

Patent Schisms

Clark D. Asay*

ABSTRACT: Parties frequently obtain patents for one purpose, only to use those patents for another. This Article calls such divergences between parties' initial motivations to obtain patents and those patents' predominant uses later on "patent schisms."

Because traditional patent law theories typically treat the purposes of patents as static, scholars have neglected to explicitly examine patent schisms and the reasons behind them. This is so despite the pervasiveness of patent schisms in a variety of important contexts. Those contexts include the patenting behaviors of early-stage companies, later-stage companies, so-called "patent trolls," and universities. In fact, patent schisms lie at the heart of some of the most controversial patent law topics, including whether patents should be considered a form of personal property or, instead, as a regulatory right.

This Article examines patent schisms and adds to the patent literature in three principal ways. First, it provides an account of the ubiquity of patent schisms in a variety of important settings. Second, it articulates three theories explaining how and why patent schisms arise. These hypotheses include the proposition that patenting an invention often creates economic and psychological incentives to ultimately use that patent in defiance of a party's original motivation to obtain the patent. Finally, the Article examines the normative and theoretical implications of the pervasiveness of patent schisms and the explanations behind them. These include briefly assessing whether treating patents as a form of personal property is the correct approach to ensuring that the patent system serves its constitutional purpose of promoting the progress of "science and the useful arts."

| | | |
|-----|--|----|
| I. | INTRODUCTION | 46 |
| II. | THE PURPOSES AND USES OF PATENTS | 50 |
| | A. WHY PARTIES OBTAIN PATENTS | 50 |
| | B. HOW PARTIES USE PATENTS..... | 52 |
| | 1. Early-Stage Companies | 53 |

* Associate Professor of Law, BYU Law School. J.D., Stanford. M.Phil, University of Cambridge. Thanks to Stephanie Plamondon Bair and Paul Stancil for helpful comments on earlier drafts of this Article.

| | |
|---|----|
| 2. Established Companies..... | 55 |
| 3. Patent Trolls..... | 57 |
| 4. Universities..... | 59 |
| III. EXPLAINING PATENT SCHISMS..... | 66 |
| A. <i>UNDER PRESSURE</i> | 66 |
| 1. Economic Pressure | 66 |
| 2. Psychological Pressure..... | 70 |
| B. <i>CHANGING CIRCUMSTANCES</i> | 73 |
| C. <i>INTRA-ORGANIZATION HETEROGENEITY</i> | 78 |
| IV. IMPLICATIONS | 81 |
| A. <i>PATENT DYNAMISM</i> | 82 |
| B. <i>EMPIRICAL WORK ON THE PURPOSES BEHIND PATENTING</i> | 89 |
| V. CONCLUSION | 91 |

I. INTRODUCTION

Why parties pursue patents and how parties ultimately use those patents are often treated as two sides of the same coin. For example, when Apple recently asserted several of its mobile-device patents against Samsung in high-stakes patent litigation,¹ one might view that assertion as evidence that Apple initially obtained the patents in order to fend off purported copyists such as Samsung.² Or, when high-tech companies use patents defensively to deter patent assertions against them, scholars might ascribe the party's motives for pursuing such patents as simply that: to better protect their freedom to operate.³

Yet while the reasons parties pursue patents and the ultimate uses of those patents may often be in sync, in many other cases they are not. A start-up company, for instance, may obtain patents primarily in order to attract venture capital funding.⁴ But later on, if the start-up becomes a public company, that company may view its patents primarily as assets to be monetized through licensing or litigation.⁵ As another example, a large

1. For some partial history of this case, see Adam Liptak & Vinu Goel, *Supreme Court Gives Samsung a Reprieve in Apple Patent Case*, N.Y. TIMES (Dec. 6, 2016), <https://www.nytimes.com/2016/12/06/technology/samsung-apple-smartphone-patent-supreme-court.html>.

2. See, e.g., Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745, 1750–52 (2012) (describing predominant patent law theory articulating this view).

3. Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 303–10 (2010) (describing the development of defensive uses of patents).

4. Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 644–45 (2002).

5. IBM is a good example of a company that has significantly repurposed many of its patents for monetization as it changed its IP strategy. See John C. Dvorak, *IBM Is the World's Biggest Patent*

public company may churn out patents primarily in order to build a large defensive patent portfolio, but later on decide that the best use for many of those patents lies in aggressive patent monetization efforts.⁶

Hence, why parties obtain patents and how they ultimately use those patents are distinct events with often differing motivations. Yet despite the likely frequency of such schisms in purpose, scholars have devoted little explicit attention to analyzing why and how such schisms develop.⁷ Scholars have spent considerable time proposing a number of distinct theoretical purposes that patents may serve.⁸ In doing so, scholars have recognized one aspect of the patent system's dynamism.⁹ But scholars up till now have neglected to explicitly focus on another important dimension of that dynamism: that patent owners frequently toggle between heterogeneous uses of the same patent throughout its roughly twenty-year lifecycle.¹⁰ This Article takes up that task.

Scholars have also spent considerable time analyzing discrepancies between patent law's purported purposes and patent law as implemented, including ways in which patents are used in defiance of those purposes.¹¹ But this Article, rather than focusing on discrepancies between patent law's purposes and whether patents are currently serving those purposes, instead homes in on schisms between a patent owner's own motivation in pursuing a patent and how the patent is ultimately used. Furthermore and importantly, it seeks to explain how and why these discrepancies arise, which questions scholars have, at most, only implicitly addressed.

These questions are important for at least three reasons. First, as Part II will explore, discrepancies between the purposes for which parties obtain patents and the ultimate uses of those patents—what I will hereafter refer to as “patent schisms”—appear to be pervasive in a variety of important settings.

Troll, PCMag (May 4, 2016, 8:00 AM), <http://www.pcmag.com/article2/0,2817,2493155,00.asp> (describing the transition of IBM from a product producer to a patent licensing outfit).

6. See generally Jeremy W. Bock, *Patent Quantity*, 38 U. HAW. L. REV. 287 (2016) (discussing the propensity of large firms to engage in “patent harvesting”).

7. For an example of scholarship that comes close, see generally Jeanne C. Fromer, *Should the Law Care Why Intellectual Property Rights Have Been Asserted?*, 53 HOUS. L. REV. 549 (2015) (assessing discrepancies between the purposes of patent law and how some parties actually use their patents).

8. See *infra* Section II.A.

9. See generally, e.g., Colleen V. Chien, *Opening the Patent System: Diffusionary Levers in Patent Law*, 89 S. CAL. L. REV. 793 (2016) (exploring ways by which to make the patent system more conducive to dynamic uses of patents).

10. *Id.* at 815–17.

11. See generally, e.g., JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* (2008) (arguing that patent law as implemented threatens the very purposes for which patents are intended and proposing judicial solutions to this crisis); DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009) (describing how patents often fail to promote innovation except in a few industries); Fromer, *supra* note 7.

Hence, it is vital to highlight this trend and examine the potential causes of it.

Second, patent schisms lie at the heart of some of the most important patent law controversies today. Consider, for instance, the topic of patent assertion entities or, more colloquially, “patent trolls”—patent owners that don’t make products or services, but sue others that do.¹² A frequent complaint against patent trolls is that they abuse the patent system for their own monetary benefit without providing offsetting societal benefits.¹³ In other words, the patent trolling has little to do with recouping costs associated with the inventive activity underlying the patent—the purpose for which the patent was presumably obtained in many cases—but instead simply consists of rent-seeking. Defenders of patent trolls, on the other hand, often claim that patent trolls’ activities help inventors obtain the financial rewards they need in order to continue innovating.¹⁴ Hence, the fight between the two sides is in large measure a fight over potential discrepancies between why the patent was obtained and how it is ultimately deployed. In fact, if patent trolls are simply a more efficient means by which innovators recoup the costs of their innovations, then much of the criticism against them withers.¹⁵ Hence, as a policy matter, better understanding patent schisms has real-world ramifications.

Third, investigating patent schisms is crucial to assessing the predominant theoretical justifications for patent law. These theories typically treat the purposes of patents as static: While in the aggregate they point to a number of purposes that patents may serve, they are static in that they seem to treat these varying purposes as independent of one another—and even, in some cases, at odds.¹⁶ But as the prevalence of patent schisms makes clear, in actual practice parties frequently toggle between different uses of the very same patent. This all suggests that the uses for patents are dynamic—even with respect to the same patent—rather than static.¹⁷ And recognizing this dynamism at a theoretical level is important for patent law itself. This is because, as legal scholars in other fields have recognized, laws reflecting a static view of the world often fail to achieve their purposes in dynamic environments.¹⁸

12. See generally Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013) (discussing underlying issues in the patent system that allow patent trolls to exist).

13. *Id.* at 2118.

14. See, e.g., Stephen H. Haber & Seth H. Werfel, *Patent Trolls as Financial Intermediaries? Experimental Evidence*, 149 ECON. LETTERS 64, 64–65 (2015).

15. *Id.*

16. See *infra* Section II.A.

17. See *infra* Part III.

18. See generally, e.g., Holly Doremus, *The Endangered Species Act: Static Law Meets Dynamic World*, 32 J.L. & POL’Y 175 (2010) (discussing how a static conception of nature embodied in the Endangered Species Act has rendered it less effective than it should be).

This Article articulates three theories to explain patent schisms. First, patents, once obtained, often take on lives of their own. As a form of personal property, owning patents can create both economic and psychological pressure to use the patents in some manner.¹⁹ Indeed, the economic pressure may be particularly significant since patenting is costly, and using patents can be a means of recouping some or all of those costs.²⁰ Hence, rather than as a means to recoup research and development costs, per classical patent law theory, patents may often function as a means of recouping the costs of patenting itself, or to vindicate some psychological sense of ownership over the patented thing.²¹ And in many cases, these ultimate, primary uses may differ significantly from the predominant purposes for which the party initially obtained the patents.²²

Second, a patent owner's economic and commercial circumstances may change in ways that affect how the patents are ultimately used.²³ For example, as alluded to above, a start-up company has a much different financial and business outlook than later when it matures into a public company, is acquired, or is liquidated, and such differences may affect how the company ultimately uses its patents. A company's business strategies may also frequently change, and those changes may result in patent schisms. In fact, this explanation is often implicit in studies that examine patent assertion as a business model.²⁴

Finally, patent schisms may frequently arise based on intra-organization heterogeneity. For instance, the group responsible for patenting within a company may pursue patents with one purpose in mind, but other parties within the company may identify other uses for the patents once obtained.²⁵ And ultimately, those other parties may succeed in influencing company leadership to use the patents for those new purposes.²⁶ Similarly, researchers at a university may seek patents for one set of reasons, but other forces within the university, once the patents are in hand, may wish to use the patents in ways that deviate from the inventors' motives for pursuing the patents.²⁷ Hence, intra-organization heterogeneity and principal-agent differences are also likely to contribute to patent schisms in many cases.

19. See *infra* Section III.A.

20. See *infra* Section III.A.

21. See *infra* Section III.A.

22. See *infra* Section III.A.

23. See *infra* Section III.B.

24. See generally, e.g., Kristen Osenga, *Formerly Manufacturing Entities: Piercing the "Patent Troll" Rhetoric*, 47 CONN. L. REV. 435 (2014) (examining the transition of many companies from producing products to primarily licensing activities).

25. See *infra* Section III.C.

26. See *infra* Section III.C.

27. See *infra* Section III.C.

After laying out these hypotheses and evidence in support of each, this Article assesses some possible theoretical and normative implications of patent schisms and the explanations behind them. On the one hand, patent schisms may frequently impose unnecessary costs on society. This may be particularly so in cases where parties pursue patents without an intention to ever enforce them, but later on those patents are, in fact, enforced against third parties. On the other hand, patent schisms may often be benign or even beneficial. For instance, many parties may obtain patents with the purpose of fending off would-be competitors, only to decide later on that donating those patents to a commons,²⁸ or simply letting them expire,²⁹ is the better business strategy. These and other possible implications of patent schisms will be explored in greater detail later in this Article.

This Article has three parts. Part II lays out the typical reasons scholars have identified for why parties pursue patents. It then examines a number of important contexts where patent schisms appear to arise, thereby defying these rather static theoretical accounts of patents. Part III articulates three theories to explain patent schisms. Part IV tackles the theoretical and normative questions as to whether and when patent schisms benefit society, and when they might harm it.

II. THE PURPOSES AND USES OF PATENTS

A. WHY PARTIES OBTAIN PATENTS

Why parties pursue patents is one of the most important theoretical inquiries in patent law. Consequently, scholars have devoted significant time to developing theories and gathering evidence as to what purposes patents serve. This Section does not attempt to cover this voluminous literature, but instead provides a snapshot of it to set the stage for the rest of the Article's analysis.

The dominant answer to the question is utilitarian: Patents provide parties with economic incentives to pursue socially beneficial behavior.³⁰ Without patents, for instance, inventors may be loath to pursue inventive activities because third parties could duplicate their inventions without incurring the same costs, and without any liability to the original inventor.³¹ Innovators may also be hesitant to further develop or commercialize inventions without some guarantee that third parties cannot simply copy their

28. Famously, Elon Musk of Tesla did just that by pledging not to use the company's patents against anyone that wanted to use its patents. See Elon Musk, *All Our Patent Are Belong to You*, TESLA (June 12, 2014), <https://www.tesla.com/blog/all-our-patent-are-belong-you>.

29. Patent owners must pay periodic maintenance fees in order to keep their patents alive, yet many patent owners allow their patents to expire. See 2015 *US Patenting Statistics*, ACCLAIM IP, <http://www.acclaimip.com/2015-us-patenting-statistics> (last visited Sept. 4, 2018). For instance, in 2015, 21.79% of all patents that came up for renewal were allowed to expire. *Id.*

30. Fromer, *supra* note 7, at 551–53.

31. See Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 736–38 (2012).

innovations once they become publicly available.³² Without patents, innovators may also be reluctant to share their innovations with third parties or the public because those third parties and members of the public may copy and realize value from the innovations without compensating the innovator.³³ In support of these utilitarian rationales, some survey evidence confirms that parties frequently pursue patents primarily as a means to prevent third parties from copying their innovations.³⁴

In some industries, parties may pursue patents largely as a defensive mechanism. There is evidence, for instance, that companies in the high-tech industries build up large patent portfolios primarily to deter patent aggression from third party competitors and otherwise safeguard their freedom to operate.³⁵ Hence, rather than offensive purposes, parties often pursue patents with defensive purposes in mind.

Parties may also pursue patents in order to signal information to capital, labor, and product markets.³⁶ For instance, some evidence indicates that start-up companies often pursue patents in order to signal to venture capitalists that the company is worth investing in.³⁷ Start-ups may also pursue patents at the behest of venture capitalists once those parties have invested in the companies.³⁸ Furthermore, parties may pursue patents in order to communicate information to others within their respective industries about their research and development activities or to recognize employees for their inventive accomplishments.³⁹

Parties may also pursue patents for reasons that are less economic in nature. For instance, parties may pursue patents because they feel some sort of kinship to their invention.⁴⁰ Indeed, having invested so much time and

32. See, e.g., Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 CORNELL L. REV. 1065, 1066–73 (2007) (discussing the “commercialization” theory of patents); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 275–80 (1977) (laying out the basics of the related “prospect” theory).

33. See generally Stephen Yelderman, *Coordination-Focused Patent Policy*, 96 B.U. L. REV. 1565 (2016) (discussing theories of patent law that focus on how patents facilitate coordination between parties).

34. Ted Sichelman & Stuart J.H. Graham, *Patenting by Entrepreneurs: An Empirical Study*, 17 MICH. TELECOMM. & TECH. L. REV. 111, 114 (2010).

