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Patent Variation: Discerning Diversity Among Patent Functions

Jessica Silbey

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This Article describes and analyzes qualitative interview data collected over a five-year period. The goal of the interviews was to explore the roles of intellectual property ("IP") in IP rich fields. Interviews were with diverse actors in a wide-range of industries: film, book publishing, visual arts, internet commerce, biology, engineering, chemistry, computer science. The data described and analyzed in this Article focuses on the specific question about the diverse functioning of patents in the subset of interviewees who are scientists and engineers, their lawyers and business partners. The Article proceeds in two parts. Part I describes the empirical dimension of the research in more detail, highlighting the unique qualitative aspect of this research and comparing it to the more common quantitative method. Part II describes the variation across the interviews, culling from the data the diverse ways patents function beyond the doctrinally orthodox and predominantly singular explanation that patents facilitate the recuperation of research and development costs through exclusivity. The Article concludes with some thoughts on the implications of this diversity in light of the traditional and largely monolithic explanation for patent rights in the United States.

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INTRODUCTION

For five years, I have been conducting interviews with artists and scientists in diverse fields, as well as with their lawyers and business partners, in order to learn how intellectual property functions in their professional lives. The book-length project involves the collecting and analysis of stories from the interviewees about how and why they create and innovate.[1] It further categorizes in detail the diverse roles intellectual property plays in the development and fulfillment of professional aspirations in art and science. Specifically, the book unpacks the motives and mechanisms behind creative and innovative activity and discerns how intellectual property intervenes in the careers of the artists and scientists.

This Article is an independent analysis of the interview data to investigate a specific question about the diverse functioning of patents in the subset of interviewees who are scientists and engineers, lawyers and business partners. The Article will proceed in two parts. Part I describes the empirical dimension of the research in more detail, highlighting the unique qualitative aspect of this research and comparing it to the more common quantitative method. Part II describes the variation in the interviews, culling from the data the diverse ways patents function beyond the doctrinally orthodox and largely singular explanation that patents facilitate the recuperation of research and development costs through exclusivity. The Article concludes with some thoughts on the implications of this diversity in light of the traditional and largely monolithic explanation for patent rights in the United States.

I. RESEARCH METHOD: QUALITATIVE VERSUS QUANTITATIVE INVESTIGATIONS

Innovation and creativity are buzzwords of the twenty-first century. The United States proclaims its dominance in the technological and cultural cutting edge, be it in computer technology, pharmaceutical development or mechanical innovation.[2] What facilitates innovation

1. The book-length project is forthcoming from Stanford University Press in 2014.

2. *See* Press Release, President Obama, White House, Office of the Press Sec'y, Remarks by the President on the BRAIN Initiative and American Innovation (Apr. 2, 2013), *available at* http://www.whitehouse.gov/the-press-office/2013/04/02/remarks-president-brain-initiative-and-american-innovation ("Ideas are what power our economy. It's what sets us apart. It's what America has been all about. We have been a nation of dreamers and risk-takers; people who see

and creativity in our twenty-first century? And what role, if any, do our intellectual property laws play in the growth of innovation and creativity in the United States?

Incentivizing the "progress of science and the useful arts" has been the putative goal of intellectual property law since our constitutional beginnings.[3] But two hundred years later, we remain unsure—indeed deeply conflicted—about whether the laws that protect intellectual property work as we hope.[4] This is, in part, because of our failure to study those who create and innovate; instead, existing laws are based on theoretical models of assumed economic transactions and hypothetical business practices.[5] Lawyers, legal scholars and law reformers should be asking the creators and innovators themselves, in a systematic and disciplined way, how and why they do what they do in order to investigate whether or how intellectual property law has a role in their professional and innovative activities.[6]

My data is culled from face-to-face interviews with fifty artists and scientists, their employers, lawyers and managers. Half of the interviews are with people from patent-rich fields. In these interviews, individuals from diverse industries describe how and why they innovate. Their employers, business partners, managers and lawyers

what nobody else sees sooner than anybody else sees it. We do innovation better than anybody else—and that makes our economy stronger.").

3. U.S. CONST. art. 1, § 8, cl. 8.

4. The amount of literature calling into question the necessity or utility of intellectual property law in the United States is too vast to cite here. *See, e.g.*, JAMES BESSEN & MICHAEL MEURER, PATENT FAILURE: HOW JUDGES, LAWYERS AND LEGISLATURES PUT INNOVATORS AT RISK (2008); MICHELE BOLDRIN & DAVID K. LEVINE, AGAINST INTELLECTUAL MONOPOLY (2008); DAN BURK & MARK LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT (2009; *see also* Raymond Shih Ray Ku et al., *Does Copyright Law Promote Creativity?: An Empirical Analysis of Copyright's Bounty*, 62 VAND. L. REV. 1669, 1680–85 (2009) (describing the ubiquity of the IP incentive story despite a lack of empirical evidence in support).

5. The literature on law and economics is largely theoretical, based on frictionless transactions and rational-actor models, despite these models' lack of significant correlation to the lived experiences. For a seminal article in the area, see William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 325–33, 344–53 (1989); *see also* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609, 609–26 (1962); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 265–90 (1977). The literature tends to admit this failing, *see, e.g.*, WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW (2003) [hereinafter LANDES & POSNER, ECONOMIC STRUCTURE OF IP LAW], but nonetheless continues to dominate case law, statutory reform and, by consequence, legal advice and counsel.

6. Some examples of recent and notable empirical work in this area include the sources cited *supra* note 4, as well as Ronald Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961 (2005) and 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 (2009).

also describe the process of facilitating the creative and innovative work. The focus on the interviewees' stories from their professional development (the how, why and what of their innovative work) animates and particularizes the one-dimensional and opaque statutory provisions that regulate patent protection in the United States. In general, interviewees demonstrate diverse ways in which patents specifically (and intellectual property ("IP") generally) help and hinder scientific and artistic productivity. Accounts from engineers and scientists about how and why they began and continue work in their fields, how and why they work with business folks and lawyers, the challenges and joys of being a scientist or engineer and what, if anything, they would change about their professional lives, are a window into the intersection of innovative work and the successes and failures of patent law. Parsing these stories and comparing them with those told by their business counterparts provides a layered account of the multi-dimensionality of U.S. patent law, its popular evocations, its criticisms and its commendations.

Instead of conducting and analyzing interviews, I could study outcomes. Do pharmaceutical companies with more patents make more socially beneficial medicines? Do companies who produce and license computer software file more patents than copyrights? Which of these entities files suit more often and what is the nature of their legal claims? Measuring outcomes would be easier—there is a tangible dependent variable to count. But such quantifiable outcomes are notoriously ambiguous metrics. For example, how do we determine which medicines fulfill the constitutional "progress" rationale? By how many lives saved? By how much profit generated? And, importantly, how do we know whether intellectual property law that protects the output is the mechanism that is causally responsible for it?

In contrast to research that focuses on patent filings and litigation or citation counts,[7] this research unpacks the assumption and mystery of

7. The amount of quantitative research on patenting is large and growing. Some articles include: Colleen Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571, 1577–79 (2009); Colleen V. Chien, *Patently Protectionist?: An Empirical Analysis of Patent Cases at the International Trade Commission*, 50 WM. & MARY L. REV. 63 (2008); Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979–1995*, 32 RAND J. ECON. 101 (2001) (examining the propensity of semiconductor firms to obtain patents); Ted Sichelman & Stuart Graham, *Patenting by Entrepreneurs: An Empirical Study*, 17 MICH. TELECOMM. & TECH. L. REV. 111 (2010). From the social sciences, see, e.g., Fiona Murray & Scott Stern, *Do Formal Intellectual Property Rights Hinder the Free Flow of Scientific Knowledge?: An Empirical Test of the Anti-Commons Hypothesis*, 63 J. ECON. BEHAV. & ORG. 648, 664–67 (2007); John P. Walsh et al., *Views from the Bench: Patents and Material Transfers*, 309 SCIENCE 2002, 2002–03 (2005).

incentives by *analyzing the accounts people provide* about how and why they do what they do and who (or what) helped them along the way. Certainly, isolating and analyzing motive and incentives is challenging. Nonetheless, motives and incentives are the ways law talks about IP.[8] Without exception, courts, legislators and lawyers describe the purpose of IP law as providing the necessary incentive for creativity and innovation.[9] This utilitarian justification, however, speaks of incentive without evidence of connection to lived experience. Despite a growing body of quantitative research on IP law and policy, qualitative research that could document or challenge the incentive assumption is rare.[10]

My goal in studying creative and innovative activity from a qualitative perspective is primarily to add texture and depth to the existing large number analyses (the quantitative research, also called "large-N" studies) that have grown in number and interest over the past decade. Quantitative work, although persuasive given the appeal of statistical data, often lacks textural and granular details that resonate with lived experience. Moreover, my interview data, insofar as it confirms the quantitative analysis, lends further support to those big number studies. And where the data diverges, it demands further research to better define the appropriate questions and lead us to more accurate conclusions.

I identified my interviewees through a combination of letter-writing

8. *See also* LANDES & POSNER, ECONOMIC STRUCTURE OF IP LAW, *supra* note 5, at 37–84 (describing an economic model for copyright protection); Diane Leenheer Zimmerman, *Copyright as Incentives: Did We Just Imagine That?*, 12 THEORETICAL INQUIRY L. 29, 30 (2011) (critically examining the traditional justification of copyright law as providing creative incentive).

9. *E.g.*, Bowman v. Monsanto Co., No. 11-796, slip. op. at 8 (U.S. May 13, 2013) (describing how extending the exhaustion principle would result in less incentive for innovation than Congress wanted).

10. The well-regarded 2008 Berkeley patent survey is a *quantitative* study of motives and incentives. *See* Graham et al., *supra* note 6. Some recent qualitative research on intellectual property from the legal academy includes, William Gallagher, *Trademark and Copyright Enforcement in the Shadow of IP Law*, 28 SANTA CLARA COMPUTER & HIGH TECH. L.J. 453 (2012); David Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335 (2012); Jessica M. Silbey, *Harvesting Intellectual Property: Inspired Beginnings and 'Work Makes Work': Two Stages in the Creative Process of Artists and Innovators*, 86 NOTRE DAME L. REV. 2091 (2011). There has been significant ethnographic research in other fields, including anthropology and sociology, which studies innovative communities. *See* PETER DICOLA & KEMBREW MCLEOD, CREATIVE LICENSE: THE LAW AND CULTURE OF DIGITAL SAMPLING (2011) (musicians); CHRIS KELTY, TWO BITS: THE CULTURAL SIGNIFICANCE OF FREE SOFTWARE (2008) (computer programmers); Jason Owen-Smith, *Dockets, Deals, and Sagas: Commensuration and the Rationalization of Experience in University Licensing*, 35 SOC. STUD. SCI. 69, 69–97 (2005) (university technology transfer offices). But, their focus has not explicitly been on the connection between legal incentives and productivity.

campaigns and non-random stratified sampling.[11] The interviewees in the patent-rich fields include individual inventors, employee-inventors, patent lawyers, entrepreneurs, venture-capitalists and principles in private and public companies (e.g., presidents, vice-presidents, CEOs). The benefit of this particular sampling method is that it provides diverse perspectives on various mechanisms and influences on the same or similar innovative and commercial activity. I am also able to select interviewees who I believe will have diverging views from those already interviewed based on recommendations from those who have already taken part in the study.

