, LLC were coded as a single defendant).

an individual person and corporate or university defendant, the defendant group was profiled according to the corporate or university defendant. I used the party profiles to generate case pairings, e.g. “individual v. public company,” and “non-profit vs. private company.” Duration information for each suit was also captured, based on IPLC coding of start and end dates of litigation. Non-terminated cases were not included in the duration analysis.

Based on this data, I generated two sets of statistics to present a snapshot of (1) who brings lawsuits, and (2) the prevalence of various litigation stories. The first analysis was performed on 3,194 cases, and the second analysis, because it excluded private companies, on 1,463 cases. To determine the prevalence of each litigation story, I matched each case pairing to the narrative that best approximated it. In the category of “troll suits” I included litigations where trolls initiated suits. In the category of “David v. Goliath,” I included suits brought by individuals against public corporations and nonprofits. I placed suits that pitted publicly-traded corporations against each other in the category of “Sport of Kings.” The remaining suits, involving, the remaining combinations of public companies, individuals, trolls, and nonprofits suing each other were categorized as “Other.”

#### **IV. Results**

##### *Who Brings Patent Lawsuits?*

Despite the scrutiny computer-related patents have received, attention has generally been focused elsewhere than on the simple question: who brings patent lawsuits? Table 1 reports the answer to this question, with respect to high-tech patents: by and large corporations do. 77% of all suits were brought by a public or private corporation; among industries, the range was 66-85%. Individuals only initiated 3% of suits,

and nonprofits, 1%.<sup>91</sup> Trolls initiated 18% of all of the suits, reflecting a 14% share of hardware suits and 30% of financial suits.

Table 1:  
Cases by Plaintiff Category  
Calculated based on absolute number of suits

Plaintiff Category	Hardware Suits	Software Suits	Financial Suits	All Suits
Troll	14%	18%	30%	18%
Public Corporation	49%	44%	26%	42%
Private Corporation	36%	34%	40%	35%
Individual	5%	3%	4%	3%
Nonprofit	2%	1%	1%	1%
Grand Total	100%	100%	100%	100%

Given the amount of attention trolls have received, one might expect troll suits to comprise a greater share of high-tech patent disputes. Instead, the statistics in Table 1 seem to confirm what others have found – that trolls have brought less than a fifth of the patent suits studied.

However, a closer look at the suits themselves tells a different story. Troll suits typically name multiple defendants, each of whom faces the prospect of being part of an ongoing litigation. Past studies of patent litigation have failed to take this into account, focusing solely on the absolute number of suits. Yet, every suit brought against multiple defendants takes its toll on each of the multiple defendants. To overcome this past oversight, we calculated the number of cases brought based on the number of defendants named. (Table 2) Accordingly, a suit initiated

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<sup>91</sup> Accord, Kesan and Ball, p.12 (pull cite re: despite all the press they've received, universities are not that active)

against three defendants was counted three times, while a suit naming one defendant was counted once.

Based on this methodology, the average share of cases brought by trolls grew to 31%, putting it on par with public and private corporations. More strikingly, of all suits involving financial patents, trolls initiated 45%, the largest single share. Thus, when a particular company was slapped with a high-tech patent lawsuit, the odds were nearly one in three, and in financial patents cases, almost one in two, that the suit had been initiated by a troll.

The percentage of suits brought by individuals also grew when the number of defendants was counted. This indicates that individuals are naming more than the average number of defendants in each individual lawsuit. In this way, they are behaving more like trolls, and less like corporations (whose shares dropped), in terms of the number of defendants they name.

Table 2:  
Cases by Plaintiff Category  
Calculated based on number of defendants sued

Plaintiff Category	Hardware Suits	Software Suits	Financial Suits	All Suits
Troll	8%	33%	45%	31%
Public Corporation	46%	33%	15%	32%
Private Corporation	36%	29%	35%	31%
Individual	7%	5%	5%	6%
Nonprofit	3%	0%	0%	1%
Grand Total	100%	100%	100%	100%

*What types of suits are most prevalent?*

At the same time 77% – nearly four-fifths – of all suits in this study were brought by corporations. This in itself may not seem surprising; the bulk of software patents are owned by corporations,<sup>92</sup> and the same is likely true of hardware patents, if not also financial process patents. But when the various litigation narratives are compared (Table 3), the contrast between perception and reality becomes more clear. Trolls are known as willing, if not eager, litigants, having built a business around patent enforcement. By contrast, public high-tech companies are generally portrayed as reluctant litigants, carefully constructing portfolios of patents to avoid going to court. One might therefore expect to see relatively fewer suits in the “Sport of Kings” category, and more suits in the “troll” category. As reported in Table 3, however, the opposite is true – on a relative basis, “troll suits” – defined as suits initiated by trolls against public companies – comprised less than half the number of public corporation vs. public corporation, or “Sport of Kings” suits (28% v. 63%).