35. Chien, *supra* note 3, at 308.

36. See generally Clark D. Asay, *The Informational Value of Patents*, 31 BERKELEY TECH. L.J. 259 (2016) (discussing these uses of patents).

37. Long, *supra* note 4, at 627–28; Sichelman & Graham, *supra* note 34, at 115 (finding evidence “that many startups rely heavily on patents as signals to the market to improve their chances of raising financing, being acquired, and going public”).

38. See Stuart J.H. Graham & Ted Sichelman, *Why Do Start-Ups Patent?*, 23 BERKELEY TECH. L.J. 1063, 1077–78 (2008).

39. Asay, *supra* note 36, at 276, 302.

40. See generally Stephanie Plamondon Bair, *The Psychology of Patent Protection*, 48 CONN. L. REV. 297 (2015) (exploring the relationship between psychology and patent incentives); Margaret Jane

effort into the invention, the inventor may simply want a patent as recognition that the invention belongs to them.⁴¹

B. HOW PARTIES USE PATENTS

Scholars have thus identified a number of reasons why parties pursue patents. Often, those same purposes are reflected in the ultimate uses of the patents. For instance, patent enforcement activities abound where it seems clear that use of the patent—to protect one’s inventive turf—accords with the purpose for which the party obtained the patent.

The pharmaceutical and biotechnology industries may be the best manifestation of such harmony.⁴² In those industries, the conventional wisdom is that heavy upfront investments make proceeding without patent protection foolhardy.⁴³ Hence, consistent with predominant patent law theory, parties in these industries pursue patents in order to prevent third parties from copying their innovations and thereby undermining their significant economic investments.⁴⁴ When parties in these industries assert their patents against third party copyists, we may thus feel fairly confident that the patent’s initial purpose and ultimate use are in sync.

We may observe similar harmony in other industries as well. For instance, Red Hat, a billion-dollar open source software company, has made it clear that it only obtains patents for defensive purposes.⁴⁵ This stated purpose has plenty of reasons, the most important of which is that the company relies on a community that views patents with intense suspicion.⁴⁶ Hence, when Red Hat actually uses its patents only defensively, we can be fairly certain that those uses are in concert with the purpose behind their initial acquisition.

Yet in many other cases, the ultimate uses of patents appear to diverge from the original purposes for obtaining those patents. The following subsections review several illustrative examples in a number of important settings.

Radin, *Property and Personhood*, 34 STAN. L. REV. 957 (1982) (exploring the relationship between property and self-development in the form of personhood).

41. See Bair, *supra* note 40, at 309.

42. See, e.g., W. Nicholson Price II, *Big Data, Patents, and the Future of Medicine*, 37 CARDOZO L. REV. 1401, 1452 (2016) (“The pharmaceutical and biomedical industries are typically characterized as areas where patents work fairly well . . .”).

43. See Joseph A. DiMasi & Henry G. Grabowski, *The Cost of Biopharmaceutical R&D: Is Biotech Different?*, 28 MANAGERIAL & DECISION ECON. 469, 476–77 & figs.3, 4 (2007) (indicating that average time-adjusted research and development costs are \$1.32 billion per new molecule approved by the Food and Drug Administration (“FDA”)).

44. See Price, *supra* note 42, at 1418–19.

45. *Red Hat’s Patent Promise*, RED HAT (Sept. 21, 2017), <https://www.redhat.com/en/about/patent-promise>.

46. See Clark D. Asay, *Enabling Patentless Innovation*, 74 MD. L. REV. 431, 460 (2015).

1. Early-Stage Companies

Start-up companies are one example where patent schisms are apparent. When surveyed, start-up companies list numerous reasons for patenting, including preventing others from copying their innovations, improving their chances of securing funding, obtaining licensing revenues, improving the chances and quality of future liquidity events (such as going public or being acquired), preventing patent infringement actions, improving negotiating positions, and enhancing the company's reputation.⁴⁷ Of these reasons, some survey evidence rates the first two—preventing copying and securing funding—as the most important reasons why start-up companies seek patents.⁴⁸ A significant literature supports the survey evidence pointing to the funding rationale in particular.⁴⁹

The “preventing copying” and “securing funding” rationales thus seem to motivate many start-ups to pursue patents.⁵⁰ Though start-up companies may recognize the other listed rationales as possible benefits of patents, those rationales, on their own, seem unlikely to convince many start-up companies to pursue patents. This is so for at least two related reasons. First, start-up companies are frequently severely resource-constrained,⁵¹ meaning a start-up's most immediate needs—obtaining more capital and otherwise ensuring survival—often take precedence over other courses of action with more distant potential benefits.⁵² Many of the other listed rationales for patenting promise future rather than immediate benefits. For instance, obtaining patent licensing revenues is uncommon for many start-up companies.⁵³ Going

47. Sichelman & Graham, *supra* note 34, at 157–59 & fig.2.

48. *Id.* at 157–58.

49. See, e.g., Joel A.C. Baum & Brian S. Silverman, *Picking Winners or Building Them? Alliance, Intellectual, and Human Capital as Selection Criteria in Venture Financing and Performance of Biotechnology Startups*, 19 J. BUS. VENTURING 411, 414–17 (2004) (reviewing a number of studies providing evidence that patents increase startup companies' ability to attract venture capital funding); David B. Audretsch et al., *Financial Signaling by Innovative Nascent Entrepreneurs* 17–19 (Ctr. for Econ. Policy Research, Discussion Paper No. 7165, 2009) (finding that start-up companies with patents or patent applications as well as prototyped innovations are more likely to obtain equity finance); Joan Farre-Mensa et al., *What is a Patent Worth? Evidence from the U.S. Patent “Lottery”* 4 (USPTO Econ., Working Paper No. 2015-5, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2704028 (finding that start-ups that obtain patents receive more venture capital funding, loans from banks, and funding in IPO markets).

50. Sichelman & Graham, *supra* note 34, at 149.

51. See Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1310 (2009) (pointing to the costs of patenting as the main reason why many start-up companies forego patenting entirely).

52. Susan C. Morse, *Entrepreneurship Incentives for Resource-Constrained Firms*, in HANDBOOK OF LAW & ENTREPRENEURSHIP (forthcoming) (manuscript at 6–9), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2960323 (discussing how start-up firms often prioritize their activities based on immediate benefits over long-term ones).

53. Ronald J. Mann & Thomas W. Sager, *Patents, Venture Capital, and Software Start-ups*, 36 RES. POL'Y 193, 200 (2007) (“On rare occasions, patents might generate licensing revenues, but that is quite uncommon for software startups and rarely, if ever, the ex ante aim of a venture capital investment.”).

public or being acquired are also typically later-stage phases of a start-up company's development.⁵⁴ Improving negotiation positions is also irrelevant for many start-up companies, simply because many start-ups do not have marketable products yet to negotiate over.⁵⁵

Second and related, patenting is extremely costly and time-consuming.⁵⁶ In fact, start-up companies often neglect patenting entirely because of its steep costs.⁵⁷ The high costs of patenting, when viewed in light of many start-up companies' severe resource constraints, make it even more likely that start-ups will primarily patent when doing so also serves an immediate purpose such as securing more capital or otherwise helping ensure short-term survival.

Yet when start-up companies mature, how they ultimately use their patents often diverges from these initial motivating purposes. For instance, a start-up that has gone public may view the previously vital purpose of securing capital as nearly irrelevant. In fact, evidence shows that more mature companies place very little importance on patents as vehicles for securing capital.⁵⁸ Furthermore, these now mature companies may more frequently license their patents to third parties to obtain licensing revenues, a purpose that was at most ancillary to their primary purposes behind obtaining the patents.⁵⁹ In fact, these licensing activities stand in stark contrast to many start-up companies' primary purpose of preventing third parties from copying their innovations. Licenses, after all, constitute permission from the patent holder for the third party to use and, in many cases, reproduce the patented invention in its own products.⁶⁰

54. Jason Rowley, *Here's How Likely Your Startup Is to Get Acquired at Any Stage*, TECHCRUNCH (May 17, 2017), <https://techcrunch.com/2017/05/17/heres-how-likely-your-startup-is-to-get-acquired-at-any-stage> (discussing the many stages of a start-up company's lifecycle and the stages at which they are typically acquired).

55. See Rob Go, *How a Seed VC Approaches Pre-Product Startups*, NEXTVIEW (Dec. 8, 2015), <http://nextviewventures.com/blog/how-a-seed-vc-approaches-pre-product-startups> (discussing venture capital strategies for evaluating pre-product startups, in which some VCs, such as the author of the article, invest frequently); Brian Solomon, *These 11 Startups Raised the Most Money Before They Had a Product*, FORBES (June 11, 2015, 1:25 PM), <https://www.forbes.com/sites/brian-solomon/2015/06/11/these-11-startups-raised-over-1-billion-combined-before-launching> (discussing the funding success of certain start-up companies that, at the time of their significant funding, had not yet developed a product).

56. See Graham et al., *supra* note 51, at 1310 (pointing to the costs of patenting as the main reason why many start-up companies forego patenting entirely).

57. *Id.*

58. Sichelman & Graham, *supra* note 34, at 147 (reviewing several studies finding that the signaling function of patents for funding purposes was one of the least important purposes of patents).

59. See, e.g., Hannibal Travis, *Patent Alienability and Its Discontents*, 17 TUL. J. TECH. & INTELL. PROP. 109, 119–20 (2014) (pointing to patent licensing by major U.S. technology companies as a significant source of revenue for those companies).

60. See generally ALEXANDER I. POLTORAK & PAUL J. LERNER, *ESSENTIALS OF LICENSING INTELLECTUAL PROPERTY* (2004) (discussing the many forms intellectual property licenses can take, including licenses that permit the third party to reproduce the licensed technology).

At more mature stages, companies may also place greater stock in their patents as bargaining chips. In some industries, patent holders accumulate significant patent portfolios over time, which they then use to obtain more favorable deals with third parties.⁶¹ Hence, despite the potential for improving negotiation positions likely only being an ancillary purpose of patenting for many start-ups, that purpose may very well become the patent's primary purpose later on in the company's lifecycle.⁶²

In sum, it seems clear that, in many cases, the primary purposes for which early-stage companies pursue patents diverge from those patents' later (and primary) uses. Why such patent schisms develop, and their normative implications, will be explored in greater detail in Parts II and III.

2. Established Companies

Larger, more established companies may also obtain patents primarily for one purpose, only to end up using them mainly for another. Like start-up companies, large companies, when surveyed, list a number of possible reasons for pursuing patents.⁶³ Preventing copying is often listed as the most important reason behind patenting.⁶⁴ Other reasons include preemptive patenting (i.e., patenting inventions before competitors but then not otherwise using or licensing those patents); improving negotiating, licensing, and litigation positions (i.e., what is often collectively called "defensive" patenting); signaling technical and product image to the market; signaling employee performance; signaling information to capital markets; securing licensing fees; and easing entry into foreign markets.⁶⁵ Given this range of possible patenting purposes, it is often difficult to say with precision in any given situation what motivated a large company to pursue a patent; often the motive is likely multi-faceted.⁶⁶

Be that as it may, in some industries the primary motivations behind patenting are clearer. As briefly mentioned above, large high-tech companies frequently obtain patents *en masse* for defensive purposes as part of an industry-wide "arms race."⁶⁷ The logic of defensive patenting is that stockpiling patents helps preserve a party's "freedom to operate."⁶⁸ For instance, a party's patent stockpile is meant to deter third parties from patent hostilities, because any attempt to enforce patents against that party will result

61. See Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U.P.A.L. REV. 1, 65 (2005).

62. *Id.*

63. Schelman & Graham, *supra* note 34, at 146–47 (summarizing many of these studies).

64. *Id.*

65. *Id.*

66. In fact, some scholars say parties often pursue patents simply because doing so conforms to the norms within their industries. See Dan L. Burk, *On the Sociology of Patenting*, 101 MINN. L. REV. 421, 442 (2016).

67. See Chien, *supra* note 3, at 302–03.

68. *Id.* at 299, 317.

in return fire.⁶⁹ The patent stockpile is also meant to ensure a party's freedom to operate by improving its bargaining positions in license negotiations and when joining patent pools.⁷⁰

Many high-tech companies thus engage in "patent harvesting," where patent lawyers work with technologists and other personnel to ensure that most, if not all, patentable innovations make their way into a patent application.⁷¹ Patent harvesting programs even frequently include yearly patent goals or quotas.⁷²

Yet large high-tech companies often ultimately use such patents for purposes that diverge from their defensive-minded beginnings. For instance, the significant costs of building up and maintaining large patent portfolios have led some high-tech companies to seek ways to monetize some or all of their patents.⁷³ Such monetization efforts include offensive licensing campaigns and selling patents to third parties, including to so-called patent trolls.⁷⁴ And as subsection 3 below will explore, when patent trolls obtain such patents, they use them for purposes anything but defensive in nature. Hence, despite their defensive beginnings, many patents from large companies' patent stockpiles are ultimately retooled for offensive purposes.⁷⁵

Large high-tech companies use their originally defensive patents in other ways that diverge from strictly defensive purposes. For example, many large high-tech companies, including IBM, Microsoft, Google, and others, have begun "pledging" segments of their patent portfolios to various causes, including for the promotion of open source software development.⁷⁶ In such scenarios, the patent pledger commits not to enforce its patents against certain types of parties, with respect to certain types of uses.⁷⁷ While patent pledging may be more akin to a defensive use of patents than an offensive one, it goes beyond strictly defensive purposes by formally abdicating patent rights in pursuit of a variety of objectives.⁷⁸

Of course, even in the high-tech industries, it is impossible to say that all instances of patenting have the same defensive motives, even if we can identify defensive patenting as a predominant trend in the industry. It can even be argued that any purported divergences from this trend are illusory, because

69. *Id.* at 317.

70. *Id.* at 307–10, 321–22.

71. Bock, *supra* note 6, at 305–07.

72. *Id.* at 309–13.

73. *Id.* at 313.

74. *Id.* at 293, 313.

75. Chien, *supra* note 3, at 342–44.

76. See, e.g., Jorge L. Contreras, *Patent Pledges*, 47 ARIZ. ST. L.J. 543, 548–52 (2015).

77. *Id.* at 546.

78. See generally Asay, *supra* note 36 (arguing that patent holders that pledge their patents to the public do so in many cases in order to credibly signal information about themselves to capital, labor, and product markets).

the allegedly divergent uses may simply be cases where the patent holder actually obtained the patent with that purpose in mind (rather than the typical defensive reasons for patenting prevalent in those industries).⁷⁹

This critique may certainly apply in some cases. But it becomes less concerning once plausible explanations of how and why patent schisms develop are taken into account. Part III provides those explanations. Furthermore, when industries show dominant trends in terms of why parties pursue patents, we may feel fairly confident that at least some observed divergences from those trends in how patents are ultimately used are, in fact, true divergences.

Aside from the high-tech industries, other industries manifest predominant trends in terms of why companies in those industries pursue patents. In the biotechnology and pharmaceutical industries, for instance, the dominant reason why parties pursue patents is clear: to prevent third parties from copying their patented innovations and thereby undermining their significant investments in developing their innovations.⁸⁰ Yet in these industries, we also observe growing divergences from this predominant purpose.⁸¹ Like IBM, Microsoft, and Google, biotechnology and pharmaceutical companies have also begun to engage in patent pledging by committing to forego asserting their patents in certain situations.⁸² Again, while it is possible that such patent pledging remains true to the original purposes behind the patenting, it seems more likely that these pledging scenarios represent a true divergence from the original purposes behind the patents' acquisition in light of the typical reasons why parties in these industries seek patents. This is particularly so since patent pledging is a relatively new (though growing) phenomenon.⁸³

Hence, in many cases more established companies also appear to obtain patents with one purpose in mind, only to use them primarily for another. And while the range of possible reasons for patenting make it difficult to identify true patent schisms in some cases, dominant patenting trends in certain industries instill greater confidence that at least some of the divergences from those dominant purposes represent true discrepancies.