Each interview is approximately ninety minutes long. My interview protocol is standardized—the same questions are asked of nearly everyone—although some questions are more relevant to some interviewees than others. The protocol is designed to generate both an in-depth and open-ended conversation, in which I guide the interaction with scripted topics but am always responsive to the interviewees' interventions and tangents.[12] I do not ask directly about IP or patent law, but instead access ideas about work product and its protection from within the interviewees' everyday practice as well as through their personal and professional biography. I ask about how they make a living, whether it suits them and what they would change about it. I ask about their aspirations: if they could do or be anything in ten years what would it be? I also ask about daily activities, concrete problems and pleasures they experience while working. Inevitably, they discuss a dispute about rights or control over their (or others') innovative work. Or they describe professional or personal highs or lows relating to their work. They talk about professional relationships, whether they function optimally and what puzzles or excites them about their professional lives. Interviewees are asked to suggest reasons for their career successes or failures, making comparisons when possible to others in the field that have been more or less successful. From these descriptions, I am able to discern the similarities and differences in their accounts about ingenuity and innovation as well as IP law's varied interventions in their work life.

Analysis of the transcripts proceeds at the level of language (word choice, narrative structure and content) and conceptual themes (drawn

11. *See* Jan E. Trost, *Statistically Nonrepresentative Stratified Sampling: A Sampling Technique for Qualitative Studies*, 9 QUALITATIVE SOC. 54, 54–57 (1986) (providing a seven step method for qualitative data analysis).

12. For descriptions of interview methodology that informed mine, see generally ELLIOT G. MISHLER, RESEARCH INTERVIEWING: CONTEXT AND NARRATIVE 9–34 (1985) and JAMES P. SPRADLEY, THE ETHNOGRAPHIC INTERVIEW 4–8 (1979).

from reading across the transcripts and from the literature on innovation and IP). Drawing on my experience and training as a literary scholar, analysis of the interviews isolates and analyzes the various linguistic and narrative components that form a particular moral ordering (or "point") and that often may reflect or maintain a particular institutional or social structure.[13] The analysis of conceptual themes in the interviews develops from the socio-legal literature on innovation and legal policy. As I read and reread the interviews, and then as I coded with help of the analytic software,[14] I revised my searches of the data based on reformulated questions and categories that emerged from this on-going study of the interviews and the scholarly literature.

The interview transcripts form a database of language—cultural tropes and meanings—that describe how respondents think about their creative and inventive processes and the legal mechanisms that frame their work. Understandably, the data is based on what is reported, and thus this study is foremost a project concerned with legal consciousness about creative and innovative processes and its relationship to IP law. The interviews are evidence of the culturally circulating schema, memes, interpretations and understandings of the intersections of innovation and the law. Inasmuch as the analysis of the transcripts also reveals preferences acted upon by the interviewees through their descriptions of their work and its effects, the project also explores possible connections or disconnects between popular consciousness and self-reported behavior.

Often in psychology, political science and economics, we hear about how "attitudes" and "behaviors" are relevant measures for the study of human interaction and organization.[15] As someone trained in the

13. Hayden White, *The Value of Narrativity in the Representation of Reality*, *in* ON NARRATIVE 1, 15–18 (W.J.T. Mitchell ed., 1980) (describing how the recounting and analysis of history—stories of events—is inherently political with a moral point to assert or undermine); *see also* ROSS CHAMBERS, STORY AND SITUATION: NARRATIVE SEDUCTION AND THE POWER OF FICTION 212–13 (1984) (explaining how narrative accounts are always justificatory of change or the status quo).

14. All transcripts are uploaded into Atlas.ti, a qualitative analysis software program. The transcripts were coded once by a research assistant and then again by me (to correlate coding and insure intercoder reliability). I developed codes to analyze the transcripts. These codes were developed deductively from preliminary findings and inductively from the emergent language, repetitions, narrative structure and conceptual themes contained in the interviews. Each transcript was read and summarized in a four to five page synopsis. These condensations include any notes made during the interview, a description of particularly interesting stories related by or quotations from the interviewee, and a list of overarching themes from the interview. Documents were also collected during the interviews when available and relevant. All notes, documents and interviews are part of the Atlas.ti database that was analyzed.

15. Pamela M. Homer & Lynn R. Kahle, *A Structural Equation Test of the Value-Attitude-Behavior Hierarchy*, 54 J. PERSONALITY & SOC. PSYCHOL. 638, 638–46 (1988).

humanities as well as the law, my method of inquiry more closely replicates those in sociology and anthropology insofar it resembles an ethnographic or interpretive study based on the study of language and sets of circulating signs. (Of course, language and symbolic systems are the stuff of law, which is why it is a particularly appropriate approach here.) In psychology, political science and economics, "attitudes" and "behaviors" often suggest a static set of referents, as if people wear their personal opinions and attitudes as buttons or t-shirts, which are then unambiguously reflected in their behavior.[16] This approach contrasts with the sociological understanding that people reflect and enact their experiences and beliefs through on-going interactions with others that iterate and are responsive to the situations and social contexts in which they operate. As Pierre Bourdieu writes, empirical surfaces "mask the structures that are realized in them," as both a product of underlying constraints and a procedure whereby those constraints are reconstituted.[17] So instead of "attitudes" and "behaviors," I prefer to describe the measure and method of this qualitative analysis as the collection and analysis of *accounts of experiences and actions* and of the *interpretations of those experience and actions*. The accounts, reflected in the interview transcripts, enact and display the ways in which interviewees make sense of and interpret the particular world of which they are a part, that is, the creative and innovative world in which intellectual property law purports to situate itself.[18]

Why do we see so much more quantitative work in intellectual property (and elsewhere)? One reason may be that quantitative analysis can be done in large part from a desktop that has access to and can process large databases (including court dockets, Securities and Exchange Commission filings and more recently, survey programs such as Survey Monkey). In contrast, the data for qualitative analyses must be generated through observation and conversations and can take much longer. Another reason for a predilection for quantitative research may be explained by the illusion of certainty numbers provide and the fact

16. This is what Bourdieu calls the "substantialist error." The substantialist error "inclines one to recognize no reality other than those that are available to direct intuition in ordinary experience . . . . [Yet] the visible, that which is immediately given, hides the invisible which determines it." PIERRE BOURDIEU, IN OTHER WORDS: ESSAYS TOWARDS A REFLEXIVE SOCIOLOGY 125 (M. Adamson trans., 1990).

17. *Id.* at 126, 130.

18. Importantly, qualitative interviews are not an assortment of anecdotes, but a systematic collection and analysis of accounts relevant actors in the field provide of their experiences. *Cf.* Graham et al., *supra* note 6 (alternatively referring to follow-up interviews as "anecdotal" and "qualitative"). These terms are not the same and the former ("anecdotes") denigrates the epistemological value of the latter ("qualitative accounts"). *Id.* at 1286, 1302.

that quantitative work appears to systematically collect and order observable phenomena in the world. Qualitative research seems messier, more ambiguous as to its conclusions and subject to human bias, whereas quantitative research appears more objective and clear-cut. Numbers are an attractive substitute for the messiness of culture, the discourses around cultural exchanges and the qualitative judgments necessary to regulate them. Numbers appear to offer a common language that obfuscate pesky historical and geographical variations, erasing the local, the personal and the particular, which are nonetheless always embedded in judgments of quality and which serve to render authoritative (e.g., "neutral") the conclusions drawn.[19] We must worry when engaging in quantitative research, however, that the universal, objective and transcendent qualities numbers reflect are laden with normative and political values hidden from view.

How does quantitative research work? Quantitative research counts relatively simple and abstract measures of something: e.g., the number of patents a company owns, the size of a company, the number of lawsuits filed or on-going, the kind of lawsuit or the kind of patent. From these counts, the quantitative method eliminates or asserts "simple causal theor[ies] that [are] weakly supported by an observed correlation."[20] One may start, for example, with the assertion that a presumed cause (e.g., enlarged patentable subject matter) is at least correlated with a presumed effect (e.g., much costly litigation). The quantitative data may then be analyzed to either eliminate this assertion (e.g., no correlation exists over the time of that enlargement) or eliminate other possible explanations (e.g., litigation is not booming generally). "Each time one eliminates one or more other theories of that correlation, one increases the likelihood of the simple causal theory."[21] But, a quantitative study must choose its abstract measures, like those I mentioned above. In other words, a researcher must imagine, before collecting and counting the items or events, all the possible or relevant variations in a particular situation or a respondents' experience and then turn those items or events into standardized, common language to analyze the data or provoke responses from survey respondents.[22]

19. THEODORE M. PORTER, TRUST IN NUMBERS: THE PURSUIT OF OBJECTIVITY IN SCIENCE AND PUBLIC LIFE 37 (1995).

20. ARTHUR L. STINCHCOMBE, THE LOGIC OF SOCIAL RESEARCH 3 (2005).

21. *Id.* at 2–3.

22. Moreover, if survey respondents do not interpret the question the way the researcher intended, the communicative capacity of the answers is limited. This was identified in the 2008 Berkeley Patent Survey as some cause for concern. Graham et al., *supra* note 6, at 1284 n.88. We usually assume that large-N studies will erase the particular misreadings or variant interpretations. And as the authors of the Berkeley Survey indicate, some follow-up interviews

This is, of course, a simplification of how quantitative analysis proceeds. But this brief explanation makes several points relating to the assumptions and accuracy underlying quantitative research.[23] First, the relevance of conclusions drawn from quantitative research may be questionable if underlying categories for measurement are based on unexamined assumptions.[24] This may be especially true when the data and the conclusions are put back into the messier cultural or organizational context from which they are taken. Second, the underlying categories of measurement may themselves be cultural constructs imported from the researcher rather than from the events or communities studied. In other words, when isolating data for a quantitative study, the *categories of analysis* matter a tremendous amount. We must ask ourselves: are these categories for collecting and sorting data or surveying respondents the best or right ones?