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<sup>91</sup> Bessen & Hunt, *supra* note \_\_\_\_, at \_\_\_\_.

Table 3:  
Lawsuits by Category  
Calculated based on number of absolute number of suits<sup>93</sup>

Category	Hardware Suits	Software Suits	Financial Suits	All Suits
David v. Goliath <sup>94</sup>	6%	4%	4%	4%
Troll Suits <sup>95</sup>	11%	28%	51%	28%
Sport of Kings <sup>96</sup>	80%	63%	38%	63%
Other	3%	5%	7%	5%

This means that when a suit was brought naming a public company defendant, the aggressor was more than twice as likely another public company than a troll. This trend was exaggerated in the case of hardware patents – with respect to which large companies initiated nearly eight times as many suits against other large companies than did trolls (11% vs. 80%). Interestingly, the trend was reversed in the case of financial process patents for which trolls were more likely than public companies to initiate suits against other public companies (51% vs. 38%). A much smaller percent of suits (4%) fit the “David v. Goliath” profile, of an individual suing a large company.

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<sup>93</sup> The figures in this table could not be calculated according to the number of defendants because of the way the coding was done, but would likely result in a more even distribution between troll and sport of king type suits. In addition, I did not code for “predation” suits for the reasons discussed in the “large plaintiff – small defendant” subsection, supra.

<sup>94</sup> Individuals v. Public company suits

<sup>95</sup> Trolls v. Public companies and nonprofits

<sup>96</sup> Public v. Public company suits

Table 4:  
Average Suit Duration

Type of Suit	Avg. Duration (Months)
David v. Goliath	15.9
Sport of Kings	15.3
Troll Suits	11.4
Other	9.3

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Beyond the initial point of filing, what happened once suits were filed? As discussed above, different types of plaintiffs can have different motives for filing and prosecuting a patent lawsuit, for instance vindication (in the case of some individual inventors), competition (in the case of some “sport of kings” suits), or financial settlement (troll suits). Likewise, the burdens associated with a lawsuit can vary tremendously, depending on how far the dispute continues before it terminates, either through court adjudication, settlement, or other resolution.

In order to estimate the fate of different types of suit, we calculated how long they lasted. (Table 4) There was wide variation. “Sport of King” suits lasted 15.3 months on average, while troll suits tended to be resolved much more quickly, spanning only 11.4 months. Suits brought by individual inventors were even longer than suits brought by public companies against each other, lasting around 16 months on average. What are the implications of this data? They are discussed in section V, below.

## V. Discussion and Future Research

This paper presents a snapshot of the litigation of computer-related patents. It finds that, despite the attention that trolls have received, 77% of all suits (Table 1) are still brought by corporations. Trolls only initiate around a quarter of the number of suits (18%) that corporations do, and individuals account for only 3% of the total. Likewise, of the predominant litigation stories, of David v. Goliath, trolls, and “Sport of King” suits, 63% of the suits profiled fell into the third category (Table 3), with troll

suits comprising only 28% of the total, and David v. Goliath suits representing 4% of the total.

This paper reports relative trends, and does not address what may comprise an “optimal” level of overall patent litigation, nor take a position on whether there is currently too much or too little. While patent defendants in general would prefer there to be less litigation, at least filed against them, most would probably agree that a meaningful court remedy is an essential part of a functioning patent system. The taxonomy discussed here gives us a way to talk about the different ways in which the patent litigation system is being used, with reference to its roles of inciting innovation and facilitating its development.