3. Patent Trolls

So-called patent trolls are another example where patent schisms are apparent. As mentioned above, patent trolls have been one of the more controversial patent law topics in recent years.⁸⁴ One of the primary reasons

79. This same critique applies to the analysis above with respect to start-ups and the more typical reasons that they pursue patents.

80. Price, *supra* note 42, at 1406–07.

81. Contreras, *supra* note 76, at 554–55.

82. *Id.* at 555–56.

83. *See generally id.* (discussing the historical development of patent pledging).

84. *See generally* Lemley & Melamed, *supra* note 12 (discussing the growth of patent trolling).

patent trolls are so controversial is because many believe that they extract rents from productive parties without actually contributing anything to innovation—the very purpose of the patent system.⁸⁵ They purportedly do so by waiting until certain innovations have become embedded in the marketplace and then asserting patents that could plausibly cover those innovations, but which do not cover “true innovation,” against parties using those innovations.⁸⁶ In fact, often patent trolls wait to acquire such patents until after a particular innovation is in wide use.⁸⁷ In other cases, they may already own a patent that could be read to cover the innovation, but they still wait until the innovation is embedded in the marketplace before asserting the patent.⁸⁸

Defenders of patent trolls contest these claims, arguing that patent trolls facilitate innovation by helping to create a viable market for patent rights.⁸⁹ For example, the high costs of enforcing patents make it impossible for small, independent inventors to effectively enforce those rights and thereby obtain economic returns on their innovative activities.⁹⁰ The patent troll middleman steps in to perform this enforcement service.⁹¹ Other market inefficiencies may also make it difficult for some patent owners to effectively license their patents to parties that could use or already are using their patented ideas.⁹² Again, the patent troll middleman purportedly steps in to address these market inefficiencies.⁹³

Hence, the primary conflict between these two sides revolves around whether patent trolling serves the purposes of the patent system.⁹⁴ This Article’s focus is related but distinct: whether patent trolling (i.e., the patent’s ultimate use) serves the original purposes behind the patent’s acquisition (by the original patent owner, which is often not the patent troll).

In many cases the answer is clearly not. Patent trolls often source their patents from large companies looking to obtain some economic remuneration from patents in their patent portfolio that they deem expendable.⁹⁵ It seems highly dubious that these companies initially obtained such patents for purposes of mass assertion by patent trolls. Instead, as

85. See Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583, 1587 (2009) (indicating that the real problem with patent trolls is that they “make little or no contribution to actual innovation”).

86. *Id.* at 1590–91.

87. *Id.* at 1591.

88. *Id.*

89. *Id.* at 1588.

90. *Id.*

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.*

95. Chien, *supra* note 3, at 340–41.

previously discussed, large companies obtain patents for a variety of reasons, none of which clearly track onto this later patent troll use.⁹⁶

Even small independent innovators that sell their patents to patent trolls often likely acquired their patents with a different purpose in mind. They may, of course, have hoped to ultimately monetize their patents in some way or another. But it seems unlikely that many of them pursued their patents with an explicit intention to later sell the patent to a patent troll. Of course, as patent trolling has become more entrenched, at least some innovators, both big and small, may now pursue patents with such a purpose in mind. But at least with respect to earlier innovators, such a proposition seems doubtful.

In other cases, the opposite is clearly true. Large patent assertion entities, for instance, often now have internal research and development teams that pursue patents with a clear purpose of later enforcing and/or licensing those patents as part of their business model.⁹⁷ Such activities thus clearly align with the purposes behind the patents' initial acquisition. And as mentioned above, it may be that increasingly more third parties that eventually sell their patents to patent trolls initially acquired their patents with precisely that purpose in mind. Nonetheless, at least with respect to much of the patent trolling in recent memory, patent schisms are clear.

4. Universities

Patent schisms may also frequently arise in the university context. The 1980 Bayh–Dole Act allows universities to patent the inventive activities of their personnel, even though government funding supports the vast majority of those activities.⁹⁸ The Act's basic rationale is that allowing universities to patent their employees' inventions will facilitate commercialization of those inventions, thereby increasing their availability to and use by the public.⁹⁹ Since the Act's passage, patenting at universities has surged,¹⁰⁰ though

96. See *supra* Section II.B.2.

97. See, e.g., *Intellectual Ventures Laboratory*, INTELLECTUAL VENTURES, <http://www.intellectualventures.com/inventions-patents/iv-lab> (last visited Sept. 4, 2018) (describing Intellectual Ventures' efforts to develop patentable inventions on its own, which supplement its efforts to acquire patents from third parties).

98. See ASS'N OF AM. UNIVS., *UNIVERSITY RESEARCH: THE ROLE OF FEDERAL FUNDING* 1 (2011), <https://files.eric.ed.gov/fulltext/ED517263.pdf> (“[T]he federal government supports about 60% of the research performed at universities.”). See generally Gary Pulsinelli, *Share and Share Alike: Increasing Access to Government-Funded Inventions Under the Bayh-Dole Act*, 7 MINN. J.L. SCI. & TECH. 393 (2006) (describing how the government funds a large percentage of university research projects).

99. Pulsinelli, *supra* note 98, at 394.

100. David C. Mowery et al., *The Effects of the Bayh-Dole Act on U.S. University Research and Technology Transfer*, in *INDUSTRIALIZING KNOWLEDGE: UNIVERSITY-INDUSTRY LINKAGES IN JAPAN AND THE UNITED STATES* 269 (Lewis M. Branscomb et al. eds., 1999) (noting the increase in patenting since the Act's passage while examining a number of factors, including the Act, that seem to have contributed to this surge); Tom Coupé, *Science Is Golden: Academic R&D and University Patents*, 28 J. TECH. TRANSFER 31, 43 (2003) (finding patenting has surged in the wake of the Bayh–Dole Act's passage).

whether that patenting has helped achieve the Act's purposes remains a hotly contested issue.¹⁰¹

Why do universities pursue patents? Economic motivations seem to predominate.¹⁰² Many universities have identified patenting as a potential source of new revenue.¹⁰³ Such revenues can come in a variety of forms, including licensing the patents to interested third parties, forming "spin-off" companies to commercially exploit the patented technologies,¹⁰⁴ or enforcing the patents against third-party infringers.¹⁰⁵ To these ends, most major research universities have taken steps to emphasize patenting, including by creating technology transfer offices ("TTO") that are responsible for obtaining, licensing, and enforcing the university's patent portfolio.¹⁰⁶

Yet in order to patent the inventions of its academic researchers, a university and its TTO need the cooperation and initiative of those researchers.¹⁰⁷ This is because universities generally "lack the resources and competencies necessary to 'search' a wide range of laboratories and research groups for commercially viable technologies."¹⁰⁸ In fact, some evidence indicates that "convincing faculty to disclose inventions" is one of the most significant problems TTOs face in patenting university inventions.¹⁰⁹ Consequently, academic researchers must also have incentives to pursue patents for university patenting to occur.¹¹⁰

101. See, e.g., Arti K. Rai & Rebecca S. Eisenberg, *Bayh-Dole Reform and the Progress of Biomedicine*, 66 LAW & CONTEMP. PROBS. 289, 291 (2003) (arguing that the Act is failing to achieve its objectives because biomedical research has changed so dramatically since the Act's passage).

102. See generally Peter Lee, *Patents and the University*, 63 DUKE L.J. 1 (2013) (describing a variety of developments that have contributed to increased university patenting, including universities embracing patenting).

103. *Id.* at 39; Robert E. Litan et al., *Commercializing University Innovations: Alternative Approaches*, 8 INNOVATION POLY & ECON. 31, 41 (2007) ("[M]any universities began to look to technology transfer—and the offices that were in charge of it, the TTOs—as new potential sources of revenue.").

104. See Ruth Simon, *Universities Push Harder into Realm of Startups*, WALL. ST. J. (Dec. 17, 2014, 1:59 PM), <https://www.wsj.com/articles/universities-push-harder-into-realm-of-startups-1418842795> (describing a growing trend at many universities of seeking to encourage entrepreneurial activities, including by way of "spinning off" patented technologies into companies meant to exploit those technologies).

105. Brian J. Love, *Do University Patents Pay Off? Evidence from a Survey of University Inventors in Computer Science and Electrical Engineering*, 16 YALE J.L. & TECH. 285, 289–91 (2014) (reviewing the growing number of lawsuits initiated by universities against large technology companies).

106. WALTER D. VALDIVIA, CTR. FOR TECH. INNOVATION AT BROOKINGS, *UNIVERSITY STARTUPS: CRITICAL FOR IMPROVING TECHNOLOGY TRANSFER* 6 (2013), https://www.brookings.edu/wp-content/uploads/2016/06/Valdivia_Tech-Transfer_v29_No-Embargo.pdf (reporting on the significant growth of TTOs since passage of the Bayh–Dole Act).

107. Jason Owen-Smith & Walter W. Powell, *To Patent or Not: Faculty Decisions and Institutional Success at Technology Transfer*, 26 J. TECH. TRANSFER 99, 104 (2001).

108. *Id.* at 99.

109. Richard A. Jensen et al., *Disclosing and Licensing of University Inventions: 'The Best We Can Do with the S**t We Get to Work With'*, 21 INT'L J. INDUS. ORG. 1271, 1272 (2003).

110. Owen-Smith & Powell, *supra* note 107, at 99–100.

What motivates academic researchers to disclose inventions to their TTOs in pursuit of a patent? Some evidence shows that patents frequently fail to motivate academic researchers to do more or better research.¹¹¹ In fact, other evidence suggests that many academic researchers view patents as having a mostly negative effect on their research efforts,¹¹² which may help explain why they are sometimes reluctant to disclose inventions to their TTOs.¹¹³ Scholars have pointed to a number of reasons why patents may have such negative effects.¹¹⁴

Despite these possible issues, academic researchers may be motivated to pursue patents for at least four reasons. First, faculty inventors may seek patents because the university's norms and policies encourage it.¹¹⁵ As discussed above, universities have largely embraced patenting since the 1980 Bayh–Dole Act because of patents' commercial prospects. And though university TTOs face challenges in educating and convincing academic researchers to disclose their inventions,¹¹⁶ doing so remains an important part of their day-to-day activities as they seek to maximize patent revenues.¹¹⁷ Furthermore, peers' patenting activities may influence faculty inventors to seek patents themselves. Hence, given the increasingly embedded nature of patenting at many universities, academic researchers may be motivated to pursue patents in part because the university so actively encourages them to do so.

111. Love, *supra* note 105, at 295.

112. See, e.g., Zhen Lei et al., *Patents Versus Patenting: Implications of Intellectual Property Protection for Biological Research*, 27 NATURE BIOTECH. 36, 36 (2009) (finding in a survey of agricultural biologists that “proliferation of IP protection has a strongly negative effect on research in their disciplines”); Isaac Rabino, *How Human Geneticists in US View Commercialization of the Human Genome Project*, 29 NATURE GENETICS 15, 15 (2001) (finding in a survey of 1,200 U.S. geneticists in industry, government, and academia that approximately three-quarters of those surveyed disapproved of patenting DNA, while half indicated that genetic testing patenting had at some point limited their research activities).

113. Jensen et al., *supra* note 109, at 1272.

114. See, e.g., Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77, 79–80 (1999) (arguing that many intellectual property laws applicable to scientific research conflict with the norms of scientific research). See generally Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177 (1987) (arguing that intellectual property laws often conflict with normal scientific research procedures); Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998) (discussing how large numbers of patents in biomedical research may hamper innovation in the field).

115. See generally Burk, *supra* note 66 (arguing that many parties may seek patents simply because doing so conforms to the norms within that industry).

116. Jensen et al., *supra* note 109, at 1272.

117. Litan et al., *supra* note 103, at 32–33 (arguing that TTOs typically focus on maximizing patent licensing, to the detriment of other worthy innovation-related goals).

Second and related, some universities have begun to take patents into account when considering tenure and promotions.¹¹⁸ In fact, some survey evidence indicates that many academic researchers believe that patenting plays a positive role in tenure and promotion decisions.¹¹⁹ Thus, academic researchers may be motivated to pursue patents because doing so increases their chances of obtaining tenure and other types of promotions.¹²⁰

Third, academic researchers may seek patents for purposes of recognition and prestige in their field.¹²¹ A good amount of scholarship suggests that the pursuit of recognition and prestige—specifically in the form of being the first to make an important discovery—frequently motivates university researchers in their academic pursuits.¹²² And patents are one means by which to achieve such recognition.¹²³ In fact, the United States Patent Office is only supposed to grant patents once it has determined that the applicant was the first to come up with a particular inventive idea and that the inventive idea is nonobvious in light of what others have already accomplished.¹²⁴

Fourth and importantly, academic researchers may be motivated to pursue patents because they are interested in the technology's commercial prospects. For instance, the academic researchers behind the patents may be entitled to significant patent royalties stemming from licensing those patents to third parties, even though universities typically own the patents associated

118. See, e.g., Goldie Blumenstyk, *U. of Maryland to Count Patents and Commercialization in Tenure Reviews*, CHRON. HIGHER EDUC. (June 13, 2012), <http://www.chronicle.com/article/U-of-Maryland-to-Count/132261> (noting over a dozen research universities that now recognize patents and commercialization activities in tenure decisions).

119. Love, *supra* note 105, at 330–31 (noting in a survey of university inventors in computer science and electrical engineering that “a large percentage of respondents reported that their universities at least informally take professors’ patent activities into consideration when deciding whether to advance professors’ careers”).

120. See generally Paul R. Sandberg et al., *Changing the Academic Culture: Valuing Patents and Commercialization Toward Tenure and Career Advancement*, 111 PROC. NAT’L ACAD. SCI. U.S. 6542 (2014) (urging more universities to explicitly adopt policies that count patents and commercialization activities in favor of tenure and other promotions).

121. *Id.* at 6543 (“Successful technology transfer [enabled by patents] brings recognition to universities and helps communicate, in a tangible way, the impact of university research, which might otherwise seem esoteric.”).

122. See Alice Lam, *What Motivates Academic Scientists to Engage in Research Commercialization: ‘Gold,’ ‘Ribbon’ or ‘Puzzle’?*, 40 RES. POL’Y 1354, 1354–55 (2011) (reviewing the “Mertonian” view of scientific research where academic researchers conduct their activities largely in pursuit of peer recognition and finding that the increasing commercialization of academic activities has not displaced this central motivation).

123. Sandberg et al., *supra* note 120, at 6542; see also Love, *supra* note 105, at 332–33 (finding that more than a third of survey respondents in the computer science and electrical engineering fields view “patents as enhance[ing] their universities’ and their own reputations”).