This problem can be well illustrated with an example. If I were to investigate the various roles a professor plays at her school, how she spends her time and the central aspects of her life as a teacher and scholar, I might devise a survey with the following questions to be answered with a sliding numerical scale: (1) How much time do you spend preparing for class? (2) How often do you meet with students? (3) How much time do you spend on committee work? (4) How much do you enjoy each of these things? (5) Is time devoted to research and writing adequate? From these questions, and others like them, I could analyze the received values and from there a sense of how a professor's day proceeds and how optimal she considers the balance of time spent. *But*, if I were to sit down with a professor, or as many professors as I surveyed, and conduct semi-structured and open-ended interviews with them about their workday as faculty members, starting with these questions and following them with more specific ones, my narrative data would produce much more than these particular categories. In fact, it is likely that some of these categories would be entirely absent from some interviews, indicating these are irrelevant categories for some

helped allay substantial concern. *Id.* at 1277.

23. Quantitative research has as its baseline the "transformation of different qualities into a common metric" put together for the purpose of saying something about them as a whole. As such, it relies throughout on assumptions and distinctions that are often tacit. Wendy Nelson Espeland & Mitchell Stevens, *Commensuration as a Social Process*, 24 ANN. REV. SOC. 313, 314–15 (1998).

24. *See supra* note 22 (considering how respondents interpret survey questions); *see also* Graham et al., *supra* note 6, at 1297–98 (describing some uncertainty about whether the survey response "prevent copying" was a socially desirable response or an actual belief).

subset of the faculty with whom I spoke.[25] From the open-ended invitation to describe roles and qualities of being a professor would come a range of values and interests, perhaps also their defining characteristics, that survey instruments may not capture.

In this light, qualitative research aims to do something quite different than quantitative research. Qualitative research tries to identify the situated knowledge, actors' experiences and interpretations about a particular object or field.[26] Whereas quantitative surveys tend to be simplifications of complex phenomena (e.g., litigation, patents, corporate structure) for the purposes of rough estimations about relationships, qualitative research is the identification of variations in and analysis of situations, events and objects, by gathering data that is "densely texture, locally grounded, [and] meaningful to the subjects themselves."[27] Where surveys mask specificity, heterogeneity and interrelatedness by making isolated and singular what may be multiple, qualitative analysis based on semi-structured interviews or ethnographic fieldwork displays social realities as they are lived, experienced, understood and familiar to the people studied.[28] This kind of interviewing and observation is designed to identify variations that might not have been anticipated in the design of a survey or to contextualize those that are identified but are isolated from others.

Importantly, qualitative and quantitative methods can work very well together. Qualitative work may best identify grounded variation in the social experiences of the actors and then quantitative methods can test the typologies or models with big-N studies to determine the distribution of the variations over a particular population. Combining methods in this way is ideal for iterating the knowledge produced and the situations studied.[29]

The qualitative method is particularly useful for the IP research questions I am investigating because I care about discerning how creative and innovative work proceeds and the circumstances that enable or frustrate that work *within the terms and understandings of the people doing it*, *their* perspectives and *their* activities. What else might "motive" and "incentive" mean in the repeated expressions of the legal

25. Further, sending a survey with questions addressed to these preconceived categories, might produce "false positive" responses to the categories as the respondent may feel compelled to register the interest in some manner for the researcher.

26. MATTHEW B. MILES, A. MICHAEL HUBERMAN & JOHNNY SALDAÑA, QUALITATIVE DATA ANALYSIS 10 (3d ed. 1994).

27. Jack Katz, *Ethnography's Warrants*, 25 SOC. METHODS & RES. 391, 392 (1997).

28. UWE FLICK, AN INTRODUCTION TO QUALITATIVE RESEARCH 155–61 (4th ed. 1998); *see also* JAMES P. SPRADLEY, THE ETHNOGRAPHIC INTERVIEW 58 (1979).

29. FLICK, *supra* note 28, at 40.

doctrine if not the thoughts, desires and perceptions of those creating and innovating, or those facilitating creation and innovation? Moreover, assuming we agree that there exist multiple subtleties to creative and innovative work—its designation as such and the conditions under which it is made and distributed in order to achieve the constitutional prerogative of "progress"—qualitative work can succeed where quantitative work may otherwise fail to unearth those subtleties for further investigation. This qualitative work is designed to identify both the large and small scale mechanisms and techniques by which the work is accomplished. Quantitative work can then helpfully point us to possible associations between the mechanisms using the causal analysis I mentioned above and can better generalize about mechanisms and techniques with regard to specific populations.

Because I understand law as a product of—and as actively constructed by—the people who invoke (or reject) it in their everyday working lives, I worry that quantitative research may distort the role of law by overemphasizing the individual as an autonomous agent within legal processes. Quantitative work can mythologize the individual or the object and her (or its) specific characteristics (e.g., the artist, the patent, the company) as discrete and isolated. By contrast, qualitative research often shines a light on *processes* and *mechanisms* by identifying and describing emerging and reciprocal relationships and by expressing their saliency in terms of cultural matter that is often hard to find by other methods.[30] Otherwise put, qualitative work can be a better exploration of the cultural processes (circulating signs and systems of signs) through which people make sense of their lives. This includes the variations and conflicts concerning the meaning and use of symbols and resources because at its core culture "is an intricate system of claims about how to understand the world and act on it."[31] One of my research goals is to understand how creative and innovative culture produce, and are produced by, intellectual property claims. The narrative data contained in the interviews—semiotic resources which are themselves mechanisms of culture—may be a better predictor of action (including legal action) than big data analyses or survey responses offered on standard questions both of which may largely depend on pre-set or ideological tropes. Of course, we cannot have robust knowledge without both.[32]

30. Katz, *supra* note 27, at 392–93.

31. CONSTANCE PERIN, SHOULDERING RISKS: THE CULTURE OF CONTROL IN THE NUCLEAR POWER INDUSTRY xii (2005).

32. Moreover, both quantitative and qualitative work demand historical analysis for fulsome and sophisticated understanding of trends and future predictions.

II. THE PATENT DATA

Given the nature and form of the interview data, it may be searched for any number of topics as identified by codes or that may be naturally occurring in the language of the respondents. In light of the nature of this Symposium and the interest in the role of patents in science and technology, and given the robust debate within the quantitative literature regarding the good (or bad) that patents may accomplish,[33] I searched the data for descriptions of patent value. By this, I mean quite explicitly: what do the interviewees describe as the roles patents play in their professional work and how do patents create, add to or frustrate the progress made through their scientifically or technologically-driven work?

In the quantitative literature, patent value takes many forms—for example, citation counts, market share estimations and predicted licensing revenue.[34] But the literature describing and analyzing patent value is highly theorized, hypothesizing the connection between citation counts and patent value, some critiquing it,[35] and others depending on macroeconomic models to predict future revenue in light of the wide-ranging variation among patents and patent portfolios that make micro-economic models challenging.[36] The 2008 Berkeley Patent Survey includes more variables describing what they call variations on "patent use,"[37] including securing financing, enhancing reputation and protecting against infringement actions. Instead of starting with preset categories as proxies for value (market share or licensing revenue) or

33. *See supra* notes 4, 6 (citing notable empirical work in this area calling into question the necessity or utility of intellectual property law in the United States); *see also* Graham et al., *supra* note 6, at 1263.

34. Ted Hagelin, *Valuation of Patent Licenses*, 12 TEX. INT'L L.J. 423, 424 (2004); Jean O. Lanjouw & Mark Schankerman, *Patent Quality and Research Productivity: Measuring Innovation with Multiple Indicators*, 114 ECON. J. 441, 441–65; Mark Schankerman & Ariel Pakes, *Estimates of the Value of Patent Rights in European Countries During the Post-1950 Period*, 96 ECON. J. 1052, 1052–76 (1985); Manuel Trajtenberg, *A Penny for Your Quotes: Patent Citations and the Value of Innovations*, 21 RAND J. ECON. 172, 172–87 (1990); *see* David S. Abrams, Ufuk Akcigit & Jillian Popadak, Understanding the Link between Patent Value and Citations: Creative Destruction or Defensive Disruption? (Apr. 8, 2013) (unpublished manuscript), *available at* http://www.kentlaw.iit.edu/Documents/Academic%20Programs/Intellectual%20Property/PatCon3/abrams.pdf (challenging the assumption that the value of innovation is proportional to citation-weighted patent counts).

35. Abrams, Akcigit & Popadak, *supra* note 34, at 23–24 (critiquing citation counts as accurate measure of patent worth).

36. Richard A. Neifeld, *A Macro-Economic Model Providing Patent Valuation and Patent Based Company Financial Indicators*, 83 J. PAT. & TRADEMARK OFF. SOC'Y 211, 213–14 (2001) (describing the incommensurability of patents and devising new macro-economic model to address it).

37. Graham et al., *supra* note 6, at 1263.

utility (financing instruments), I searched the interview data for what the actors in the patent-rich industries themselves described as valuable (or not valuable) about patents. That is, throughout the interviews with scientists, engineers, business people and lawyers, people described the reason they sought patents, the reasons they avoided them and the functions patents fulfilled for them in their work and business. From these discussions, I glean a variety of values for patents and patenting generally and can situate these values within specific industries and particular business or employment contexts. Doing so helps determine what kind of "progress" patents facilitate according to the folks that are filing for them or interacting with them in their work and business. And this also helps better understand the motivation for patenting (or not patenting) in the way the 2008 Berkeley Patent Survey sought, but here with qualitative data to add to its quantitative analysis.[38]

Three overarching roles for patents emerged from the interview data: patents functioned (1) as signs (representing or communicating something);[39] (2) as a business tool (as a mechanism that performs a business-related function other than communicating a message);[40] and (3) as a personal token or serving a moral calling.[41] These are not mutually exclusive categories to be sure—signs can be business tools, for example, and business and personal dimensions often overlap—but they are sufficiently defined and distinguished within the data that their separation and comparison is useful here and for further study. Moreover, each category can be further delineated into distinct features that refine each overarching category individually.

A. Patent Signs

(1) *Ego and Acclaim*. The interviewees describe patents as signs conveying four primary messages: (1) ego and individual acclaim; (2) wasted time; (3) organization and innovation within a company; and (4) strength of market position. Crucially, interviewees acknowledge that although the patents may convey these messages to others, these messages may be misleading, subjective or even false.[42]

38. *Id.*

39. *See infra* Part II.A.

40. *See infra* Part II.B.

41. *See infra* Part II.C.