The variation among industries is significant. The troll phenomenon appears to be most pronounced in the litigation of financial process patents, with trolls initiating 30% (Table 1) of all of the suits studied. This figure rose to 45% (Table 2) of the total when suits were counted according to the number of distinct defendants. This suggests that trolls are an important driver of the much higher rates of litigation of financial process patents, relative to other patents, reported by Lerner.<sup>97</sup>

That trolls accounted for a relatively smaller share of software patent suits, and an even smaller share of hardware suits, is not necessarily surprising. Lerner speculates that the high rate of litigation of financial inventions may be due, in part, to the substantial uncertainty associated with financial patents.<sup>98</sup> To the extent he is correct, and that the boundaries of financial process claims are harder to discern than the boundaries of software claims, which in turn tend to be written in more abstract terms than hardware claims, the trend reported here lends support to Lerner’s thesis. However, it is also probably the case that corporations are relatively more litigious for business and other reasons when it comes to software and hardware patents relative to financial process patents. *State Street*, which allowed companies to patent business methods, was

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<sup>97</sup> Lerner, *supra* note \_\_\_\_, at 2. (reporting that financial patents are 27-39 times more likely to be litigated than patents as a whole).

<sup>98</sup> *Id.*, at page 25.

only decided in 1998; thus financial services companies have a longer tradition of competing in the marketplace than in the courtroom.

The duration data yields further insight into the burdens associated with different types of litigation. While troll suits are numerous, in some sense, their litigation bark appears to be worse than their bite insofar as their suits tend to be settled within the first ten months of being filed (Table 5). Suits between large corporations tend to last, on average, almost 50% longer (14.3 months vs. 10.9 months). That troll suits resolve more quickly is broadly consistent with the objective of obtaining a settlement, rather than “winning.” At the same time, focusing solely on litigation ignores the majority of troll threats that do not mature into lawsuits.<sup>99</sup> If it’s true that the proportion of threats to suits is relatively higher for trolls than for other kinds of suits, the costs associated with trolls is understated through the present analysis.

It also follows from the relatively lower prevalence of troll litigation that, at least when it comes to software and hardware, trolls cannot be held primarily responsible for the so-called “patent litigation explosion”, experienced over the past several years.<sup>100</sup> Table 1 indicates that most litigation -- 85% of hardware suits, 78% of software suits -- has been initiated by corporations. While this paper does not have the benefit of a baseline for comparison, Hall and Ziedonis observe that, in the semiconductor industry, the increase in litigation risk has primarily been driven by suits brought by competitors, as well as other corporations, rather than trolls.<sup>101</sup>

The relatively high incidence of public company vs. public company litigation, particularly in the hardware industry, on its face would seem inconsistent with a defensive patenting strategy. If large, public companies are amassing portfolios of patents with the objective of avoiding litigation, why are there still so many lawsuits between these large, public companies?

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<sup>99</sup> See note \_\_\_\_, *supra*.

<sup>100</sup> Cite to the “Patent Litigation Explosion.”

<sup>101</sup> Hall & Ziedonis (2007), *supra* note \_\_\_\_, at p.16.

A number of plausible explanations exists. The first is that the number of suits, though it appears large when compared to the number of suits overall, is not that large, relative to the size of the industries, amount of money at stake, and levels of innovative activity. This study does not control for any of these variables, nor does it provide a historical baseline, making any conclusions on this point speculative. In addition, defensive patenting is effective when the companies suing each other have overlapping patent/product coverage. However, it may be the case that a number of the suits have been brought by plaintiffs that don't operate in the defendant's technology area. The plaintiff may have acquired the patent at suit from another company or in the practice of filing patents even in areas outside of the corporation's product line. Under such conditions, the plaintiff's exposure would remain low, even in the face of a portfolio of defendant patents. Bessen and Meurer lend some support to this hypothesis through their finding that, in general, a substantial number of suits involve firms that are not market competitors or even technologically close.<sup>102</sup> To some extent, these and troll types suits represent failures of the defensive patenting strategy, which is unable to deter against these "rouge" threats.

Yet another explanation for the relatively high levels of large, public v. large, public company litigation is that many companies are not strictly following a strictly defensive strategy. Companies that claim to patent for defensive reasons may also engage in selective enforcement to build a reputation for toughness that deters others from copying, for instance.<sup>103</sup> Companies that acquire patents primarily for defensive reasons may also selectively engage in opportunistic or predatory litigation. Finally, companies' intentions with respect to patents may change over time. As public companies in the sample such as Rambus and Tessera turned from operating to non-operating companies, their motives for acquiring patents likely also shifted from defensive to offensive.

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<sup>102</sup> Patent Litigation Explosion, *supra* note \_\_\_\_, at 19.

<sup>103</sup> Cite Economist article re: Intel.

These different possible theories suggest directions for future research. This paper provides a high-level snapshot of litigation behavior, but leaves much to be explored at the company level. Deepening our understanding of patent litigation will provide a perspective on whether or not the system is working, and based on that, how it may be improved.