124. See 35 U.S.C. §§ 102–103 (2012) (setting forth patent law’s novelty and non-obviousness requirements).

with their academic researchers' inventions.¹²⁵ Furthermore, some academic researchers may have an interest in working with or for companies that commercialize the patented technologies.¹²⁶ Such companies can include start-ups spun out of the university with an explicit goal of commercializing the patented technology or other third parties that wish to license the patented technology for any number of commercial purposes.¹²⁷

Yet these motivations of academic researchers to pursue patents may frequently conflict with the ultimate purposes for which the university uses the patents. TTOs, for instance, with their monopolistic power over patenting activities at a university, may use the patents in a number of ways that deviate from the reasons faculty inventors pursued the patents in the first place.¹²⁸ This is so partly because TTOs act as agents not only for faculty inventors, but for the broader university as well—effectively making them “dual agents.”¹²⁹ Their frequent emphasis on maximizing patent licensing revenues in pursuit of the university's perceived interest may thus lead TTOs to use patents in ways that diverge from the academic inventors' purposes in pursuing the patent.¹³⁰

For instance, an academic that pursues a patent primarily for the purposes of recognition and prestige—to demonstrate that she was the first in her field to come up with an inventive idea—may frequently see that patent ultimately used for purposes having nothing to do with her academic reputation. In fact, the TTO's ultimate use may actually undermine that purpose by, for instance, limiting access to and use of the patented technologies. The dual agent TTO, after all, is frequently primarily concerned with maximizing licensing revenues for the university.¹³¹ To that end, the

125. See 35 U.S.C. § 202(c)(7)(B) (requiring that contractors such as universities “share royalties with the inventor”); Mario Cervantes, *Academic Patenting: How Universities and Public Research Organizations Are Using Their Intellectual Property to Boost Research and Spur Innovative Start-Ups*, WORLD INTELL. PROP. ORG., http://www.wipo.int/sme/en/documents/academic_patenting.html (last visited Sept. 6, 2018) (noting that in many countries, including the United States, “[t]he right to [patent] ownership has now been transferred to the universities while academic inventors are given a share of royalty revenue in exchange”).

126. See, e.g., Markus Perkmann et al., *Academic Engagement and Commercialisation: A Review of the Literature on University-Industry Relations*, 42 RES. POL'Y 423, 423–24 (2013) (discussing both “commercialization” and “academic engagement” with industry as ways by which academic research is transferred to society).

127. Rory P. O'Shea et al., *Determinants and Consequences of University Spinoff Activity: A Conceptual Framework*, 33 J. TECH. TRANSFER 653, 654–55 (2008) (reviewing the literature relating to how various scholars define university “spinoffs”).

128. Litan et al., *supra* note 103, at 41–43.

129. Jensen et al., *supra* note 109, at 1272–73.

130. Litan et al., *supra* note 103, at 41–42. See generally Gideon D. Markman et al., *Innovation Speed: Transferring University Technology to Market*, 34 RES. POL'Y 1058 (2005) (finding that a vast majority of TTOs preferred patent licenses for cash as their mechanism for commercializing patents).

131. Litan et al., *supra* note 103, at 41–43.

TTO may aggressively enforce the patent against outside entities,¹³² which enforcement activity may conflict with the faculty inventor's academic motives for pursuing the patent.¹³³ Or the TTO may severely restrict licensing of the patented technologies, thereby hampering access to the patented technologies in ways that limit the faculty's inventor's impact in her field. In other words, because the TTO's restrictive licensing approach limits the patented technologies' use and dissemination, the faculty inventor's contribution to the field may earn less recognition than otherwise, thereby depriving the faculty inventor of academic notoriety.¹³⁴

Similarly, if a faculty inventor pursues a patent with tenure and other promotions in mind, the TTO's aggressive licensing and/or enforcement of the patent clearly deviates from that purpose. Despite this deviation, such ultimate uses may not harm the faculty inventor's promotion prospects. In fact, if those uses prove successful in earning the university monetary returns, the TTO's enforcement actions may actually aid the faculty inventor in achieving their desired promotions because the university may view the faculty inventor's patenting activities more favorably. But in cases where promotion considerations motivated the faculty inventor to pursue a patent, aggressive patent enforcement or restrictive licensing still diverges from those motivations, even if the ultimate patent uses and those initial motivations do not otherwise conflict.

Aggressive TTO patent enforcement and licensing may also frequently deviate from the motivations of those faculty inventors that primarily pursue patents to conform to the university's patenting norms. This may not always be true. For example, faculty inventors that pursue patents to conform with university norms may also recognize and accept the TTO's norms regarding patents: to maximize patent licensing revenues.¹³⁵ Hence, their motivation to conform may also often include conformance to their university's general approach to patent use.

But in other cases such alignment seems dubious. For instance, faculty inventors may often be ignorant of how their TTO typically enforces and

132. Love, *supra* note 105, at 289–90.

133. See, e.g., AM. ASSOC. UNIV. PROFESSORS, DEFENDING THE FREEDOM TO INNOVATE: FACULTY INTELLECTUAL PROPERTY RIGHTS AFTER *STANFORD V. ROCHE* 5–15 (2014), https://www.aaup.org/file/aaupBulletin_IntellectualPropJune5.pdf (describing conflicts between many universities' interests in enforcing patents and faculty inventors' interests in disseminating the patented technologies as widely as possible).

134. Of course, aggressive patent enforcement and licensing approaches may also bring a faculty inventor greater notoriety should, for instance, the responsible TTO earn a headlines-grabbing verdict or licensing deal. While it is debatable whether that type of notoriety matches the academic type that may motivate many academic inventors to pursue patents, some evidence suggests that such “homerun” enforcement activities are far and few between. See VALDIVIA, *supra* note 106, at 11 (finding that only a few select universities make money off their patents, while most universities lose money on their patenting practices).

135. Litan et al., *supra* note 103, at 41–43.

licenses patents.¹³⁶ In such cases, the TTO's subsequent patent licensing and enforcement activities are more likely to diverge from the faculty inventor's motivation to pursue the patent based on a desire to conform. Or the faculty inventor may be aware of their TTO's approach and generally disagree with it, while still pursuing patents on their inventions based on a desire to conform to the university's policies and procedures.¹³⁷ Indeed, scholars have long noted that people in groups manifest a strong conformity bias, even when conforming may not be in their best interest or have other negative effects.¹³⁸

Even when a faculty inventor pursues a patent with commercial activity in mind, the TTO's ultimate commercial uses may often fail to align with her own commercial purposes in pursuing the patent. In fact, faculty inventors frequently complain that their TTOs' focus on maximizing licensing revenue often gets in the way of successfully commercializing the patented technologies.¹³⁹ This may be so because the TTO prefers more restrictive licensing terms (e.g., an exclusive license to one party), whereas the faculty inventor views more permissive terms (e.g., multiple non-exclusive licenses) as more conducive to successfully commercializing the technology.¹⁴⁰

Of course, as in other contexts, academic researchers may have multiple reasons for pursuing patents that need not be mutually exclusive. For instance, a researcher may want to patent her inventive idea in order to be recognized, while also hoping to ultimately help commercialize the idea. The point here is not to say that all university patents are motivated purely for one purpose or another. Instead, in some and perhaps many cases, the primary motive may center on a particular purpose—even if the academic recognizes and appreciates other possibilities associated with the patent. And importantly, that primary purpose in pursuing the patent, whether it be in pursuit of recognition, conformity, promotions, or money, frequently diverges from how the university ultimately uses the patent, resulting in patent schisms.

136. See, e.g., Anthony Warren et al., *Models for University Technology Transfer: Resolving Conflicts Between Mission and Methods and the Dependency on Geographic Location*, 1 CAMBRIDGE J. REGIONS, ECON. & SOC'Y 219, 220 (2008) ("It is often the case that academic institutions simply do not have faculty who think in terms of entrepreneurial development." (citation omitted)).

137. See generally Solomon E. Asch, *Effects of Group Pressure on the Modification and Distortion of Judgments*, in GROUPS, LEADERSHIP AND MEN 177 (Harold Guetzkow ed., 1963) (describing research showing that individuals often conform their behavior to group pressures, even in situations where doing so is contrary to fact).

138. *Id.*

139. Love, *supra* note 105, 326–28.

140. AM. ASSOC. UNIV. PROFESSORS, *supra* note 133, at 4.

III. EXPLAINING PATENT SCHISMS

The previous Part explored a number of contexts in which patent schisms are apparent. But why do such patent schisms develop? This Part develops three hypotheses explaining these schisms and points to some evidence for each.

First, patents, once obtained, may create both economic and psychological pressure for the patent owner to use the patents in some manner. Second, the economic and commercial prospects of a patent owner may change in ways that lead the party to utilize its patents in ways that diverge from the party's initial purpose in obtaining the patent. And finally, intra-organization heterogeneity, including principal-agent issues, may often help explain patent schisms. The following sections examine each of these hypotheses in turn.

A. UNDER PRESSURE

1. Economic Pressure

Patenting an invention is expensive.¹⁴¹ While costs vary depending on a number of factors, a typical patent can cost tens of thousands of dollars to obtain.¹⁴² Furthermore, effectively patenting an invention often requires filing multiple patent applications, because failure to do so may leave the invention underprotected.¹⁴³ In order to guard against third-party workarounds, for example,¹⁴⁴ a party might pursue an initial application on its core technology, but then also file applications for the design of the invention, others for improvements to the invention, and yet others for methods of using it.¹⁴⁵ Because patent law is territorial,¹⁴⁶ effective patent protection also often requires parties to file patents in multiple jurisdictions

141. See Gene Quinn, *The Cost of Obtaining a Patent in the US*, IPWATCHDOG (Apr. 4, 2015), <http://www.ipwatchdog.com/2015/04/04/the-cost-of-obtaining-a-patent-in-the-us> (providing estimates of the cost of obtaining a patent).

142. *Id.*

143. See Clark D. Asay, *Patenting Elasticities*, 91 S. CAL. L. REV. 1 (2017) (describing the frequent need for inventors to seek multiple layers of patent protection).

144. Graham et al., *supra* note 51, at 1322–23 (highlighting the risk of parties designing around patents as one reason many start-up companies do not pursue patents).

145. See John Dodds, *Patenting Strategies: Building an IP Fortress*, in 1 INTELLECTUAL PROPERTY MANAGEMENT IN HEALTH & AGRICULTURAL INNOVATION 911, 919–20 (Anatole Krattiger et al. eds., 2012).

146. Jay A. Erstling & Frederik W. Struve, *A Framework for Patent Exhaustion from Foreign Sales*, 25 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 499, 508–17 (2015) (providing an overview of the territoriality of U.S. patent law).

for the same invention.¹⁴⁷ And once a party obtains a patent, it is required to pay periodic maintenance fees to keep the patent in effect.¹⁴⁸

Because of these substantial costs, obtaining a patent may often result in significant economic pressure to utilize the patent in some way or another to help recoup those costs. Hence, though a party may have one purpose in mind when obtaining the patent—say, to obtain recognition, attract funding, or use the patent as a defensive mechanism against would-be patent aggressors—the significant costs associated with obtaining the patent can create economic incentives to use the patent to help recoup the costs of obtaining the patent.

One means of recouping such costs is by asserting the patents against third party infringers. Of course, patent enforcement itself is a costly activity, with patent litigation typically costing parties millions of dollars.¹⁴⁹ And even in cases where an assertion does not result in full-blown patent litigation, other significant costs arise when asserting patents, including a variety of costs associated with identifying valuable patents, ascertaining potential infringers, and thereafter negotiating against those parties.¹⁵⁰ Consequently, despite the costs of patenting creating pressure to recoup those costs somehow, frequently it may not make much economic sense to try to enforce the patents because the costs of doing so outweigh any potential benefits.¹⁵¹ Indeed, this reality helps explain why most patents are never asserted, either formally in litigation or otherwise.¹⁵²

There are ways, however, for parties to mitigate the costs of asserting patents. One is for parties to specialize in patent enforcement themselves.¹⁵³ In fact, over the years numerous companies have pursued such specialization by transitioning from producing goods and services to simply enforcing patents as a business model.¹⁵⁴ In adopting such business models, patent

147. Dodds, *supra* note 145, at 914.

148. *Maintain Your Patent*, U.S. PAT. & TRADEMARK OFF., <https://www.uspto.gov/patents-maintaining-patent/maintain-your-patent> (last visited Sept. 6, 2018).

149. Chris Neumeyer, *Managing Costs of Patent Litigation*, IPWATCHDOG (Feb. 5, 2013), <http://www.ipwatchdog.com/2013/02/05/managing-costs-of-patent-litigation>.

150. See Clark D. Asay, *Patent Pacifism*, 85 GEO. WASH. L. REV. 645, 661–69 (2017) (reviewing these costs as reasons why many parties may forego asserting their patents).

151. *Id.* at 663.

152. See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1497, 1501–08 (2001) (“[T]he overwhelming majority of patents are never litigated or even licensed.”); Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1521–22 (2005) (“Each year the United States Patent and Trademark Office (PTO) receives 350,000 patent applications and grants approximately 180,000 patents. Despite the large number of patent grants annually, patent holders file only 3,000 patent lawsuits involving approximately 4,500 patents each year to enforce patents against infringers.” (footnotes omitted)).

153. See generally Osenga, *supra* note 24 (discussing the business models of formerly manufacturing companies, which rely on asserting patents).

154. *Id.*

owners can realize economies of scale in patent enforcement.¹⁵⁵ For instance, by specializing in patent enforcement, a patent owner may be able to realize efficiencies in searching, negotiating, and litigating its patents, as well as mitigating other potential risks associated with asserting its patents.¹⁵⁶ And patent owners need not entirely transition to a pure patent enforcement model to realize many of these efficiencies—companies like IBM,¹⁵⁷ Microsoft,¹⁵⁸ and Texas Instruments,¹⁵⁹ all of which still produce some goods and services, simultaneously specialize in patent enforcement in some areas and realize significant economic returns on the basis of that specialization.¹⁶⁰

Another option for mitigating the costs of patent enforcement is to sell or license the patents to entities that specialize in patent assertion.¹⁶¹ These so-called patent trolls then take on most of the costs of patent assertion while providing economic returns to the original patent owner.¹⁶² In fact, parties frequently sell or license their patents to patent trolls.¹⁶³

Hence, while significant disincentives to asserting one's patents can (and do) often overwhelm incentives to find ways to monetize them, patent assertion specialization and/or outsourcing can help reduce those disincentives while providing economic returns to patent owners. Consequently, parties may often monetize their patents—either through asserting them themselves or outsourcing that work to third party patent assertion entities—in part to help recoup the significant costs associated with patenting. And they may often do so in defiance of the primary purposes for which they initially obtained the patents.

Of course, the economic pressures that patenting creates need not always push parties toward enforcement activities. Enforcement activities may be the most intuitive option for recouping patenting costs, but other options exist for economically utilizing patents as well. For instance, parties may seek to indirectly recoup some of their costs of patenting through various types of

155. *Id.* at 466 (describing certain efficiencies that patent specialization can help realize “through the division of labor”).

156. Asay, *supra* note 150, at 685.

157. See Dvorak, *supra* note 5 (discussing that while IBM still produces some products, most of its revenues come by way of patent licensing).

158. Matt Rosoff, *A Huge Shift in the Android Market Is Hurting Microsoft*, BUS. INSIDER (Apr. 21, 2016, 5:39 PM), <http://www.businessinsider.com/microsoft-android-patent-licensing-revenue-falling-2016-4> (discussing Microsoft's Android and Linux licensing program, which may bring in as much as two billion dollars annually in revenues).

159. Loren Steffy, *Patently Unfair*, TEXASMONTHLY (Oct. 2014), <http://www.texasmonthly.com/politics/patently-unfair/> (discussing how Texas Instruments began specializing in patent enforcement in order to realize significant economic returns).

160. *Id.*; Dvorak, *supra* note 5; Rosoff, *supra* note 158.