42. This is a substantial difference from the analysis of patent "signals" in the 2008 Berkeley Patent Survey in which the authors discuss the ways in which patents have "multiple meanings" for start-ups (e.g., to secure financing, to facilitate a liquidity event, etc.). The authors of that study write in the context of patents communicating a particular message to investors that it is "unclear" why investors rely on patents. And then they posit some potential reasons based on the theoretical literature. Graham et al., *supra* note 6, at 1306–07. By contrast, the present analysis

Interviewees—lawyers, business managers and inventors themselves—all explain that when an individual is awarded a patent and is presented (by a company or the Patent and Trademark Office ("PTO")) with the recognition of being an inventor, their personal and professional satisfaction blossoms. Although people do not explain that they filed for a patent in order to experience this satisfaction, they nonetheless describe the benefit patents produce as this recognition of inventorship, which comes with good feelings of acclaim and commendation.[43]

A patent attorney who works with both individual and corporate clients describes one of her most prolific and successful scientist-clients as falling into this category. She says,

> [S]o it's not about the money for him: . . . he's interested because it fits into what he does every day, which is his science and his lab, and his recognition at meetings, and now everyone associates his name with this particular thing . . . . It's more about being recognized for some type of scientific achievement . . . . And generally, that's through publications, not through patent applications. . . . But [his patents are] generating institutional interests . . . he is out on the circuit more, getting invited by . . . organizations, corporations. You know, people in Europe are now interested in him.

Variations on this theme include enhancing the award of a patent with a corporate plaque that is prominently displayed in the main corridor of a company or with a small ceremony toasting the new patent and its inventors.[44] In each of these situations, the patent's value is in its message that the inventor is excellent in her field and that her contributions to the business are appreciated. Notice how this attorney, as well as the one quoted below, dismisses the indication that the patent signals future financial benefits. There is no indication that the patent value in this instance is for a bonus received or an increased salary.

grounds an identification and understanding of patent signals in the reasons and explanations interviewees provide.

43. This is distinct from the category of "enhance company reputation" that the 2008 Berkeley Patent Survey measured. *Id.* at 1298–1301. That category concerns company status and reputation whereas the interest identified in my interviews concerns ego, self-esteem and confidence. By contrast, company reputation is more accurately captured in my data by the third category within patent signs, "organization and innovation within a company."

44. One such example comes from this in-house IP attorney:

> [T]he form that we use, the invention disclosure form, doesn't say "inventor," it says "submitter." And there's a disclaimer that says "Inventorship is a legal determination, we'll do it after we have claims," and all of that stuff. But people don't read that. But it's there nonetheless. But I think it's their expectation that they're gonna have this nice patent, and they're gonna have a plaque on the wall in the lobby with their name on it . . . .

Here, patents function as attribution mechanisms, as a form of signature, authorship and origination claim.

Another attorney, an in-house lawyer for a technology start-up who was also in-house counsel for several successful high-tech companies, below describes the value of patenting for software developers who initially resisted participating in any IP strategies.

> [I]n terms of software . . . [t]hat became actually something developers really understood. They personally benefitted from it, but there was a long, long history of invention in this country. Patent invention goes back to [the founding] . . . you become part of a storied legacy of the great inventors. So patents w[ere], in a way, a much easier sell. And you have to get the developer involved. I mean, they write the invention statement, and they work all the way through, and their name is on that in the Patent Office. So there's a real . . . ownership and pride and coolness factor to being an inventor, and being part of the company . . . .

This attorney makes the authorship claim explicit. She describes how software developers reject the mechanism of exclusion that patents create and instead embrace the patenting process because they want to be part of a community of heroic inventors that foment social and economic well-being. Involving software engineers in the process of writing the patent helps them lay claim to a proud historical legacy. This is about identity and community. The patent stands for participation and belonging.

(2) *Time Spent*. These examples also highlight another message that patents send when raised by colleagues either as an asset to be acquired or asserted: patents take time. Their existence (or their hoped-for existence) is a sign of time spent and, for many, time wasted. As the above lawyers imply, most clients complain about the time away from work that legal advice takes, especially the commonly long windy-road of patent prosecution and validity or infringement assessments. Patents symbolize time spent. But for what? Lawyers' accounts of their clients' responses to legal demands were remarkably similar throughout the interviews:

> They're annoyed; . . . you're an annoyance, generally. You take up their time that they could be doing other things . . . . They're generally not interested. . . . [T]here's an inventor . . . that I've dealt with. . . . [H]e founded a small company. Even when he founded this small company, he really didn't want to spend any time talking to me about [patents]—he'll talk about baseball, but he didn't want to talk about . . . his patent applications.

Some lawyers, however, describe how their clients *infuse their own sense of value* into the patents by spending time carefully pouring over

the patent claims, rendering the patents as accurate and reflective of the invention as possible. Here, they are explaining how the worth of the patent is in that detail-oriented labor:

> [B]ecause it's work. So for [our chief technology officer] to work with an outside lawyer on the inevitable office actions that you get, and delays, and to help write the application, I mean, it really is [work]. Like [he] jokes to me that it takes me [the in-house lawyer] an hour to read a patent application, but it takes him a whole day. Because they are fifty pages long, and he goes, "You're just skimming it. You're not paying attention to the claims," you know? (*laughter*) And he has to read those claims with a ruler, sentence by sentence. . . . And he's right. It's a lot of work for him. . . . The precision of it all. Does the patent really describe his methods, or his systems, . . . it's an undertaking for him. . . . [H]e's a very busy guy, and he wants to know that there really is value there, and that because I think he spent a lot of time on patent applications five to six years ago that were just abandoned, and just weren't pursued. You know, you get that office action, you can just continually file for my time. And so there were office actions that just lingered for two or three years, you know?

Patents symbolize time and reflect years of hard work on *something*. When lawyers or business colleagues request help with patents, engineers and scientists may groan about the added time required to file for a patent but they also deeply care that the patent accurately manifest the work with which they were involved.

Another lawyer, who worked in a variety of media and merchandising companies as in-house counsel, talked about the hostility with which his former company approached patenting because of frustrating experiences in the past. This hostility focused on how patents appear random and quixotic in their financial worth and thus how time and money feel wasted by the deliberate collection of patents in a portfolio.

> The business that I was in . . . didn't have a lot of new products. They [my former company's directors] were very lackadaisical and not that interested in a patent strategy. There were other businesses that were part of this division, and so they weren't the only ones that mattered, but the general feeling in the division was, "Patents, schmatents," you know, "it's a numbers game, and it's expensive, don't bother me," you know, . . . "go do your little thing and don't bother me," I mean, it was very hostile. And that was not unusual.

In the 2008 Berkeley Patent Survey, the authors describe how reasons not to patent include "cost" of patenting but do not describe further how cost deters innovators and what might make the cost worth it. [45] In the

45. *Id.* at 1313–14.

above quote, the lawyer connects his client's perception that patents are too costly as compared to their low potential for pay-off, especially in light of what appears to be a game of chance rather than strategy. Later in the interview, the lawyer expresses disagreement with his client's sentiment and thinks it was a mistake not to develop a patent strategy, even if the particular industry was not as richly populated with new products as the industry in which he currently works.

Lawyers are nonetheless sympathetic to the time/value paradox: clients need legal advice and yet it can be hugely time-consuming and too expensive to make the advice worthwhile. Moreover, the legal system the lawyer must negotiate can often feel to clients like the circuitous and irrational process embodied in Kafka's *The Trial*.[46] In these circumstances, lawyers wonder along with their clients whether the delay (time wasted) and hours billed (time spent) makes any sense.

> So the client says to me that, . . . "What do you think about this [cease and desist letter alleging patent infringement]?" And I say, "Well, for us to . . . really look into this and render an opinion as to whether you are infringing these six patents probably costs, give or take, $30,000 each. . . . [A]nd I don't know in advance how we are going to come out on this. . . . [S]o you are going to spend $180,000 just figuring out what's going on. And by the way, [whatever we say] [this big-company patentee] could still sue you on these [patents or others] and they have got—and they haven't even necessarily dug into the other 21,994 [patents] that they own."

Patents signal both wasted time and the frustration of business growth. Instead of facilitating the recuperation of investment from the development of a commercialized invention (and thereby enabling people and organizations to stay in the innovation business), patents are described as preventing innovative people and organizations from continuing to invent and commercialize. As such, many innovators tend to manage their businesses using strategies other than patents because of patents' perceived inconveniences and burdens.[47]

(3) *Organization and Innovation within a Company*. At the same time, lawyers and business clients explain how patents may resemble

46. FRANZ KAFKA, THE TRIAL (Muir et al. trans., 1935) (1925). Kafka's book is well-known for its depiction of an absurd and illogical justice system that is nonetheless authoritative and total, demanding allegiance despite its irrationality.

47. On this score, my data correlates with the quantitative research indicating that first mover advantage, complementary assets and secrecy facilitate business success in innovative and creative fields. Graham et al., *supra* note 6, at 1290. My data also indicates that loyal business and personal relationships, contracts for goods and services and reputation also bring about business success. *See* Jessica M. Silbey, *supra* note 10, at 2129; *see also* JESSICA SILBEY, REAL IP: CREATIVE COMMUNITIES, INNOVATIVE INDUSTRIES AND THE (IR)RELEVANCE OF INTELLECTUAL PROPERTY IN THE 21ST CENTURY (forthcoming 2014).

business assets and companies may accumulate them in order to represent prosperity and financial worth, either presently or in the future. This is *not* to say the patents *in fact* generate revenue, but that something about their existence in a portfolio signals business prosperity.[48] An in-house lawyer who specializes in IP and who has been promoted from within companies (both private and public) to high-ranking managerial positions, describes patent signals this way:

> I try to describe [patenting] to [engineers and technologists at the company] . . . [as] the way we see value. It's the way that we represent value. I mean, to be perfectly callous about it, I've used this approach a number of times: "Look: we're a start up company. All these venture capitalists who are going to be investing in us, they are going to look for IP. They don't know what it is any more than you or I know what it is, right? But they are going to look for something that says it's IP, so it's the way to show them what the really amorphous stuff you're doing in the research lab, how that translates into *something* that they can put their hands on."

Crucially, this lawyer admits that IP is an empty place-holder for something else that investors or evaluators are pursuing. "They don't know what it is any more than you or I know what it is, right?" he says, making clear that IP can be sculpted to convey the expression a business desires. The portfolio makes the value tangible, however, "*something* that [investors] can put their hands on," which appears to assure investors that the appearance of value is more than a mirage.

Not all entrepreneurs and inventors are so extreme in their accounts of patent signals. Some explain that particular patents in a patent portfolio represent the crux of the company—a single invention that innovates a field or marketplace. In these cases, as described in the quote below from a software engineer who has successfully built and sold several companies already, business people recognize variability among the patents held by a company. They recognize the market dominance one or two patents might provide to a company while also admitting that the rest of the patents are simply "detail and documentation."