161. Asay, *supra* note 150, at 684.

162. *Id.*

163. See Lemley & Melamed, *supra* note 12, at 2122, 2124–25 (“Patent trolls typically, but not always, acquire their patents from others.”).

patent pledging.¹⁶⁴ In such scenarios, as briefly discussed above, patent owners publicly commit to forego asserting their patents against others, typically under certain conditions and with respect to specific patents.¹⁶⁵ And while such pledges can be altruistic, often the pledges have economic motivations behind them, including inducing other market players to adopt a particular technology that the pledger favors or addressing collective action problems that hinder various economic objectives.¹⁶⁶

It is also important to emphasize that the costs of patenting are clearly not the sole factor determining a party's use of their patents. When parties pledge their patents to some cause, for instance, it seems clear that recouping the costs of obtaining those patents is unlikely to be the sole motivation for making the pledge.¹⁶⁷ And when parties outsource patent assertion to an outside entity, recouping the costs of patenting may be one of many possible motivations for doing so.¹⁶⁸

Nonetheless, it remains true that the heavy costs of patenting can create economic pressure on companies to use their patents in some form or another, particularly as their patent portfolios grow.¹⁶⁹ And such economic pressures can combine with other motivating factors to push a patent holder to utilize their patents in ways that ultimately deviate from the party's original purpose in seeking the patent.

This hypothesis, to the extent applicable, thus stands in stark contrast to predominant patent law theories, which posit that patents function as incentives for parties to develop, commercialize, and share their inventions.¹⁷⁰ Instead, this explanation for patent schisms suggests that patenting may often create economic incentives to use the patents to recoup the costs of patenting itself.

One possible implication of this hypothesis is that reducing the costs of patenting may result in less economic pressure to use patents in ways that end up being costly to society. Others have proposed a registration system for

164. See generally Contreras, *supra* note 76 (discussing many of the economic motivations behind parties' decisions to pledge patents).

165. See *id.* at 585–86.

166. *Id.* at 573–87.

167. See, e.g., Musk, *supra* note 28 (detailing several reasons why Tesla chose to pledge its patents).

168. See Jay Greene, *Google Blasts Microsoft, Nokia for Hiding Behind Patent Trolls*, CNET (May 31, 2012, 4:03 PM), <https://www.cnet.com/news/google-blasts-microsoft-nokia-for-hiding-behind-patent-trolls> (detailing Google's accusation that Microsoft and Nokia are funding patent trolls as part of a proxy war against Android).

169. Charles Duhigg & Steve Lohr, *The Patent, Used as a Sword*, N.Y. TIMES (Oct. 7, 2012), <http://www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition.html> (describing how Apple's patent portfolio has expanded over time, resulting in pressure for the company to assert those patents against its competitors).

170. See *supra* Section II.A.

patenting, whereby the costs of patenting could be reduced significantly.¹⁷¹ Mark Lemley has famously argued that investing too many resources in upfront screening of applications would be economically irrational, since the vast majority of patents turn out to be worthless and are never used in litigation or licensing activities.¹⁷² Part IV will explore these and other possible implications of this Article's analysis.

2. Psychological Pressure

In addition to creating economic pressure to use the patent, patenting can also result in psychological pressure to use the patent. And that psychological pressure may often contribute to patent schisms.

Patenting an invention can result in such psychological pressure because owning and creating things can bias owners and creators in a number of ways. The psychological and behavioral economics literatures, for example, have long noted an "endowment effect," which is defined as "the tendency for people who own a good to value it more than people who do not."¹⁷³ By way of example, many studies investigating the endowment effect show that people who own a product demand a much higher price to give it up than the price non-owners in the experiments are willing to pay for the same item.¹⁷⁴ In the intellectual property field, scholars have discussed a related "creativity effect," whereby parties that create intangible goods tend to value them more than other parties, including owners of the same good.¹⁷⁵ The psychological biases that creation and ownership generate may also be reflected in the moral outrage that owners exhibit when third parties copy the owners' works.¹⁷⁶ In short, these studies show that owning and/or creating a thing matters, because owners and creators tend to overestimate the value and importance of their work.

When owners and creators yield to such biases, significant market inefficiencies may result.¹⁷⁷ For starters, these types of psychological biases can

171. See, e.g., F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55, 71–72. (2003) (proposing reversion to a simple registration system for patents).

172. Lemley, *supra* note 152, at 1498–500.

173. Carey K. Morewedge & Colleen E. Giblin, *Explanations of the Endowment Effect: An Integrative Review*, 19 TRENDS COGNITIVE SCI. 339, 339 (2015).

174. See Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 6–9 (2010) (reviewing studies on the endowment effect).

175. See generally Christopher Buccafusco & Christopher Jon Sprigman, *The Creativity Effect*, 78 U. CHI. L. REV. 31 (2011) (discussing an experiment demonstrating this creativity effect).

176. See Stephanie Plamondon Bair, *Rational Faith: The Utility of Fairness in Copyright*, 97 B.U. L. REV. 1487, 1510–11 (2017) (summarizing psychological literature finding that "people see copying of another's creative work as unfair and morally reprehensible").

177. Buccafusco & Sprigman, *supra* note 175, at 44; Morewedge & Giblin, *supra* note 173, at 344–45 (reviewing the various market inefficiencies that the endowment effect, when present, can cause).

lead to differences between buyers and sellers that prevent otherwise efficient market transactions.¹⁷⁸ One such inefficiency may be a greater proclivity to assert or otherwise use patents in ways that make little economic sense. That is, if creating and owning an invention (via a patent) biases the inventor so that she overestimates the value and importance of her invention, these same psychological biases may lead her to use the patent in economically irrational ways that deviate from the purposes for which she originally pursued the patents.¹⁷⁹ Market realities may often temper those impulses, because the high costs of actually asserting the patent may simply not be worth it.¹⁸⁰ Indeed, these market realities seem to prevent most patents from ever being asserted.¹⁸¹ But in other cases, a party's psychological distortions based in ownership and creation may hold greater sway than is warranted, thereby leading that party to use their patents in economically irrational ways.

One example of such irrational behavior may be a decision to pursue patent enforcement even when doing so is clearly economically illogical. In that vein, consider Steve Jobs' famous declaration that Apple would pursue "thermonuclear" patent war against Google because of its Android product: "I will spend my last dying breath if I need to, and I will spend every penny of Apple's \$40 billion in the bank, to right this wrong. I'm going to destroy Android, because it's a stolen product. I'm willing to go thermonuclear war on this."¹⁸² Jobs' statement, taken literally, clearly reflects economic irrationality; there is simply no possibility that it would be economically rational for Apple to spend all of the money in its coffers to destroy Android.¹⁸³ Instead, Jobs' statement seems to owe its origins at least in part to the psychological biases described above: As owner and creator of the technologies, Jobs has a distorted, inflated sense of the value and importance of Apple's technologies, and the moral outrage evident in his statement appears to reflect those distortions.¹⁸⁴

That distorted sense of value and importance may lead a party such as Apple to pursue economically irrational behavior that deviates from the patentee's original aims in securing the patents.¹⁸⁵ When securing the

178. Morewedge & Giblin, *supra* note 173, at 345.

179. Buccafusco & Sprigman, *supra* note 175, at 43.

180. See *supra* Section III.A.1.

181. Lemley, *supra* note 152, at 1507–08.

182. Tim Bajarin, *Why Steve Jobs Went 'Thermonuclear' Over Android*, PCMag (Dec. 1, 2014, 8:00 AM), <http://www.pcmag.com/article2/0,2817,2472642,00.asp>.

183. This becomes all the more apparent since even the more limited patent warfare Apple has pursued against Android may be economically irrational. See Paul M. Barrett, *Apple's War on Android*, BLOOMBERG (Mar. 29, 2012, 6:50 PM), <https://www.bloomberg.com/news/articles/2012-03-29/apples-war-on-android> (detailing why Apple's war against Android may make little economic sense).

184. See Bair, *supra* note 176, at 1510–11 (discussing age-spanning and cross-cultural moral outrage over people copying the work of others).

185. Barrett, *supra* note 183.

patents, for example, it seems unlikely that Apple's intention was to ultimately use those patents in economically irrational ways, as some commentators claim Apple and others in the smartphone wars have, in fact, succumbed to.¹⁸⁶ Furthermore, given that Apple and other participants in the smartphone patent wars are part of the information technology and high-tech industries, it seems likely that many of the patents these companies are now asserting offensively were secured primarily with defensive purposes in mind.¹⁸⁷

As a further illustration of these biases at play, contrast Jobs' reaction to Android with Apple's use of some of the Xerox Corporation's pioneering technologies. Early on in Apple's history, after visiting Xerox PARC in Silicon Valley, Apple copied and improved upon many of Xerox's technological ideas in its own products.¹⁸⁸ And these were not marginal technologies, either—they represented some of the most important innovations that Apple has ever developed.¹⁸⁹ Yet as Jobs later said, “good artists copy, great artists steal”—and we have always been shameless about stealing great ideas.”¹⁹⁰

A different set of rules seem to apply, then, depending on who the creator and owner of the technologies is. When Jobs was the creator and owner of a technology, his biases pushed him towards pursuing economically irrational behavior.¹⁹¹ But when he was not the owner or creator of the technology, his bias pushed in the opposite direction: copying the technology while simultaneously giving short shrift to its value absent the improvements his company made to it.¹⁹²

Hence, when parties create and/or own things, they may become susceptible to psychological biases that distort their ability to accurately assess the value and importance of those things. And those distortions may lead them to use their patents in economically irrational ways. Furthermore, when

186. *Id.*; see also Alison Frankel, *Posner Ruling Makes Smartphone Patent War Economically Irrational*, REUTERS (June 26, 2012), <http://blogs.reuters.com/alison-frankel/2012/06/26/posner-ruling-makes-smartphone-patent-war-economically-irrational> (discussing Judge Richard Posner's dismissal of each side's theory of damages in a smartphone litigation between Motorola and Apple, whereby Posner found that, even if the asserted patents are valid and infringed, the available remedies are so inconsequential as to make the suit moot); Evan Jensen, *The Patent Wars*, STEINPLAW (July 24, 2014), <https://steiniplaw.wordpress.com/2014/07/24/the-patent-wars> (providing a summary of the smartphone patent wars and many of the economically irrational behaviors of the participants).

187. Chien, *supra* note 3, at 322–26.

188. Malcolm Gladwell, *Creation Myth: Xerox PARC, Apple and the Truth About Innovation*, NEW YORKER (May 16, 2011), <http://www.newyorker.com/magazine/2011/05/16/creation-myth> (detailing this history).

189. *Id.*

190. Dan Farber, *What Steve Jobs Really Meant When He Said 'Good Artists Copy; Great Artists Steal'*, CNET (Jan. 28, 2014, 8:04 AM), <https://www.cnet.com/news/what-steve-jobs-really-meant-when-he-said-good-artists-copy-great-artists-steal>.

191. Barrett, *supra* note 183.

192. Gladwell, *supra* note 188 (discussing how Jobs believed that Xerox had failed to realize its technologies' potential, which Apple later did by innovating upon those ideas).

parties engage in this type of behavior, they may often use their patents for purposes that diverge from the patentee's original intentions in obtaining the patent, resulting in patent schisms.

Of course, it is important to stress that patenting is not solely responsible for instilling these biases. As discussed above, the act of invention itself may often help create them.¹⁹³ But patenting one's invention certainly reinforces the sense of ownership a party has with respect to the patented innovations. The Patent Act, after all, defines patents as a form of personal property.¹⁹⁴ Indeed, patent remedies include injunctive relief and other types typically reserved to property owners.¹⁹⁵ Furthermore, patent applicants must pass several requirements for a patent to issue, including demonstrating that the invention is novel (no one has invented the same thing) and nonobvious (the invention is not obvious in light of what others have already done).¹⁹⁶ Hence, when the Patent Office issues a patent to a party, it confirms that the party has created something new and innovative, and that the party owns that new and innovative thing as a form of personal property.

In sum, creating and patenting an invention can contribute to psychological biases that push a party toward using a patent in economically irrational ways that differ from the patentee's original purposes in obtaining the patent. Importantly, these psychological biases may often work in tandem with the economic incentives patenting creates, as described above. That is, these psychological biases may sometimes reinforce the desire to recoup some of the costs of patenting by utilizing the patent in some way or another. And as will be seen in the coming sections, the economic and psychological pressures that patenting creates may also work together with other factors to push a party to use its patents in ways that deviate from the patentee's original purposes, resulting in patent schisms.

B. CHANGING CIRCUMSTANCES

Changing economic and commercial prospects may also contribute to patent schisms. This reason, in fact, may help explain many of the deviations we observe in practice.

As briefly discussed above, some parties, in response to dwindling commercial prospects, have adopted patent enforcement as a significant component of their business model.¹⁹⁷ In some cases, companies have transitioned entirely to such a business model.¹⁹⁸ And when such transitions

193. Buccafusco & Sprigman, *supra* note 175, at 52.

194. See 35 U.S.C. § 261 (2012).

195. See *id.* §§ 281–299 (setting forth patent law's remedial options).

196. See *id.* §§ 102–103 (setting forth patent law's novelty and non-obvious requirements).

197. Osenga, *supra* note 24, at 449–53.

198. *Id.*

occur, it is clear that in many cases the patents are used in ways that deviate from the patentee's original motivation to acquire them.

Consider Texas Instruments ("TI").¹⁹⁹ Early on in its history, TI was a major manufacturer of a variety of hardware products.²⁰⁰ During this early period, some accounts indicate that TI acquired most of its patents primarily for defensive purposes.²⁰¹ The reality that parties in high-tech industries frequently obtain patents primarily for defensive purposes lends credibility to that claim.²⁰²

But as market forces eroded the sustainability of some of its manufacturing businesses, TI transitioned from defensive uses to licensing its patents to bring in revenues.²⁰³ That licensing business, in fact, has become a significant source of annual revenues for TI, and in some years the company's licensing revenues exceed revenues the company receives from actual operations.²⁰⁴ Hence, though TI may have pursued many of its patents with an understanding of their licensing potential, early on the company's focus was on the company's various manufacturing businesses and using its patents to defend those businesses. Only later, once many of those manufacturing businesses faltered, did TI transition to predominantly licensing those patents to third parties.

IBM is another example of a party transitioning many of its patents from one purpose to another based in part on altered commercial circumstances. Like TI, early on in its history IBM was a major producer of important technological products, including helping shape the early personal-computer market.²⁰⁵ During this phase, its significant patent holdings were not primarily a licensing tool for obtaining revenues.²⁰⁶ But once the company's economic fortunes began to flounder, the company "focused on the [patent] assets it

199. Susan Decker, *Kodak in Crisis Mines Patents for Cash Copying Texas Instruments*, BLOOMBERG (Jan. 12, 2012, 11:00 PM), <http://www.bloomberg.com/news/2012-01-13/kodak-mines-patents-for-cash-copying-texas-instruments.html>.

200. See, e.g., Matthew Burris, *Texas Instruments*, LIFEWIRE, <https://www.lifewire.com/texas-instruments-profile-818805> (last updated Apr. 19, 2018) (providing a list of notable products TI produced from the 1950s onward).

201. Lawrence M. Fisher, *Patents; Aggressive Defender Branches Out*, N.Y. TIMES (Jan. 25, 1992), <http://www.nytimes.com/1992/01/25/business/patents-aggressive-defender-branches-out.html>.

202. Chien, *supra* note 3, at 299.

203. See, e.g., *Building Patent Portfolio Still a Big Part of TI's Success Strategy*, IPTRADER, http://www.iptrader.com/article/building_patent_portfolio_still_a_big_part_of_tis_success_strategy.aspx (last visited Sept. 6, 2018) (recounting TI's transition in the 1990s to licensing its patent portfolio).

204. See Fisher, *supra* note 201; ASHISH ARORA ET AL., *MARKETS FOR TECHNOLOGY: THE ECONOMICS OF INNOVATION AND CORPORATE STRATEGY* 236 (2001).

205. See, e.g., Alexis C. Madrigal, *IBM's First 100 Years: A Heavily Illustrated Timeline*, ATLANTIC (June 16, 2011), <https://www.theatlantic.com/technology/archive/2011/06/ibms-first-100-years-a-heavily-illustrated-timeline/240502> (providing a brief history of IBM and noting its contribution to the personal-computer market).

206. Decker, *supra* note 199.

had” in creating a billion-dollar per year licensing apparatus.²⁰⁷ In the company’s own words, it became a “world-class services company.”²⁰⁸ Prior to this transition, patent licensing revenues were only about one-tenth of the billion dollar licensing business the company has in place today.²⁰⁹

In other cases, a company’s more limited commercial failures may still result in patent schisms. Microsoft is such an example. While the company continues to see significant commercial success across a range of products, it has struggled to maintain commercially successful mobile products.²¹⁰ Microsoft still supports some mobile products and may eventually increase its market share in that space, but Apple and Google’s mobile goods currently dominate the field.²¹¹

Microsoft, however, owns a significant number of mobile technology patents.²¹² In fact, despite its recent commercial slide in mobile, Microsoft was one of the early pioneers in the space.²¹³ Before Apple’s and Google’s ascension, Microsoft’s mobile products commanded significant market share and in some years even led the field.²¹⁴ Given its leading position early on, it is not surprising that Microsoft acquired a number of key mobile technology patents.²¹⁵

In acquiring these patents, Microsoft certainly may have recognized their licensing potential independent of its mobile products. But during its years as the de facto market leader, the company did not use its mobile technology patents for independent licensing purposes, at least not as part of a broad

207. *Id.*

208. Madrigal, *supra* note 205.

209. Decker, *supra* note 199.

210. Matthew Hughes, *Why Microsoft Isn’t the Smartphone Leader It Should Be*, TNW (June 19, 2017), <https://thenextweb.com/microsoft/2017/06/19/why-isnt-microsoft-the-smartphone-leader-it-should-be> (chronicling Microsoft’s fall from grace in the mobile space).

211. *Id.*

212. See, e.g., Charlie Osborne, *310 Microsoft Patents Used in Android Licensing Agreements Revealed by Chinese Gov.*, ZDNET (June 16, 2014, 9:55 PM), <http://www.zdnet.com/article/310-microsoft-patents-used-in-android-licensing-agreements-revealed-by-chinese-gov> (discussing over 300 patents used by Microsoft in Android licensing program); *Mobile & Tablet*, MICROSOFT, <https://www.microsoft.com/en-US/legal/intellectualproperty/ml/mobile-tablet.aspx> (last visited Sept. 6, 2018) (chronicling some of the important patents Microsoft owns in the mobile space).

213. Jason Mick, *Of Lawsuits and Licensing: The Full Microsoft v. Android Story*, DAILYTECH (Oct. 24, 2011, 12:36 PM), <https://web.archive.org/web/20111025130449/http://www.dailytech.com:80/Of+Lawsuits+and+Licensing+The+Full+Microsoft+v+Android+Story/article23088.htm> (discussing Microsoft’s early leadership in the mobile world and its acquisition of key patents therein).

214. See, e.g., *Gartner Says Worldwide PDA Shipments Top 17.7 Million in 2006*, GARTNER (Feb. 6, 2007), <http://www.gartner.com/newsroom/id/500898> (showing that Microsoft’s mobile operating system owned a 56.1% market share in 2006 and a 47.9% market share in 2005).

215. Mick, *supra* note 213; MIKE LLOYD ET AL., *THE SMARTPHONE PATENT WARS 4* (2011), https://www.ambercite.com/s/The-Smartphone-Patent-Wars-whitepaper_March-2012.pdf (indicating that Microsoft has the second leading smartphone patent portfolio).

licensing campaign.²¹⁶ Instead, the company focused on providing its mobile operating system to hardware manufacturers for use on their devices.²¹⁷

Once Microsoft's mobile competitors took control of the market, however, Microsoft began a patent licensing campaign, primarily aimed at Android users.²¹⁸ As others have noted, this program is vital to helping the company make up for its commercial failures in mobile and elsewhere, and some estimate the company brings in over six billion dollars annually based on Android licensing alone.²¹⁹ Indeed, Microsoft makes significantly more revenue off its Android licensing deals than from its own mobile products.²²⁰ Hence, once Microsoft ceded ground to others in the mobile market, it repurposed many of its patents as part of an aggressive enforcement program that clearly diverges from the patents' primary uses before the program (and the primary motivations behind their acquisition). This claim becomes even more compelling when considering that high-tech companies such as Microsoft frequently obtain patents primarily for defensive purposes.²²¹

Companies' altered commercial circumstances may result in a variety of other patent schisms. For example, floundering companies often sell off their patents to third parties as part of bankruptcy proceedings or other types of liquidation events,²²² or to finance some more promising commercial activity for the company.²²³ In such cases, the party purchasing the patent may use it for the same or similar purpose as the original party—such as using the patent as part of a large patent portfolio to deter would-be patent aggressors.²²⁴ But

216. See generally Yongwook Paik & Feng Zhu, *The Impact of Patent Wars on Firm Strategy: Evidence from the Global Smartphone Market* 10–12 (Harvard Bus. Sch., Working Paper No. 14-015, 2013), <https://pdfs.semanticscholar.org/b4f3/4270b764d3d4692540684fcdea8d4410bada.pdf> (chronicling the smartphone patent wars, of which Microsoft has been a significant part, and noting that the wars did not really start in earnest until 2011).

217. See *id.* at 10.

218. See, e.g., Mick, *supra* note 213 (detailing how Microsoft transitioned from a product producer to a litigator once it fell behind Apple and Google with its mobile products).

219. Osborne, *supra* note 212 (noting that Microsoft has relied on Android licensing revenues to make up for losses in its entertainment division, including its mobile offerings); Ewan Spence, *Microsoft Takes Six Billion Dollars from Android*, FORBES (Nov. 1, 2015, 6:41 PM), <https://www.forbes.com/sites/ewanspence/2015/11/01/microsoft-android-patent-income> (detailing the enormous revenues Microsoft is projected to make off licensing its patents to Android users).

220. See Spence, *supra* note 219.

221. See Chien, *supra* note 3, at 299.

222. See, e.g., Gene Quinn, *Kodak Authorized to Sell Patent Assets in Bankruptcy*, IPWATCHDOG (July 13, 2012), <http://www.ipwatchdog.com/2012/07/13/kodak-authorized-to-sell-patent-assets-in-bankruptcy> (discussing Kodak's sale of some of its patent assets as part of a bankruptcy proceeding).

223. Decker, *supra* note 199.

224. Google's acquisition of Motorola Mobility for 12.5 billion dollars may be one such example where the motivations behind the original patent acquisition and later use are in harmony. See Jeff Roberts, *Google Paid \$4B for Patents: Why the Motorola Deal Worked Out Just Fine*, GIGAOM (Jan. 30, 2014, 5:15 AM), <https://gigaom.com/2014/01/30/google-paid-4b-for-patents-why-the-motorola-deal-worked-out-just-fine> (discussing Google's acquisition of Motorola Mobility and its patent portfolio and the purposes behind Google's acquisition of those patents).

in other cases, such as when patent trolls purchase patents from operating or formerly operating companies, most of which did not use the patents as part of a widespread patent assertion campaign, a patent schism seems clear.²²⁵

In other cases of commercial failure, a party may use its patents differently than originally intended, but in more benign ways. Consider the open source software movement. In the 1990s, this movement began to put significant pressure on the software products of many proprietary software companies.²²⁶ It did so, in part, by creating and making sophisticated software products freely available for use that competed with the companies' proprietary products.²²⁷ In response to this pressure, companies such as IBM abandoned many of their proprietary software products and instead devoted significant resources to the open source software movement as part of a new business strategy.²²⁸ Part of the support IBM devoted to the movement came in the form of patents: The company formally committed not to enforce many of its patents against users of certain open source software technologies.²²⁹ And while it is theoretically possible that the company acquired the patents in question for purposes of dedicating them to the public, it seems highly unlikely.²³⁰ Hence, in some cases commercial changes may result in patent schisms that are more benign in effect.²³¹

Finally, altered commercial prospects need not always be adverse to result in patent schisms. Commercial success may lead a patent holder to use its patents differently than originally intended. Tesla presents one such example. The company famously dedicated its patents for public use on the company's blog.²³² In doing so, the company's founder, Elon Musk, noted that the company originally acquired the patents to protect itself against larger car

225. See Darrell Etherington, *LOT Network Waives Patent Troll Protection Membership Fees for Startups*, TECHCRUNCH (Sept. 1, 2016), <https://techcrunch.com/2016/09/01/lot-network-waives-patent-troll-protection-membership-fees-for-startups> (acknowledging implicitly that many patent trolls source their patents from companies with products and discussing the "license on transfer" program, which aims to combat patent trolling by licensing any patent owned by a member to all other members upon transfer of that patent).

226. See generally David Bretthauer, *Open Source Software: A History*, 21 INFO. TECH. & LIBR. 3 (2002) (describing many such open source software products).

227. *Id.*; see also Clark D. Asay, *A Case for the Public Domain*, 74 OHIO ST. L.J. 753, 762–68 (2013) (describing some of the tensions that exist between open source development and proprietary approaches).

228. See generally GABRIEL CONSULTING GRP., *IBM & LINUX—10 YEARS LATER* (2008), ftp://public.dhe.ibm.com/linux/pdfs/GCG_IBM_and_Linux_9_years_later.pdf (discussing IBM's commitment to Linux and evaluating whether or not IBM has delivered on those commitments).

229. Nicholas Wells, *IBM Pledges 500 Patents to Open Source*, LINUX MAG. (May 15, 2005), <http://www.linux-mag.com/id/1975>.

230. See Chien, *supra* note 3, at 299–300 (discussing how many parties in the high-tech industries acquire patents primarily for defensive purposes).

231. Asay, *supra* note 36, at 286–308 (discussing a variety of non-traditional uses of patents as part of the growing patent pledging phenomenon).

232. Musk, *supra* note 28.

companies and their superior resources.²³³ But once the company became the clear leader in the electronic car industry and realized that its competitors were lagging in electronic car technologies, it dedicated its patents “in the spirit of the open source movement” to encourage others to help Tesla make electric vehicle technologies an even greater commercial success.²³⁴

In sum, altered commercial circumstances may frequently lead patentees to use their patents differently than they originally intended. While dwindling commercial prospects often explain these divergences, commercial success (or simply new business strategies) may also sometimes explain a party’s altered patent usage.

C. *INTRA-ORGANIZATION HETEROGENEITY*

A final factor that may contribute to many patent schisms lies in intra-organization heterogeneity. In other words, the diversity of interests within an organization may often mean that patents are acquired primarily for one reason, only to be used for another.

Large companies are one example where patent schisms may arise based on a diversity of interests. For instance, many large companies have internal processes in place to ensure that the companies “harvest” as many patents as possible from the inventive activities of their employees.²³⁵ In fact, companies often set annual patent goals.²³⁶ Typically, companies’ legal departments are the leading force behind these programs.²³⁷ And as the leader of their companies’ patenting programs, legal departments are frequently subject to a variety of pressures to increase, or at least maintain, significant levels of patenting.²³⁸

Hence, in many cases the primary purposes behind a company’s patent harvesting activities may be relatively inane. While patent counsel can certainly cite to a number of possible benefits of patenting, the internal pressure to demonstrate legal department value, impress executive leadership, and safeguard the legal department’s budget may be the primary drivers behind why companies end up pursuing many of their patents.²³⁹ Consequently, when companies use these patents later, whether in litigation, defensively, or in sales or licensing, technically those uses often diverge from

233. *Id.*

234. *Id.*

235. Bock, *supra* note 6, at 304–09.

236. *Id.* at 309–13.

237. George C. Lewis et al., *Invention Harvesting Begins at the Top*, LAW360 (July 21, 2009, 12:55 PM), <https://www.law360.com/articles/109057/invention-harvesting-begins-at-the-top> (“Effective patent harvesting requires a top-down approach in which the patent counsel assumes a communication/facilitation role so that the patent activity of a corporation is closely aligned with the corporation’s business strategy.”).

238. Bock, *supra* note 6, 309–13.

239. *Id.*; see also Burk, *supra* note 66, at 442 (arguing that many parties may seek patents simply because doing so conforms to the norms within that industry).

the primary motives behind their acquisition. And typically other interested parties within the firm—the company’s business or technical leaders, for example—help shape or even spearhead the decisions to use patents in these divergent ways.²⁴⁰

But even assuming less inane motives in many cases, intra-organization heterogeneity may still contribute to many patent schisms. To illustrate: legal departments frequently push for patent acquisition primarily as a means to prevent third parties from copying the company’s intellectual assets.²⁴¹ In some surveys, companies both big and small cite this rationale as the primary reason why they acquire patents.²⁴² But as discussed, parties often end up using patents in a variety of ways that diverge from that rationale. Parties increasingly pledge patents to the public for a variety of strategic reasons;²⁴³ repurpose patents for licensing campaigns and sales;²⁴⁴ or, most pervasively, forego using their patents at all, even in situations where third parties have copied their patented innovations.²⁴⁵

While altered commercial circumstances may contribute to many such patent schisms, intra-organization heterogeneity may frequently help explain the schisms as well. Some studies show that those with legal training often approach problems differently than those with technical, business, or scientific backgrounds.²⁴⁶ Hence, while legal departments may push to acquire and use patents as a tool to prevent third parties from copying their intellectual property,²⁴⁷ non-legal executives within a firm may frequently push for alternative uses, or, in most cases, no use at all.²⁴⁸ Those with business backgrounds may place greater emphasis on building and maintaining

240. See, e.g., Urs S. Daellenbach et al., *Commitment to Innovation: The Impact of Top Management Team Characteristics*, 29 R&D MGMT. 199, 204–06 (1999) (providing evidence that companies led by executives with technical or scientific backgrounds are more innovative than companies led by executives with financial or legal backgrounds, which suggests that (1) executive management matters in terms of a firm’s performance; and (2) executives with scientific or technical backgrounds may often push for different priorities, including with respect to patent use, than what legal departments do); see also Robert H. Hayes & William J. Abernathy, *Managing Our Way to Economic Decline*, 58 HARV. BUS. REV. 67, 72–74 (1980) (discussing the effect of managerial decisions, including “the decision between imitative and innovative product design, the decision to integrate backward, and the decision to invest in process development”).

241. Sichelman & Graham, *supra* note 34, at 153–57.

242. *Id.*

243. See *supra* Section II.B.2.

244. See *supra* Section III.B.

245. See generally Asay, *supra* note 150 (discussing a variety of factors that may push a party to forego asserting its patents).

246. Daellenbach et al., *supra* note 240, at 204–06; Hayes & Abernathy, *supra* note 240, at 72–74.

247. Sichelman & Graham, *supra* note 34, at 157–58.

248. Lemley, *supra* note 152, at 1497 (noting that the vast majority of patents are never asserted, whether in litigation or otherwise).

relationships—what scholars call “social capital”—with other firms,²⁴⁹ and that emphasis may lead business executives to decide against asserting patents in many situations where they could.²⁵⁰ Company executives with technical or scientific backgrounds, meanwhile, may more fully recognize the importance of collaboration for successful product innovation and, accordingly, successfully advocate against patent usage that could undermine such collaboration.²⁵¹ In sum, company leaders with a variety of non-legal perspectives may exercise their significant influence within firms in ways that result in patents being used differently than the primary purposes for which the legal department initially pursued them.