48. Again, this differs from the analysis in the 2008 Berkeley Patent Study in which the authors describe survey respondents reporting that patents function as assets against which companies may borrow money rather than here where patents are signs (whether true or false) of financial promise. *See* Graham et al., *supra* note 6, at 1303–04. The function and the sign are related, clearly, but the interviewees distinguish them and so should we. In particular, the interviewees distinguish these two roles because interviewees are often cynical about the patent as a sign of future worth and would rather they did not convey this message in order to save the time filing for patents in the first place. Whether patents become financing instruments in fact is only subsequent to the message they convey.

> I basically sat down with the lawyer and described what we did, and our approach. And then after I had enough of the engineering team with me, I would just make time for the engineers to meet with the lawyer and patent different things. . . . I would talk to people and say, "What do you have that you think we can patent[?"] And then they would tell me, and then we would go in and patent those things. But you know, for any one of these companies, there is *typically one or two ideas that are really valuable, and that are the patent*. And then the company ends up getting a dozen or two dozen patents. The rest of them are just the blocking stuff that—or not even that: . . . I think they're just something you build to look very attractive to a potential buyer. But they're not real—they're like *detail and documentations*. (emphasis added)

What might a "pile of patents" convey to potential investors, lending banks or competitors? What do they "detail" and what kind of "documentation" are they? The data suggests patents indicate industriousness and a well-functioning organization. They indicate managerial sophistication.[49] A company that can get many patents through the PTO appears well-run and systematic. It has effective leaders and a plan: why else would they put all this time and money into their IP? As a corporate vice-president and attorney explains: "There is really a reason to build up that huge [patent] portfolio. And I'm convinced when [a Fortune 500 company] bought us for whatever it was—$3.4 billion—I think the fact that our IP was so well organized and so clean, and so robust" made all the difference. Another CEO explains that it had to be his engineering team, his own leadership and *maybe* the patent portfolio that explained the valuation and eventual purchase of his company by a large media conglomerate.

> They [the potential purchaser] looked at everything. They looked at the patents; they looked at the number of engineers. How'd they really evaluate it? . . . I think the fact that we had patents was good. No one understood what the patents were, and the reason they bought us was because they needed someone to be CTO for the [new division of their company and] to take the media division public. . . . So in other words, they needed a good spokesperson, and someone who understood the Internet. . . . That was me. They fired [my partner]. . . . [T]hey [the purchaser] knew they were getting a very good technical group. On top of that, [they] . . . had checked with all the analysts who understood [what we did] really well. And the fact that we had taken [the system] to this new level . . . seemed like a real

49. *See* Ted Sichelman & Stuart J.H. Graham, *Why do Start-Ups Patent?*, 23 BERKELEY TECH L.J. 1063, 1078–79 (2008) (explaining that patents indicate the operational business strength of a corporation).

> breakthrough for [them], and especially because they had a [big platform but no one to redirect it to enhance their dwindling business].

(4) *Strong Market Position*. For this company, patents were an added bonus that maybe have signaled managerial sophistication but also signaled marketing prowess and business dexterity. Certainly, the "pile" of patents in the portfolio might also increase the likelihood that one of the patents will hit the revenue jackpot, generating a lucrative licensing stream or effectively blocking competitors from competing in the market. But interviewees spoke less about this particular promise of patents protecting a coveted market position than about their message of ego, time and managerial sophistication. Whether any of these implications materialize as true matters less than what people think. In this way, patents are labels or indicators of behavior and conditions from the past that are hoped for in the future. The *perception* of their power and promise is enough to make them prized.

B. Patent Tools

In addition to conveying particular messages, patents perform functions that are more than expressive. In the accounts from the interviews, patents cause certain actions and reactions that affect business structure and financial well-being because of the exclusivity patents provide.[50] Patents are mechanisms like physical tools that shape markets and configure organizations. Interviewees describe six ways patents function as business tools: they (1) protect a market for mining by the patent owner; (2) retard competition by forcing design-arounds; (3) defend and enable a research agenda; (4) facilitate business negotiations; (5) earn licensing revenue; and (6) scare or threaten competitors into retreat.[51]

(1) *Protecting a Market*. Protecting a market in a particular invention is a traditional justification for patent protection.[52] A company invests

50. By distinguishing expressive functions from other operations performed by patents, I do not mean to suggest that expressive functions do not affect behavior or cause change or that expression is not functional. To the contrary, expressive functions can instigate the most radical of changes in a company or for a person. I make the distinction here for the purpose of categorical analysis and because, as Part II explains, patent signals can be significantly different from patents as tools.

51. Some of these categories are similar to those used in the 2008 Berkeley Patent Survey (e.g., prevent copying, improve negotiation position and obtain licensing revenue). But others are new or different, including improving competitive advantage by forcing design-arounds and defending/enabling a research agenda by protecting research space from encroachment. These may overlap in part with the 2008 Berkeley Patent Survey categories of (a) preventing patent infringement actions and (b) cross-licensing, but the interviewees describe these categories in different terms than the authors of that survey do. Graham et al., *supra* note 6, at 1299.

52. Arrow, *supra* note 5, at 614–19.

time and money in research and development of a novel item. It then recuperates its costs and earns a profit by preventing others from making, using or selling the item for a period of time. This explanation of a patent's value to a company came largely from individuals I interviewed at biotechnology and medical device companies.[53] A long-time IP attorney whose clients span a very wide-range of patent-rich fields explains how

> biotech patents can be quite powerful. They really can protect the market, because they are typically unique. . . . [T]he typical valuable biotech invention would be . . . a new molecule, a new compound. . . . It doesn't really necessarily bear any obvious relation to other technologies that are competitive. I'll give you an example, I mean, this is not patented, but an example. The molecule for aspirin which you know reduces pain and fever . . . has effects that are very similar to . . . Tylenol. . . . [Their] molecular structure[s] [are] utterly different. They have nothing to do with one another. . . . So you can get a patent on aspirin without preventing the other guy from inventing.

This attorney makes the point that not all monopolies are anti-competitive. And their existence does not necessarily prevent innovation. But he does explain how a patent on a compound can profitably reserve a market for the patentee. Typically, this kind of patent function sounds like this in-house attorney's explanation: "Our exclusivity in certain technologies has really enabled our company to even exist. . . . We license some cool technology . . . and we're the only ones that have these features. That's a wonderful story for me to convey to our research staff."

These doctrinal explanations of patent function are not more common than others in my dataset.[54] Sometimes, interviewees describe instead how patents profitably function for a company to *delineate* (rather than reserve) a market with a fence-like structure and a set of linked and overlapping patents. No one patent effectively excludes copy-cats or competitors. But a *collection* of patents creates a wall around a commercial space that stalls or may scare other businesses from coming near. This is different (and potentially antithetical to) the traditional view of patents as *preventing copying* or defending exclusivity as a way

53. This correlates with the results from the 2008 Berkeley Patent Study. Graham et al., *supra* note 6, at 1297–98.

54. Given the size of my data set, I cannot generalize as to the distribution of this explanation as compared to others over a larger population. That is for big-N studies. However, the 2008 Berkeley Patent Study concludes, based on its large dataset, that biotechnology and medical device companies rely on this patent function more than software and Internet companies do. *Id.* at 1290. This is consistent with my data.

to foment more innovation.[55] One technology licensing officer is quite flippant about the practice, describing the individual and collective use of patents as defensive tools this way:

> Remember, patents are used primarily in industry . . . they're used defensively. I'm making a product; I want to not have you make it. And as I improve my product, I am going to put more patents together so you won't even *think* of making—of competing with me.

(2) *Retarding Competition By Building Walls and Forcing Design-Arounds*. But other lawyers and business people describe the value of collecting many patents as a deliberate strategy to ward off competitors who unwittingly encroach upon the market in which a company claims exclusive rights. Large patent portfolios—piece by piece (or patent by patent)—close any potential gap in the wall that would enable competition for the same market and nearly similar products.

> They followed a model that [we] developed [called] . . . "combinatorics," . . . a combination of patenting of the basic idea with various applications, to build a—and quite a large— . . . hundreds of patents, ultimately in this portfolio. They pursued infringers extremely aggressively. They made themselves highly unpopular in the industry. They would go to trade shows, walk around . . . and if somebody had a booth, they would walk up to their booth and hand them a copy of the patent and say, "I am putting you on notice: you are infringing this patent." . . . Ultimately, they sold to [Big Company] at an enormous profit, and one of the things that [Big Company] wanted to buy was this enormous patent portfolio that they had developed. So that was a case of really, . . . you know, it was a new area, new invention, of pushing the patent system to the limit to build value in a company.

With the building of patent walls and fences comes the inevitable ambiguity in the demarcation of the property line. Some interviewees deny the deliberate presence of ambiguity in patent filings, extolling the virtues of disclosure in the patent filings to facilitate more invention, disclosure being the critical quid pro quo in the patent system.[56] Others embrace ambiguity as a feature of the patent system rather than a bug. One lawyer actually calls the accumulation of patents and patent applications a "smoke screen" that diverts or slows-down competitors.[57]

55. Christopher Cotropia & Mark Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1431–34 (2009) (analyzing the role of copying (after patents expire) and intent to unlawfully copy (while patent are in force) in view of the patent policy to foment innovation).

56. Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 63 (1998) (describing the patent system as "a carefully crafted bargain that encourages both the creation and the *public disclosure of new and useful advances in technology*, in return for an exclusive monopoly for a limited period of time" (emphasis added)).

57. This is similar to Graham and Sichelman's category of "patents as foils." *See* Sichelman

> When I was at [a Fortune 500 manufacturing company], their patent portfolio was enormous. And oftentimes we were filing patents on things we weren't quite sure whether we were gonna use or not, and on occasion if there was a technology that was looking like it was close to [our competitor's] technology, even though we weren't practicing it, we would still file the patent on it. We created the IP, we were entitled to file the patent. . . . And so [they weren't] defensive filings, . . . they sometimes were a smokescreen, too.

One attorney specifically critiques some of the new and proposed rules for patent claiming and prosecution as requiring *too much clarity*. He seems pleased with how his skill and experience in patent prosecution enable him to effectively play with its rules on behalf of his small and growing company. He is not at all bothered by the fact that his strategy of purposeful ambiguity might be antithetical to the ideal of disclosure at the root of the patent system.

> [The new] rules sort of would force the hand of the patentee to . . . lay it all out there in as contained a unit as possible as early as possible, and therefore remove a lot of the ambiguities from the system. Which, some of those ambiguities are helpful to companies. . . . [P]art of the . . . patent system (*laugher*) is that you don't know. Maybe your competitor *can* patent this, or maybe they can go back and file that continuation, and get these claims. The current system . . . does promote some value in pending applications. Even though they're not enforceable, they're still out there as a question mark.

To this lawyer, the ambiguity and the flexibility of the rules of the patent system are welcome. Indeed, based on his enthusiasm and perception of business success, playing with the rules is fun.

Another value of the patent system is that it encourages competitors to design around existing patents. Ostensibly, inventors or developers are expected to review the existing industry or field, with its relevant patents, and be encouraged to invent improvements or alternative devices to participate in and expand the existing market. These second-comers can avoid patent licenses by designing around existing technology but can still participate in a similar or neighboring market. This procedure may delay commercial neighbors who create complementary or competitive products as well as enable more and related products in the marketplace. Designing around may also avoid patent licenses, so the competitive product may be made at a lower cost if the design-around is itself cost-effective. A software engineer who is skeptical of patents' benefits, nonetheless acknowledges the double-identity of patents as useful to retard competition but not entirely

& Graham, *supra* note 7, at 128.

valuable as a device to monopolize a market.

> It's a double-edged sword, right? On the one hand, you want to have a patent if you come up with something really cool, because you want to prevent competition from using the same idea. But it has to be not a trivial idea. And the Patent Office cannot figure it out, what trivial and what non-trivial is. I don't know what the right solution is, I honestly don't, but if you come up with an interesting way of solving a problem, it should be patentable, on one hand. On the other hand, you're forcing me to innovate around a patent, which I can almost always do.[58]

A more traditional response to the role that patents play in encouraging more and different innovation follows below. A long-time attorney in the pharmaceutical industry considers himself a staunch supporter of patents in his industry. He describes the common situation of evaluating competitor's patented technology and the lawful ways of competing but still respecting the rules and intentions of the patent system:

> I was running the [IP] department and I believed that a U.S. patent is considered valid until proven otherwise, and we don't willy-nilly infringe it. So I would—first of all, I'd spend the money and time to analyze it. And then if I thought there was a problem, I'd say, "We need to engineer around it," . . . I mean, we . . . had sites in Sweden and Italy, so I sometimes made them send work to Italy and Sweden, where there weren't any patents. And so we'd play this game where the work would get done there, then they'd import the data back to the United States, and . . . it was kind of fun actually.

A common theme in the interviews is the appreciation of patent law as a game of competition with complex rules at which one must be skilled to play. A beneficial consequence of playing the game fairly, as so many of the interviewees explained, was that from patented inventions came more inventions. For some, that is a sign of progress.

(3) *Defend and Enable a Research Agenda*. Interviewees also extol a patent's ability to defend and enable a research agenda by preventing

58. For example, this entrepreneur recognizes the "double-edged" sword of patent protection relating to the perceived inefficiencies of patent exclusivity:

> It's a double-edged sword, right? On one hand, you want to have a patent if you come up with something really cool because you want to prevent competition of using the same idea. But, it has to be not a trivial idea. . . . On the other hand, you're forcing me to innovate around a patent, which I can almost always do.

The 2008 Berkeley Patent Survey categorizes inventing around a patent as a reason not to patent and as a drawback to patenting. In my interview data, encouraging design-arounds was a feature of the system many lawyers and innovators accepted and, indeed, embraced as a sign of progress. Graham et al., *supra* note 6, at 1310–11.

others from hijacking or blocking the research.[59] Patents bring value to a company because they provide "freedom to operate" but not necessarily in a particular market as much as in a particular research field. Interviews contain accounts of lawyers who describe persuading otherwise reluctant scientists to participate in the patenting process so that the scientists' research can continue.

> I said [to the scientists], "What I want is something that I can trade . . . I'm not interested in necessarily asserting these against anybody. I'm looking for something that either (A) gives me a quid to trade with somebody, or (B) we patent it first so that some other company can't patent it and then come to us for $100,000 a year royalty."

Notice in this quote how the lawyer explicitly defends against the implied accusation that he will assert the patent against anyone for revenue or as an injunction (presumably against other scientific companies). He recognizes his scientific-colleagues' perspective that patents more often thwart collaboration and scientific development than promote it. And he assures his colleagues that he has noble (read "progressive") motives for patenting here. The lawyer may be describing forms of cross-licensing or ways to prevent patent infringement actions against the company,[60] but the value of the patent is characterized in broad terms as freedom-enhancing and based in fairness.

(4) *Facilitate Collaboration and Joint Development.* Related to these uses, interviewees also describe patents as facilitating business collaborations that lead to new innovations. Ironically, however, the new innovations are not necessarily related to the patented technology. Instead, the threat of a patent infringement suit is leveraged to force people to the negotiating table, whether or not the patent rights are strong or the assertions credible. Below, a computer scientist who is also a high-technology consultant describes just such a scenario, from years ago in the mid-1990s, when he was first working in start-ups. The interview is quoted at length to provide full context.

> [We were in negotiations for a co-development agreement and] we got this huge clash, and it looked like it was going to go nowhere, nothing was going to happen, and [this big computer company] was going to

59. Jason Schultz and Jennifer Urban have published an article about how Open Innovation Communities ("OICs") may or should opt back into the patent system for precisely this reason—to defend their on-going research from interference by patentees. They suggest a "defensive patent license" as a compromise. *See generally* Jason Schultz & Jennifer Urban, *Protecting Open Innovation: The Defensive Patent License as a New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J.L. & TECH. 1 (2012).

60. Graham et al., *supra* note 6, at 1300 (describing both cross-licensing and avoiding patent infringement suits as motives for patenting by start-ups).

> go ahead and do its own [development with our technology]. . . . [W]e sent them a "Hey, you are probably infringing on our core patents . . . ." letter. This was after the lab guy [at the big computer company] basically told [his own] business guys, "we don't work with your friends over there" [in that little start-up]. So we sent them the nasty letter. And it certainly . . . chang[ed] the tenor of the business conversation. . . .
>
> . . . [Eventually,] we slogged our way through it for months, and we came up with a new standard. I am sure you can even find it somewhere. . . . [W]e did an implementation of it, the [big computer company] guys did an implementation of it, and they gave theirs away for free. Supposedly, it's an open standard anyone can implement. . . . And we continued to sell our version and our product . . . . So in that sense the patent was a useful business tool for us to get [big computer company] to come to our party . . . .
>
> Q: . . . [A]nd you made money from that joint venture?
>
> A: No. Not a nickel. . . . No money changed hands. . . . [A]ctually, that's not true. The day we announced—had a press release with [the big computer company] where we announced the availability of the new format, our stock went up. Because everyone thought, "Ooh, they are working with [big computer company]! Something really exciting must be happening!" . . . But in terms of fundamental value to our customers, there was none . . . . [N]obody sued for infringement. And obviously, in everyone's mind, they knew we weren't going to sue [big computer company] for infringement! Are you nuts? . . . I think what it really did is gave the business guys the leverage to tell the lab guys to just knock it off [and work together].

There are several remarkable aspects of this account. First, the patent threat is productive of a collaborative and innovative relationship that produces useful technology for consumers. Second, the patent threat was empty. There was no intention to sue on the patent. The letter was sent as a means of getting attention. Third, at the large computer company receiving the letter, the business developers understood that the letter was an empty threat but used it to convince their colleagues, who might have had a different perception of the letter—to change their tune and play nice. Fourth, the patent itself (its acquisition or its existence) did not induce either company to develop or prevent either company from developing the relevant technology. In this situation, the patent achieved diverse business goals, some based on duplicity and sham bargaining, but none of them were to maintain its traditional realm of exclusivity.

(5) *Earn Licensing Revenue*. To be sure, sometimes patents do function as barriers for which payment is required in order to use or sell the technology covered. After a long interview about a company that

was developing alternative energy (biofuels), its general counsel said in an almost conciliatory tone that, yes, patents are helpful to "just have something to out-license to someone else that we can collect money from." There were other such statements throughout the interviews, but they seemed offhanded and less the focus of a business' patent strategy.[61] Defending and protecting functionality of a core technology rather than out-licensing patented inventions was a much more common role for patents.[62]

Indeed, when the licensing of patented technology was discussed in the interviews, it was often described as a marginal aspect of the business (as above), or it was criticized as a potentially unethical business practice (as below).

> [T]hey are going around very aggressively licensing these patents. And I just negotiated a license for another client with them. So in this case . . . [licensor] was not a competitor, and nowhere near them. And out of the blue, they get a letter from [licensor] saying "We believe you are infringing the following six patents, you know, that we own. We'd like to discuss a license with you." And so there are six patents, and the way the game is played . . . . [P]eople with big patent portfolios can mine them for value this way.

This quote references the non-practicing entity ("NPE") debate, an issue that permeated the interviews and for many interviewees was described as distorting the good that could be produced through patent law.[63] In contrast to pharmaceutical companies whose agents explain how revenue streams from the patented compounds or methods of practice were the basis of their business model, most other industry actors complain that extortionist tactics from NPEs, in the words of a general

61. Another example is from an IP attorney who represents a range of clients, here describing one who successfully defends against a patent infringement suit because the plaintiff's royalty-earning patent may be invalid:

> We had a situation where one of my big clients . . . walked into a trade show and had somebody from another company walk in and start cursing at them at the top of their lungs, screaming at them, saying, "You're doing exactly what we're doing. We are going to sue you. We are going to own you . . . ." And just going off on them. That could have turned into a huge lawsuit. I received a letter . . . from their legal counsel with five patents, saying, "You infringed because of X, Y, Z." We did a full analysis and found that they didn't infringe. . . . And the way that I turned it was they actually had [invalid patents]—*some of their patents were licensed through other parties, so they had a bunch of royalties coming from licenses*. Which is great, as an attorney, for defense because you know if you can invalidate the patent, you're golden.

(emphasis added)

62. This is consistent with some other empirical research on patents and start-ups. *See, e.g.*, *id.* at 1299.

63. Colleen Chien, *supra* note 7; Colleen Chien, Startups and Patent Trolls (Sept. 28, 2012) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146251; *see also* Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457 (2012).

IP lawyer, "waste a staggering amount of money." An in-house attorney to a battery company explains as he compares the usual patent infringement scenario to the NPE situation:

> The troll infringement clearance scenario is the most difficult thing for an IP attorney to deal with. When you're dealing with a competitor, they're a known commodity. They've got the same thing—they're gonna lose the same amount as you, in a way. Because once they put the patent out there, they're putting the patent in jeopardy, because I may take it down. And they're also making me focus the telescope on them, and I may see some things that they're infringing too. So they have the risk, but the troll, on the other hand, has nothing to lose.