Similar dynamics play out within other types of organizations. As discussed earlier, universities have varied interests within them that contribute to patent schisms.²⁵² University TTOs function similarly to firm legal departments, in that they are responsible for administering a university’s patent program.²⁵³ Given this position, they often have their own interests in mind when pursuing and using patents,²⁵⁴ which in some respects mirror the interests of company legal departments. For instance, budget considerations may largely influence how TTOs choose to patent, including which innovations to patent and how to eventually commercialize those patents.²⁵⁵ Because TTOs represent the university as a whole (not just the academic inventors), pressure to bring in significant revenues may often skew how TTOs choose to ultimately use patents.²⁵⁶ In fact, universities have grown increasingly litigious in recent years in an effort to realize financial returns from the inventive activities of their personnel.²⁵⁷

But as discussed earlier, academic inventors often have a different set of interests than those of their TTO or the larger university. Compared to their

249. See generally Michael A. Hitt et al., *The Importance of Social Capital to the Management of Multinational Enterprises: Relational Networks Among Asian and Western Firms*, 19 ASIA PACIFIC J. MGMT. 353 (2002) (discussing the importance of social capital for firm success).

250. See Asay, *supra* note 150, at 665–66 (discussing potential reputational costs as one reason why many firms may be reluctant to assert many of their patents).

251. See María Jesús Nieto & Lluís Santamaría, *The Importance of Diverse Collaborative Networks for the Novelty of Product Innovation*, 27 TECHNOVATION 367, 368–70 (2007) (discussing the importance of collaboration among firms in terms of producing novel product innovations).

252. See *supra* Section II.B.4.

253. VALDIVIA, *supra* note 106, at 9–10.

254. Litan et al., *supra* note 103, at 32. See generally Bart Clarysse et al., *Academic Spin-Offs, Formal Technology Transfer and Capital Raising*, 16 INDUS. & CORP. CHANGE 609 (2007) (discussing how TTOs are often influenced by a need to impress their boards).

255. See generally Randi Isaacs et al., *Overcoming Challenges in Transferring Technology in Academia and Beyond*, 22 INTELL. PROP. STRATEGIST 1 (2015) (discussing how budget considerations heavily influence how many TTOs go about patenting and commercialization).

256. Litan et al., *supra* note 103, at 32.

257. Love, *supra* note 105, 289–90 (discussing this trend).

university TTOs, many academic inventors are leery of patents.²⁵⁸ This makes some sense, simply because the norms of academic inquiry frequently conflict with intellectual property ownership.²⁵⁹ In part because of these issues, TTOs often struggle to get academic inventors to disclose their inventions to the TTOs so that they can pursue patent applications covering the inventions.²⁶⁰

But even when academic inventors disclose their inventions to their TTOs in pursuit of a patent, their interests with respect to those patents often diverge from the TTO and university's interests. As discussed earlier, many academic inventors pursue patents for purposes of recognition in their field or promotion at their university,²⁶¹ while the TTO and university's interest in the same patents often remains focused on bringing in revenues.²⁶² Because of this focus, conflicts often arise between academic inventors and their TTOs, even when academic inventors pursue patents on their inventions with commercial opportunities in mind.²⁶³ Such conflicts may arise, for example, because while the university and its TTO remain focused on maximizing licensing revenue, the academic inventor sees alternative uses of the patent as the best means by which to achieve commercial success.²⁶⁴ These varied interests in the university setting thus often result in patents being acquired primarily for one purpose, only to be used for another.

In sum, intra-organization heterogeneity is another significant cause of patent schisms. As with the other factors discussed above, this factor need not work in isolation. Instead, it may frequently interact with some of those factors to result in divergences between the primary purpose a party pursued a patent and the ultimate purposes for which the patentee uses the patent.

IV. IMPLICATIONS

This Article has examined significant evidence of patent schisms in practice and explanations for why they arise. This final Part turns to some of the theoretical and normative questions arising from this analysis: What are the implications of frequent patent schisms and the explanations behind them? The following sections provide some preliminary answers to these questions.

258. See, e.g., Michael Eisen, *Patents Are Destroying the Soul of Academic Science*, IT IS NOT JUNK (Feb. 20, 2017), <http://www.michael Eisen.org/blog/?p=1981> (discussing one prominent scientist's view on how patents corrupt science); Catherine Offord, *Do Patents Promote or Stall Innovation?*, THE SCIENTIST (June 1, 2016), <http://www.the-scientist.com/?articles.view/articleNo/46126/title/Do-Patents-Promote-or-Stall-Innovation-33443> (discussing the view of some scientists that patents inhibit scientific research).

259. See *supra* note 114.

260. Jensen et al., *supra* note 109, at 1272–73.

261. See *supra* notes 121–24 and accompanying text.

262. See *supra* note 103 and accompanying text.

263. Love, *supra* note 105, at 326–28.

264. AM. ASSOC. UNIV. PROFESSORS, *supra* note 133, at 4.

A. PATENT DYNAMISM

The standard theoretical justifications for the patent system are numerous. As discussed earlier, the predominant view is that the patent system is justified, if at all, on the basis of incentivizing innovative activities that benefit society.²⁶⁵ There are a number of theories explaining how patents help achieve these purposes.²⁶⁶

Yet these theories implicitly treat the purposes that patents serve as static.²⁶⁷ That is, patents may provide parties with incentives to do a number of socially beneficial things—invent something, commercialize it, or share it with others—but typically theoretical accounts of the patent system do not explicitly argue that patent owners sometimes toggle between these different purposes.²⁶⁸

Part of the reason behind these static accounts of the patent system is an intermingling of the normative and theoretical. Rather than theorizing about the purposes that patents might serve, scholars often argue—sometimes implicitly, sometimes explicitly—that the patent system should be confined to particular purposes.²⁶⁹ This normative stance makes some sense in light of the U.S. Constitution’s Intellectual Property Clause, which emphasizes social utility as a key reason for authorizing Congress to grant patents at all.²⁷⁰ But the result, nonetheless, is that scholars often treat the patent system as a static one.

Yet the reality of patent schisms, and the explanations behind them, show that incentives with respect to patents are not fixed at all. Instead, they are often quite dynamic. This patent dynamism may not be all that surprising since the Patent Act defines patents as a form of personal property, meaning that parties are free to use and alienate their patents as they wish.²⁷¹ The pervasiveness of patent schisms suggests that many patentees take the

265. See *supra* Section II.A.

266. See *supra* Section II.A.

267. See, e.g., Lemley, *supra* note 31, at 736–49 (reviewing the predominant theories scholars offer as justifications for having patents, but implicitly treating these theories as alternative frameworks rather than a set of purposes that a single patent may serve in its lifecycle).

268. See *id.*

269. See, e.g., Mark A. Lemley, *Faith-Based Intellectual Property*, 62 UCLA L. REV. 1328, 1328 (2015) (“IP rights are a form of government regulation of the free market designed to serve a useful social end—encouraging innovation and creation. IP rights represent government interventions in the marketplace that seek to achieve that desirable social end by restricting the freedom of some people (consumers, reusers, critics) to do what they want with their own real and personal property in order to improve the lives of other people (inventors and creators).”).

270. See U.S. CONST. art. I, § 8, cl. 8 (“Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”). See generally Dotan Oliar, *Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress’s Intellectual Property Power*, 94 GEO. L.J. 1771 (2006) (arguing that the promotion of progress of science and the useful arts is a limitation on Congress’s power to grant patents).

271. 35 U.S.C. § 261 (2012) (“[P]atents shall have the attributes of personal property.”).

personal property attributes of patents to heart in repurposing their patents for a variety of uses that differ from the parties' primary motivations in seeking them. Hence, the patent system's varied theoretical justifications may come and go in a patent's lifespan, yet we may have difficulty predicting when and where those purposes will become relevant at any given point in a patent's lifecycle.²⁷²

What are the implications of this dynamism? From a normative perspective, some may be positive. For instance, as discussed earlier, when patentees repurpose their patents for use in a patent pledge, that pledge may provide a number of benefits while eliminating many of the costs that patents otherwise impose. Or when patentees, rather than using their patents to prevent others from entering a market, repurpose those patents by selling or licensing them, that repurposing may sometimes facilitate innovative activities that otherwise would have stalled.²⁷³ Furthermore, if a patent incentivizes a party to invent something, and later that same party relies on the patent for commercialization or disclosure purposes, the patent dynamism evident in such varied uses may contribute to socially beneficial innovation in a number of ways.²⁷⁴

Yet many of the examples of patent schisms explored in this Article suggest that a patent's dynamic nature may often result in negative societal consequences that outweigh the possible benefits. Patent dynamism may result in such negative consequences when a particular patent schism imposes societal costs without otherwise having a clear connection to any societal benefit.²⁷⁵ In making this claim, I thus subscribe to the normative view, based in the U.S. Constitution, that patents should have some connection to societal benefit, and that that societal benefit should outweigh whatever costs the patent imposes.²⁷⁶ Of course, as briefly discussed above and contrary to the more static accounts of the patent system, patents may have socially beneficial effects in a number of ways—patents need not be confined to a singular, particular purpose. But on the whole, many of the patent schisms reviewed in

272. But for an account of how patent trolls typically use patents late in their lifespan, see Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls without Harming Innovators?*, 161 U. PA. L. REV. 1309 (2013).

273. See generally Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477 (2005) (discussing how property rights, such as patents, may frequently encourage transactions between parties). But see generally Robin Feldman & Mark A. Lemley, *Do Patent Licensing Demands Mean Innovation?*, 101 IOWA L. REV. 137 (2015) (arguing on the basis of some survey evidence that most patent license demands do not result in new innovation).

274. See Michael J. Burstein, *Reply—Commercialization Without Exchange*, 92 TEX. L. REV. SEE ALSO 45, 46–49 (2014) (discussing how the same exclusive rights can act as incentives to inventive acts and subsequent commercialization efforts regarding those acts).

275. *Id.* at 49–50 (discussing the most common objections to the predominant theories of patent law).

276. See SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 36–39 (2004) (describing the predominant normative critique of theories of intellectual property).

this Article suggest that dynamic uses of patents often result in negative societal effects that exceed their benefits.

Consider, for instance, this Article's claim that patenting an invention can create economic and psychological pressure to use the patent, thereby contributing to patent schisms. If, normatively, the patent system should be confined to incentivizing socially beneficial behavior that exceeds its costs, schisms resulting from such pressures may often be at odds with that purpose. For example, as discussed earlier, economic pressure may contribute to a patent owner starting a patent assertion campaign to help recoup the costs of patenting, while psychological pressure may result in assertions that are otherwise economically irrational.²⁷⁷ In both instances, the act of patenting itself creates incentives to use the patent in ways that have little if anything to do with social utility; indeed, when uses like this occur, the costs such assertions entail are meant to secure private economic and psychological benefits, rather than being necessary to ensure socially beneficial acts of invention in the first place and productive uses of those inventions thereafter. Instead, the resulting activities may often divert resources away from activities that would otherwise benefit society.²⁷⁸

Intra-organization heterogeneity in the university context may also frequently result in patent schisms with deleterious societal effects. As noted, academic inventors pursue patents for a variety of reasons, yet their universities' use of those patents in pursuit of maximizing cash revenue often conflicts with the academic inventors' own goals.²⁷⁹ For instance, academics that pursue patents primarily for purposes of recognition in their fields may find that their university's efforts to commercialize their patents both inhibit widespread use of the technology²⁸⁰ and bring the academic inventor infamy rather than fame.²⁸¹ Even when academic inventors pursue patents with commercial opportunities in mind, their universities' focus on maximizing revenues may frequently interfere with the academic inventors' own efforts to successfully commercialize the patented technology.²⁸²

If these competing goals were the end of the story, overall societal benefits may still accrue. Yet these conflicts and the resulting patent schisms may frequently result in overall societal loss. The cost-benefit analysis in such scenarios (as in others) is complicated given the varied interests involved. This

277. See *supra* Section III.A.2.

278. See *supra* Section III.A.2.

279. See *supra* Sections II.B.4 & III.C.

280. AM. ASS'N UNIV. PROFESSORS, *supra* note 133, at 4.

281. See, e.g., Daniel Engbar, *In Pursuit of Knowledge, and Profit*, SLATE (May 7, 2014, 11:49 PM), http://www.slate.com/articles/technology/history_of_innovation/2014/05/patent_trolls_universities_sometimes_look_a_lot_like_trolls.html (discussing how universities sometimes work with and aid patent trolls, which, when they do, may ultimately damage the reputation of the inventors behind the patents sold or licensed to the patent trolls).

282. AM. ASS'N UNIV. PROFESSORS, *supra* note 133, at 4.

Article does not purport to definitively answer the question. But on the whole, there are several reasons to believe that many such patent schisms impose significant costs on society without offsetting benefits.

To illustrate, the most plausible societal benefit of university patenting is that it helps ensure that the patented ideas are further developed for the benefit of society.²⁸³ University patenting purportedly helps achieve this by making commercial use of the patented ideas more likely, since commercial entities may otherwise be loath to invest resources into commercializing an idea without patent protection in place.²⁸⁴ This rationale, in fact, was the primary motivation behind the Bayh–Dole Act, which allows federally funded university research to be patented.²⁸⁵ To that end, universities often attempt to license or sell their patents to commercial entities for purposes of developing products and services that utilize the patented ideas.²⁸⁶

But when universities focus on maximizing licensing revenue from their patents via exclusive licensing, which is often the case,²⁸⁷ they not only frequently contravene the purposes of the academic inventors in pursuing the patent, but may also often inhibit optimal commercialization of the patented idea.²⁸⁸ Universities may thus undermine the very benefits the patent was meant to secure.²⁸⁹ For instance, in emphasizing license revenue maximization, universities may frequently increase the societal costs of the

283. See, e.g., Rebecca Henderson et al., *Universities as a Source of Commercial Technology: A Detailed Analysis of University Patenting, 1965–1988*, 80 REV. ECON. & STAT. 119, 125 (1998) (discussing data showing that increased university patenting has resulted in more license deals, and thus more technology transfer to commercial entities, than in earlier eras when university patenting was less frequent); Richard R. Nelson, *Observations on the Post-Bayh-Dole Rise of Patenting at American Universities*, 26 J. TECH. TRANS. 13, 15 (2001) (“The theory behind Bayh-Dole, of course, was that technology transfer from universities to industry would be greatly facilitated if universities got patents on their research results, and licensed these patents to industry, generally on an exclusive basis.”).

284. See David C. Mowery et al., *The Growth of Patenting and Licensing by U.S. Universities: An Assessment of the Effects of the Bayh-Dole Act of 1980*, 30 RESEARCH POL’Y 99, 101–03 (2001) (reviewing the history of university patenting and the purposes behind it); Nelson, *supra* note 283, at 15–16.

285. Mowery et al., *supra* note 284, at 101–03 (reviewing the history leading up to the Act’s implementation and reasons behind it).

286. Henderson et al., *supra* note 283, at 119–23 (discussing the growth of university patent licensing for purposes of commercializing the patented ideas).

287. Litan et al., *supra* note 103, at 43–44; see also Chris Nicholson, *Maximizing the ROI of Intellectual Property*, UNIV. BUS. (Sept. 29, 2014), <https://www.universitybusiness.com/article/maximizing-roi-intellectual-property> (discussing research showing that most universities fail to realize a profit on their patent licensing efforts and pointing to possible alternatives that other universities have utilized).