Interviewees complain that avoiding liability for an invention owned but not practiced by a holding company "is a huge tax . . . on commerce. . . . [B]usinesses feel that they are at tremendous risk . . . for liability, and they spend a lot of money trying to avoid it. And that's really not productive at all." In other words, interviewees think patents should aid the commerce in *things* or *services*, not just the exchange (or accumulation) of money.

(6) *Patents as Weapons*. Nonetheless, patents can facilitate rents and, for some businesses, promotes "progress" simply because they generate profit in this way. This gets to the last form of business tool, which combines previously mentioned tools that are themselves extremes of each other: patents as threats to extort licensing revenue and patents as negotiating instruments to facilitate collaboration. One of the most common metaphors for patents throughout the interviews is the patent as a weapon. Whereas many business people describe patents as "chits" for trading or "part of an industrial landscape"—invoking the real property and personal property metaphors we often see in intellectual property discourse[64]—in this last category of patent tools interviewees describe patents as destructive and scary. Threats and bluffs are, of course, part of the business repertoire. But the comparison of patents to nuclear weapons, landmines and bludgeons was notable.[65]

The interviewees' references to weaponry and combat ranged from mild tussling to mutual self-destruction. Here are two examples from the extremes. The first quote is from an in-house attorney who began his career as an engineer and went back to get his law degree mid-life in

64. David Fagundes, *Property Rhetoric and the Public Domain*, 94 MINN. L. REV. 652, 661–67 (2010); Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885, 888–90 (2008). For personal property metaphors and connections between property law and rhetoric and personhood, see MARGARET JANE RADIN, REINTERPRETING PROPERTY 35–71 (1993).

65. *See also* Sichelman & Graham, *supra* note 7, at 120 n.44, 125 (citing FRED WARSHOFKY, THE PATENT WARS 69–88 (1994)) (remarking on common military metaphors in patent-rich business).

order to play a more fulsome role in the innovative companies at which he was employed. He has been a lawyer at several leading manufacturing and high-technology companies in the United States. He says about patents and their relationship to business development:

> From an IP standpoint, "architecture" is a word we use a lot. And "landscapes" are words that we use a lot, and in a previous job, . . . we were looking at expanding our product line into a whole new category, full of all kinds of patent landmines. And at the end of the day I was able to hold their hand, and navigate the course, and we knew there was a risk of a lawsuit, but we knew we were in the right, and we had a good argument. We launched the product, we got sued, they settled within a few months, and we sold a hundred million dollars' worth of product in the first year.

The linguistic shift from "architecture" to "landscapes" charts a rhetorical move from patents as ornamental and functional frameworks that are constructed within necessary constraints to patents as essential features of the field of play in which one must strategically maneuver. These two spatial forms are related and share similarities. Nonetheless, we construct "architecture" and we react to "landscape." The addition of "landmine" to the mix suggests a normative valence—danger and disaster!—implying that *both* patent architecture and patent landscapes can retard progress (by being blown up) rather than promote progress.

A former software engineer has harsher words for the roles of patents in the particular industries in which he is involved (telecommunication and software companies). He currently works full-time consulting for and investing in high-technology companies. His comments directly compare patents to weapons and his descriptions evoke scenes of playground bullying.

> Because very, very, very infrequently does it [the patent] matter. I mean, all the companies that I work for, we all file patents. And we are pretty cynical about it, and we say, "We don't think these patents are really necessarily going to ever be worth anything to us, except in this whole morass that is people wagging sticks at each other and saying, 'I am going to sue you over your patents,' and 'No, you are not! Ha ha! Look at my patents here!'" So I tend not to look at them as the least bit productive. Nowhere in my whole universe do I think we'd be any better off if we didn't go back to the world pre-1980-whatever and just say, "Software is not patentable."

This interviewee's views are informed by several decades in the computer industry as both an engineer and a businessman. He has made a lot of money doing both and he counsels others with hopes of the same. He is very smart and successful, and yet he describes being caught in a relentlessly irrational system—resembling nuclear

deadlock—whereby companies stockpile patents because everyone else is. But if no one did, everyone might be better off. He continues:

> [W]e talk about the patents we are filing all the time, and we say . . . we just can't believe that some of these things are novel and not obvious, but we feel like we have to have them, at the very least so that we can wave them in somebody's face, even though it's kind of nuclear war.

This is a sad state of affairs. As more quantitative empirical work is conducted, the disconnections between software innovation and patent law will become clearer and more nuanced. The 2008 Berkeley Patent Survey may have been the first such large-scale empirical project of its kind, concluding that the software industry does not need patents and would rather not be burdened with their collection or evaluation.[66] But the call for patent reform in light of "patent wars" and the retarding effects of patent monopolies have been part of the IP history for a long while.[67] It seems obvious, however, that when successful players in the relevant industry call patents nuclear weapons, patents are not experienced as promoting "progress." To be sure, the accumulation of patents (in an "arsenal") serves a purpose. But the purpose is hardly laudable and hardly incentivizes the production of art and science.

C. Patents in the Personal Dimension

Interviewees also describe patents as consisting of various personal and moral dimensions. This may be surprising in light of patents' historic function as investment vehicles. But the moral and the material often intertwine as the material forms a part of the moral universe in which we situate ourselves in relation to others.[68] The three ways patents serve a personal or moral function are as (1) personal property described with natural and moral right undertones; (2) protecting subjective interests in research and everyday work; and (3) benefiting community welfare and the public good. These categories resonate with those that describe patents as certain kinds of signs and as business tools but the valence in this context is more intimate and righteous. As business tools, patents explicitly serve a utilitarian purpose with the

66. Graham, et al., *supra* note 6, at 1279–83 (noting that a substantial portion of companies in the internet and software sectors are opting out of patenting); *see also* James Bessen, *A Generation of Software Patents* (Bos. Univ. Sch. of Law, Working Paper No. 11-31, 2011), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1868979 (updating empirical reports and concluding that most software firms still do not patent and that patents do not provide a net social benefit in the software industry).

67. *See generally* Colleen Chien, *Reforming Software Patents*, 50 HOUS. L. REV. 325 (2013) (describing the history of patent reform).

68. RADIN, *supra* note 64, at 38.

company's welfare in mind. In these cases of patents embracing a personal dimension, the patent serves ethical ends with individual and public interests at the forefront.[69]

(1) *Patents as Personal Property*. Several interviewees, especially industry biologists and chemists, describe patents as being the personal reward for hard work. When working hard bears fruit, the laborer has a natural claim to the bounty in a classic Lockean sense. The attorney quoted below makes this clear when he compares copyrightable subject matter with patentable subject matter, implying that the former is not often as worthy to be called "property" as the latter. This attorney has worked in the pharmaceutical industry as an in-house counsel for over twenty-five years.

> I don't want to suggest that writing a book is easy, or writing a song is easy. I certainly could never write a song, or. . . a book, I probably could but I don't think anyone would want to read it. But the point is, . . . with respect to [certain biotech discoveries], each one of those was a patentable invention, OK? . . . [E]ach one of them was important, and each one of them took probably an awful lot of money, and effort, and discovery, and fantasy or imagination to get. And so . . . the genesis of invention in my world of the drug industry [is] it's hard.

As this interview excerpt indicates, labor and desert are considered directly related. Hard work generates worthy outcomes that intimately connect the integrity of "inventor" with his claim to dominion over his invention.

(2) *Patents as Protecting Everyday Work and Identity*. Scientists can and do distinguish between their own welfare and the welfare of the organization for which they work. But as they describe the intense nature of their work and the passions it involves, the line between the company, their research, its outcome and their identity as scientists blur, especially with regard to the patents procured from their inventions.

> I think [scientists] see [patents] as certainly protecting the company. Most of them I think get pretty involved in their programs. I think it's just the nature of science that something you're working on, and pretty excited about it, and you see that even with programs that we'll cut. A lot of times, I think scientists are . . . invested . . . . They may be a

69. To my knowledge, there is no systematic empirical work that includes these categories as such. Some scholars discuss reputational and ego benefits of patents, *see* Sichelman & Graham, *supra* note 7, 113–131, but as far as I can tell the personal property or moral consideration of patents is left to the law and culture theorists. *See, e.g.*, MADHAVI SUNDER, FROM GOODS TO A GOOD LIFE: INTELLECTUAL PROPERTY AND GLOBAL JUSTICE 173–99 (2012) (describing how patents are failing to promote the health of people in the developing world despite serving as financial cornerstones of the world's largest pharmaceutical and medical device companies).

> little remiss, sad, to see [we cut a particular program]. . . . So I think they get invested in the program, and IP is one more thing to protect [it].

As this attorney explains, scientists or their business partners believe patents protect the integrity of the scientific program and therefore the scientists' professional identity and everyday work life. When patents facilitate a research agenda (and therefore help maintain a scientists' research interests and program), patents are welcome. Patents therefore form an essential background to the everyday physical and intellectual activity of the scientist. Below a pharmacologist with his own consulting firm, who began his career working for pharmaceutical companies, describes his relationship to the work (and patents that may or may not result from it) much like bench scientists do: he is attached to the work and it is personal.

> The lead investigator will be called into the VP of Research's office [who'll] say, "We're shutting down the program. We decided, you know what? We spent too much, it's not economically viable for us; your program is dead." It's like being told your child is dead. Work on something full-time for six years? I did one project where—this is what drove me to consulting—I worked on it for—my god! This is why I have no hair on my head.

For the work to be terminated because no profitable IP will be generated from it is anathema to the scientist's perspective on the benefit of research and his role as a scientist. The IP is welcome if it facilitates work, and it is shunned if it does not. In this way, patents are profoundly personal and moral: they are the foundation of everyday research and labor, whether as facilitators or roadblocks.

More starkly, the notion that one's scientific work is a form of *offspring* reverberates in the interviews in various forms, signaling particularly emotional and deep bonds between creative and innovative labor and its output. Like offspring, one's work product can become one's legacy, a deeply personal and precious aspect of one's persona that survives well past one's own biological life. Like offspring, legacy and reputation require nourishment, protection and constant attention, which speak directly to the tendency to overprotect intellectual work (or to spoil children) with overbroad IP claims. For example, scientists may be protective of their work by asserting exaggerated property claims or by demanding that their employer bring such claims. Further, the comparison of creative or innovative work to offspring brings the righteous expectation of control and ownership that we assert with regard to our bodies and our children. As patents are the most durable and thick of the IP rights, their evocation in these contexts makes sense however inappropriate or ill-fitting the actual contours of the legal claim

may be.

Even in-house lawyers become "grabby" in the face of what is perceived to be the unjust enrichment of others from one's own (or one's company's) inventive and patented output.