288. AM. ASS’N UNIV. PROFESSORS, *supra* note 133, at 4; Love, *supra* note 105, 326–28.

289. Love, *supra* note 105, 326–28.

patent by limiting access to the patented idea and inhibiting follow-on innovation.²⁹⁰

When universities formally enforce their patents against third parties, those enforcement activities may often have similar negative societal effects without offsetting benefits. For example, those enforcement activities are typically taken against commercial entities that have already commercialized the patented idea.²⁹¹ While those commercial entities may have copied the patented ideas from the universities, in many, perhaps most, cases, it is more likely that the entities have independently developed the patented ideas themselves.²⁹² In such cases, the very benefits patents were meant to secure—commercialization of the patented idea—have already been realized, and the universities' enforcement activities simply impose additional societal costs without netting additional societal benefits.

One may argue that it is not fair for commercial entities to use patented ideas without compensating the university patent owner, regardless of whether they copied the invention from the university. This is, in fact, how patent law is currently implemented.²⁹³ Be that as it may, the enforcement activities still promise only private benefits, if any, to the university. And those private benefits seem unnecessary to have incentivized the research leading to the patents, since other incentives, such as federal funding and pursuit of a research agenda, are often primarily responsible for motivating the research in academic settings.²⁹⁴

Altered economic prospects may also cause patent schisms that result in overall societal detriment. When commercial failure leads parties to turn to patent assertion as a new business model, it seems likely that the new business model mostly imposes costs, without offsetting benefits, on society. Some evidence, for instance, shows that patent licensing activities rarely result in actual technology transfer; instead, licensees typically end up paying for

290. Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29, 29–30 (1991) (discussing how patents may impose societal costs by inhibiting follow-on innovation).

291. See, e.g., *Patent Enforcement: Honoring Innovation*, HARV. UNIV., <http://www.harvard.edu/media-relations/media-resources/popular-topics/patent-enforcement> (last visited Sept. 6, 2018) (describing some recent patent suits initiated by Harvard University against large global companies).

292. See generally Lemley, *supra* note 31 (reviewing the history of numerous innovations and arguing on the basis of that review that simultaneous independent invention is the norm, rather than the exception).

293. See generally Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475 (2006) (arguing that independent invention should be a defense to patent infringement).

294. See Pablo D'Este & Markus Perkmann, *Why Do Academics Engage with Industry? The Entrepreneurial University and Individual Motivations*, 36 J. TECH. TRANSFER 316, 332–33 (2011) (finding that even when academics engage with industry, they are often still motivated to do so in pursuit of furthering their research agenda); A. Abigail Payne & Aloysius Siow, *Does Federal Research Funding Increase University Research Output?*, 3 ADVANCES ECON. ANALYSIS & POL'Y 1, 17 (2003) (showing that increased federal funding appears to increase the amount of scholarly output).

innovative activities that the patents may cover, but in which the licensees were already independently engaged.²⁹⁵ In short, a tax, without offsetting benefits, is imposed. One counter is that the ability to monetize patents—including in the future—may motivate many patent owners to undertake the innovative activities underlying the patent in the first place.²⁹⁶ Hence, even if later assertions of those patents impose costs, those costs were necessary to incentivize the patent owner to engage in the socially beneficial behavior earlier.²⁹⁷

As with patent schisms resulting from intra-organization heterogeneity, computing the costs and benefits in such scenarios is quite difficult.²⁹⁸ Yet it seems likely that the ability to monetize the patents through later licensing campaigns was not a necessary motive for the inventive activities in many cases. Start-ups, for example, many of whose patents end up in such licensing campaigns, are primarily motivated by other factors.²⁹⁹ Large companies are often motivated by other factors as well.³⁰⁰ Hence, later patent schisms based on dwindling commercial prospects may frequently simply impose costs, without offsetting benefits, on society.

Thus, the dynamism of patents owing to their personal property attributes can be a double-edged sword. That dynamism may incentivize some parties to pursue innovations, because the full panoply of potential patent benefits may act as an enticement to those parties to undertake socially beneficial innovation.³⁰¹ That dynamism may also result in parties using patents in varied, yet overall socially beneficial ways. But the same dynamism may frequently result in patent schisms with overall negative societal effects. Indeed, a patent's dynamic nature may cause some parties to seek patents simply for the sake of patents.³⁰² In other words, many parties may seek patents, not as an enticement to socially beneficial behavior, but rather because a patent's myriad possibilities makes not pursuing them on

295. Feldman & Lemley, *supra* note 273, at 173.

296. See, e.g., Stephen H. Haber & Seth H. Werfel, *Patent Trolls as Financial Intermediaries? Experimental Evidence*, 149 ECON. LETTERS 64, 65–66 (2016) (arguing on the basis of experimental evidence that patent trolls serve a useful intermediary function for certain types of patent owners); Joel Benjamin, *The Other Side of the Debate over Patent Trolls*, IPWATCHDOG (Dec. 10, 2013), <http://www.ipwatchdog.com/2013/12/10/the-other-side-of-the-debate-over-patent-trolls> (discussing how patent trolls enable small patent owners to realize economic returns from their inventive activities).

297. Haber & Werfel, *supra* note 296, at 64.

298. A vast literature exists attempting to address the costs and benefits in these situations. See, e.g., Jonathan H. Ashtor et al., *Patents at Issue: The Data Behind the Patent Troll Debate*, 21 GEO. MASON L. REV. 957, 960–63 (2014) (reviewing this debate and some of the literature surrounding it).

299. See *supra* Section II.B.1.

300. See *supra* Section II.B.2.

301. See *supra* Sections II.B.1 & II.B.2 (reviewing a number of factors that may, in the cumulative, motivate parties to pursue patents).

302. See Bock, *supra* note 6, at 304–06 (discussing how companies frequently “harvest” patents, in part based on a variety of institutional factors).

innovations that parties are already pursuing foolhardy.³⁰³ And when parties obtain patents for such reasons, later schisms can result in net societal losses for the reasons discussed above.

Hence, limiting patents to particular purposes in some situations may help avoid some of these losses. Scholars have devoted entire studies to examining how, and under what circumstances, patents might be limited so that they are only eligible for specific uses.³⁰⁴ Gideon Parchomovsky and Michael Mattioli, for instance, have argued for a new “partial patent” that would only be usable against direct competitors.³⁰⁵ Colleen Chien has explored a number of ways that we might modify the patent system to increase the diffusion of technology, including in some cases limiting patent rights to specific purposes.³⁰⁶ Several authors have argued that limiting patents to only defensive purposes makes sense under certain conditions.³⁰⁷ This Article’s purpose is not to rehash these ideas nor to add yet another such proposal. Instead, it is to argue that a patent’s dynamism—as reflected in patent schisms—is another reason to strongly consider reforming patent law in such ways so that patent law helps mitigate, rather than enable, unproductive manifestations of that dynamism.

This point tracks onto a long-standing debate in the intellectual property (“IP”) field about whether we should consider IP rights a form of personal property.³⁰⁸ Opponents of the property view of IP argue that patents are simply a set of regulatory rights, and that those rights are legitimately curtailed when they fail to serve their utilitarian purposes.³⁰⁹ Property advocates, meanwhile, argue in favor of a broader, more inviolable set of rights attaching to a patent, the end result being the status quo: Patent owners can and should be able to use their patent property as they wish.³¹⁰

303. *Id.*

304. See generally, e.g., Asay, *supra* note 46 (discussing the possibility of a two-track patent system whereby patentees willing to only use their patents defensively would be entitled to an independent invention defense to patent infringement); Chien, *supra* note 9 (exploring a variety of ways the patent system may be modified to restrict uses of patents beyond specific purposes); Gideon Parchomovsky & Michael Mattioli, *Partial Patents*, 111 COLUM. L. REV. 207 (2011) (proposing two new forms of patents, one of which would only be usable against direct competitors, and the other conditioned on greater disclosures relating to the patented invention).

305. Parchomovsky & Mattioli, *supra* note 304, at 226–29.

306. Chien, *supra* note 9, at 801.

307. See, e.g., Asay, *supra* note 46, at 478–79; Chien, *supra* note 9, at 807–08.

308. See Mark A. Lemley, *Taking the Regulatory Nature of IP Seriously*, 92 TEX. L. REV. SEE ALSO 107, 107 (2014).

309. Mark A. Lemley, *IP and Other Regulations* 1–2 (Stan. Law & Econ., Working Paper No. 476, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2589278 (“Intellectual property (IP) is a form of regulation. . . . Whether an IP rule is worth the cost depends, as it does with any other regulation, on whether the benefits we get from that rule (presumably increased or higher-quality innovation or creativity) are worth the costs.”).

310. See, e.g., Frank H. Easterbrook, *Intellectual Property is Still Property*, 13 HARV. J.L. & PUB. POL’Y 108, 112 (1990) (arguing that a “right to exclude in intellectual property is no different

The negative societal repercussions of many patent schisms provide some support for the argument that treating patents as a form of regulation that should be confined, when possible, to certain utilitarian purposes is the right approach. Of course, whether and when patents serve such utilitarian purposes can be a difficult question to answer. As Fritz Machlup famously articulated after studying the patent system in the mid-twentieth century:

No economist, on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss on society. . . . If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.³¹¹

This conclusion largely holds true today,³¹² making knowing when to curtail patent rights difficult. Indeed, as briefly discussed above, dynamic uses of patents can sometimes serve useful purposes, too. Nonetheless, because of the deleterious societal effects many patent schisms appear to have, further exploring specific situations that merit patent curtailment remains a worthy pursuit.

B. EMPIRICAL WORK ON THE PURPOSES BEHIND PATENTING

Frequent patent schisms also point to the need for more careful empirical work regarding the reasons parties pursue patents. Scholars have spent a good amount of effort surveying parties that pursue patents, or that are otherwise involved in the patenting process, to better understand the reasons behind patenting.³¹³ Yet such empirical work must take the reality of patent schisms into account to ensure that its results are credible.

For instance, surveyed parties may sometimes respond to surveys asking why the party pursued patents with an answer that actually reflects the purposes for which the party ultimately used some or all of the patents. A large company, when surveyed, may indicate that it pursues patents in expectation

in principle from the right to exclude in physical property”); Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 701 (2007) (pointing to constitutional and judicial history in support of treating patents as personal property).

311. SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHT OF THE S. COMM. OF THE JUDICIARY OF THE U.S., 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM, STUDY NO. 15, at 79–80 (2d Sess. 1958).

312. Lisa Larrimore Ouellette, *Patent Experimentalism*, 101 VA. L. REV. 65, 76 (2015) (concluding that none of the current evidence that we have regarding the patent system “resolves whether patents have a net positive effect on innovation, much less their net welfare effect, or whether alternative innovation incentives such as grants, prizes, and tax credits are inferior”).

313. See generally, e.g., Sichelman & Graham, *supra* note 34 (providing survey results relating to why start-up companies pursue patents, and also reviewing multiple previous surveys relating to why larger companies seek patents).

of licensing revenues, precisely because it has recently adopted a patent licensing business model. Yet, in reality, the company may have initially pursued some or all of those patents for entirely different reasons (for instance, for defensive purposes).³¹⁴ Universities may similarly respond to surveys with answers that reflect their ultimate uses of patents in commercialization efforts, when in reality, university patents typically owe their origins to a complex set of faculty inventor motivations, as we have seen.³¹⁵ The ultimate uses of patents, therefore, may often dictate how parties respond to surveys, even if other motivations actually drove them to pursue the patents initially.

This is an important problem to address for at least two reasons. First, accurately understanding the reasons for patenting helps ensure that the system is serving the purposes for which it was intended. If we believe that the patent system should be confined to incentivizing parties to engage in socially beneficial behavior, and we discover that parties often pursue patents for reasons unrelated to those purposes, we may wish to reform the patent system to limit issued patents to uses that serve those purposes, as discussed above. Knowing how and where to make such reforms is a complicated task. But accurately assessing the purposes that patents serve is where that task must begin.

Second, if we discover that many parties pursue patents for reasons unrelated to the typical utilitarian justifications for the patent system, we may find that those purposes are still worthwhile to foster. For instance, patents, rather than acting as a necessary incentive to innovative behavior, may often be something parties pursue largely for purposes of recognition.³¹⁶ University researchers and independent inventors may frequently pursue patents with such motivations in mind.³¹⁷ These types of purposes may be worthwhile to foster because they can indirectly promote innovation with fewer social costs than patents pursued for more traditional exclusionary purposes. In fact, in some situations, these types of purposes may be preferential to more traditional patenting purposes, since a party seeking recognition may impose fewer social costs than a party utilizing a patent to thwart marketplace competition. But this may not be true to the extent that patents obtained for such purposes later become subject to patent schisms. Hence, if we discover that such purposes motivate patent acquisition in many cases, we may wish to alter the patent system to emphasize those purposes while limiting patents to them in some cases, all in order to mitigate the social costs that those patents may otherwise impose through later patent schisms.

314. See *supra* Section II.B.2.

315. See *supra* Sections II.B.4 & III.C.

316. See Bair, *supra* note 40, at 349–50 (discussing the important role that attribution plays for many inventors).

317. *Id.*; see *supra* Sections II.B.4 & III.C.

Of course, accurately assessing the real reasons behind patent acquisition may be difficult to achieve for a number of other reasons. Scholars have long noted that memories often tend to be unreliable and change based on a number of factors.³¹⁸ Surveyed parties may also often be subject to any number of influences that make it difficult, or even undesirable, to tell the truth as to what motivated them to pursue patents.³¹⁹ Hence, even the best structured empirical work may be subject to such limitations.

Nonetheless, explicitly taking into account the realities of patent schisms can help mitigate some of these problems. The most reliable results may need to focus on asking parties their reasons for pursuing patents at the time they are actually pursuing the patents, rather than relying on their memory later, when recent uses of patents may contribute to inaccurate self-assessments of earlier purposes. Furthermore, surveys may be structured to help mitigate survey respondents' propensity to lie.³²⁰ Hence, while survey results may always be imperfect, fully taking into account the reality of patent schisms will go a long way towards eliminating some of that imperfection.

V. CONCLUSION

This Article has reviewed evidence of patent schisms in practice, articulated three theories as to why they arise, and explored some of the more important theoretical and normative implications of their reality. Patent schisms lie at the heart of the debate about how we conceive of patents and the purposes behind them. Are patents simply the property of their owners, and we take for granted that that property status is an important bedrock of our society? Or are patents property only to the extent that that property status facilitates more specific utilitarian ends?

This Article finds that the pervasiveness of patent schisms and the explanations behind them point to some troubling implications. Most notably, the property status of patents often contributes to patent schisms that appear to have overall deleterious societal effects, at least as measured by the difference between the purpose behind their initial acquisition and their later use. If we take the Constitution at its word—and arguably, we must—then patent schisms present a real constitutional conundrum.³²¹ Reforming patent

318. See, e.g., Arthur Dobrin, *Your Memory Isn't What You Think It Is*, PSYCHOL. TODAY (July 16, 2013), <https://www.psychologytoday.com/blog/am-i-right/201307/your-memory-isnt-what-you-think-it-is> (reviewing recent research showing that memories change with each recall of a memory).

319. See, e.g., Peter R. Orszag, *People Lie, But Search Data Tell the Truth*, BLOOMBERG: OPINION (May 9, 2017, 5:30 AM), <https://www.bloomberg.com/view/articles/2017-05-09/people-lie-but-search-data-tell-the-truth> (describing the long-noted phenomenon that people tend to lie on surveys for any number of reasons).

320. See *Why People Lie on Customer Surveys (and How to Minimize It)*, MTAB, <http://www.mtabsurveyanalysis.com/why-people-lie-on-customer-surveys-and-how-to-minimize-it> (last visited Sept. 6, 2017).

321. Oliar, *supra* note 270, at 1773.

law to limit the most troubling manifestations of patent schisms would go a long way towards ensuring that patents serve their constitutional purposes.