> Assuming our patents are held to be valid and infringed, and enforceable, under the old [pre-*eBay*] law, we'd be able to enjoin them. Now, of course, that would probably not serve the public interest that much, or more importantly, why would we enjoin them unless we have a competitor molecule on the market? So then we would just get a royalty . . . ? But also, let's say we *did* have a molecule in the market—why *shouldn't* I be able to enjoin them? . . . [W]hy should my profits be damaged by their presence on the market? The law is probably not going to be that friendly towards us if we ever get there. I don't know.

Admitting that enjoining the sale of a competitor's drug may not serve the public interest, this lawyer nonetheless critiques the 2006 *eBay* decision that narrows the availability of permanent injunctive relief in the case of patent infringement.[70] He believes a permanent injunction is the morally appropriate response to what he earlier in the interview called "theft," a crime against a person as well as in relation to a thing. This is because the work is personal and taking it without asking or paying is affront to one's person.

> [M]y simple analogy is I think it's wrong for other people to steal other people's homework . . . . The world [my opponents] want . . . is that they want a law of the jungle, OK? They want to change the patent system so that they can use anybody else's technology, and then they want a system that if they get sued, then the damages are severely capped. . . , and they have all sorts of mechanisms to knock out the patent. . . . I don't think that fosters innovation. OK? What that does is that it makes it easy for these companies . . . [to] make money. [But] [y]ou know, our businesses are totally different. . . . We spent ten to fifteen years getting one little molecule from one genius's brain, or some ant-like persistent chemist brain, all the way through the safety and efficacy study trials in the United States and the rest of the world to get it on the market.

70. In *eBay Inc. v. MercExchange, LLC*, the Supreme Court held that patent owners must satisfy the four-factor test traditionally used to determine whether injunctive relief is warranted when seeking permanent injunctions for patent infringement. 547 U.S. 388, 395 (2006). This decision upset a longstanding practice in patent-infringement cases in which patent owners were entitled to a permanent injunction as a remedy for infringement. Instead, the Supreme Court emphasized the equitable nature of the remedy and the considerable discretion provided to the trial court. *Id.* The *eBay* decision has opened the field of patent practice to the possibility that ongoing infringing activities may be countenanced if, for example, such use is in the public interest. *Id.* at 390–91. Justice Kennedy made this point explicit in his concurrence. *Id.* at 396–97 (Kennedy, J., concurring).

This attorney justifies his claim of ownership and control, even if it frustrates the public interest, in terms of the personal outrage of "stealing homework," a particularly dishonest and morally fraught act mostly committed by juveniles. His statement is loaded with the personal dimensions of IP claims—and he's not even the inventor! His is a Blackstonian view of property in intellectual assets.[71] Despite the waste an injunction against infringers might create, his company should be able to exclude others on its own terms because the patent covers an invention that his company developed.

(3) *Patents as Benefiting the Public*. Also embedded in this quote is the value of promoting science not for a single person but for a community of people.[72] The above-quoted attorney describes the value as "foster[ing] innovation." Other interviewees are more concrete. A technology licensing officer describes how she encourages scientists to work with her to commercialize their research because it benefits "the real world." She says, "We educate them that it's *not* about the money; it's about getting the technology developed and making things happen in the real world to its benefit from all this wonderful science you're doing." An inventor, who is a computer scientist, describes his frustration with the fact that an invention he patented was left stagnant because of a bankruptcy proceeding. Of modest means, he nonetheless invests significant money to "free" the invention.

> I made a deal with a guy who had the small company, and the shysters who stole it from him in bankruptcy, to get it back, if I gave 'em each twenty-five percent stake. . . .
>
> Q: You knew at this time that it was valuable. That's why you wanted it back?
>
> A: No, I was just really frustrated that the patent was stuck in bankruptcy, and nothing was being done with it.

We may be skeptical of these explanations that resonate with the public good instead of self-interest. To be sure, most interviewees who describe producing creative or innovative work for the public good also need to earn a living and would not refuse financial largess should it be offered to them. The three quotes directly above come from middle-class interviewees whose salaries derive from institutions that build

71. Shyamkrishna Balganesh, *Debunking Blackstonian Copyright*, 118 YALE L.J. 1126, 1133 (2009) (defining Blackstone's view of property as that which consists in the "'sole and despotic dominion which one man claims and exercises . . . in total exclusion of the right of any other individual in the universe.'" (citation omitted)).

72. Most interviewees were not consistent in their accounts of how intellectual property does or should function. Inconsistency is to be expected with qualitative data. It is not a flaw but evidence of its richness and variability, which adds texture and granularity to the more uniform theoretical frameworks with which we usually operate.

reputations from their creative and innovative output and who earn substantial revenue from their IP. Nevertheless, for these interviewees, as well as for others, IP's value is its ability to promote science and art for the benefit of the public. Distinct from a pecuniary interest, this value resonates with the promotion of human rights and welfare and the importance of fairness to the provision of both.

CONCLUSION

What are the implications of the diversity of values ascribed to patents by people in creative and innovative industries? Interviewees perceive patents as functioning in various and contradictory ways. There are, no doubt, more categories of value beyond the three broadly outlined in this Article and their sub-groupings. One implication is that the traditional and largely monolithic explanation for patent rights in the United States fails to reflect the reality of patent practice. This is not a new insight.[73] But the orthodox and monolithic explanation for patent rights is remarkably persistent despite empirical evidence that undermines it. Adding to the growing and persuasive evidence of diverse patent functions, some of which retard rather than promote progress in the view of the innovators and creators, can only help move the debate to a more balanced and rational terrain.

Another implication is that patent law only seems to substantially sustain a few industries and is tangential or annoying to others. In my data, only pharmaceutical companies describe consistently relying on patents as a necessary mechanism to recoup their investment in the research and development of a novel and useful compound or medical process.[74] Medical device companies describe reliance on patents to fuel investment, but not necessarily to recoup it.[75] Most other patent-

73. *See, e.g.*, Michael W. Carroll, *One Size Does Not Fit All: A Framework for Tailoring Intellectual Property Rights*, 70 OHIO ST. L.J. 1361, 1363–64 (2009); Peter S. Menell, *A Method for Reforming the Patent System*, 13 MICH. TELECOMM. & TECH. L. REV. 487 (2007) (critiquing patent reform efforts that demand uniformity and reject discrimination between industries).

74. This is consistent with other empirical studies. *See, e.g.*, Graham, et al., *supra* note 6, at 1290.

75. The 2008 Berkeley Patent Survey data concludes that medical device companies, like pharmaceutical companies, rely on patents both as an anti-copying mechanism as well as to improve the chances of securing financing. *Id.* at 1301. My data is more lopsided, confirming the former but not the latter. The folks with whom I spoke in the medical device industry explain that patents are very important for initial investment but much less so in the commercialization stage when first mover advantage and trade-secrets more often sustain their competitive edge. The 2008 Berkeley Patent Survey does not dispute the value of these other business strategies, *see id.* at 1290, but its data also doesn't rank the value of the patents in terms of these other strategies. The survey appears to ask about each mechanism individually and not in comparison to each other. From what I could tell, the survey allowed individuals to rank all appropriability strategies equally, although of course not all respondents did. My data could be skewed, however, given

rich industries with which I engaged—computer software and hardware, manufacturing, e-commerce, energy—consider patents a part, but often a small part, of how they effectively conduct business. Most file for patents or consider patents in their business models because it is what their competitors do, but most also suggest that there are many other ways in which they can and do carry on their business. Collective action gridlock prevents mutual disarmament, but that should not be misperceived as desire for growth of or gratefulness for the patent arsenal in the business setting.

A third implication is that patents are perceived and function in innovative and creative culture as much more than business mechanisms. They communicate messages and have personal as well as moral meaning. These values are distinct from the constitutional mandate of "promot[ing] progress of science and the useful arts" as this clause has traditionally been understood. True, "progress" could mean whatever motivates creators and innovators to continue engaging in their art and science, be it support for a personal identity, a moral conviction, or professional wellbeing and satisfaction. But the broader we define "progress" in terms of the varied ways patents might promote private and public interests, the less the constitutional clause will meaningfully guide Congress in its regulation of patents and copyrights.

We might, however, confidently conclude that for the interviewees, "progress" does not simply mean "more." Patent law is not fulfilling its goal of promoting progress when all it does is facilitate the accumulation of abundance. This is a subject for further study. But it seems that in the accounts of creative and innovative work, interviewees imply the importance of distributive justice in their assessment of when patents have high value and when they have low value. If we understand and implement the constitutional prerogative granted to Congress so that patent laws are followed and work as intended, we should reckon with the grounded accounts of creative and innovative work that is the object of the regulation.

The diversity of patent tropes in this study challenges us as lawyers and law reformers to resist the singular explanation for patent law—its goals and its effects. Instead, we should think broadly about the private and public values we hope to achieve with innovation regulation, debate the ability to accomplish and sustain them through legislation and then make explicit our choices of pursuing some of the values over others within the bounds of the constitutional mandate so that a fair

the small, diverse set. More research on the relative value of these appropriability strategies within separate fields would be worthwhile.

consideration of the process and its application can proceed.

For too long we have repeated the mantra that patents are necessary to incentivize innovation and that broad or strong patent rights will incentivize more innovation. There is some recognition in recent case law that this mantra is so limited in context and application that it is false.[76] Many more scholars of innovation, science and creativity have written about how indeed the mantra is both ideologically driven and factually incorrect on the whole.[77] As the national and international political stage continues to feature concerns over innovation growth, international economic stability and fair versus free trade, identifying values we as a nation choose to pursue and those we might explicitly reject will be increasingly important for both effective democratic engagement and international relations.

76. *See, e.g.*, Ass'n for Molecular Pathology v. Myriad Genetics, 133 S. Ct. 2107, 2116 (2013) (quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1290, 1301 (2012)); *see also* Bowman v. Monsanto Co., 133 S. Ct. 1761, 1769 (2013) (limiting the holding finding no exhaustion of patent rights to the particular situation before the court and not to every "one involving a self-replicating product"); Jessica Silbey, *Comparative Tales of Origins and Access: The Future of Intellectual Property Law*, 61 CASE W. RES. L. REV. 195 (2010) (collecting cases and analyzing their rhetoric of open-access versus exclusive rights in the digital age).

77. The scholarly literature is fast. *E.g.*, BRETT FRISCHMANN, INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES (2012); SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES (2004); *see also* Mark Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1032 (2005) (critiquing the role of free riding as a negative value that motivates innovation law); Jessica Silbey, *The Mythical Beginnings of Intellectual Property*, 15 GEO. MASON L. REV. 319, 320–21 (2008) (describing narratives of invention in terms of ideological and mythical tropes that resemble origin stories of democracy and the American hero).