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Do Patents Have Gender?

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DO PATENTS HAVE GENDER?*

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A scientist looks at the world the way a man looks at a woman.[1]

I. INTRODUCTION

Over the past several decades, feminist scholarship has had a notable impact on both theory and practice in many areas of law.[2] Criminal law,[3] civil rights,[4] family law,[5] employment law,[6] tax law,[7] and a host of other fields have all benefitted from examination using the analytical tools developed by feminist commentators. In some instances, these tools have been deployed to point out explicit discrimination or inequity in the law that resulted in direct and palpable disadvantage to women or other subordinated classes. In other instances, these tools have been used to illuminate less apparent structural biases in the law, which serve to reinforce stereotypes or perpetuate oppressive power relationships.

Despite widespread influence across many other areas of law, feminist perspectives have been slow in coming to intellectual property law.[8] However, a growing body of recent scholarship has now begun to engage

1. Rachel Zukert, *MacKinnon's Critique of Objectivity*, *in* A MIND OF ONE'S OWN: FEMINIST ESSAYS ON REASON AND OBJECTIVITY 273, 284 (Louise M. Antony & Charlotte E. Witt eds., 2d ed. 2002); *cf.* Wallace Stevens, *from Adagia*, *in* WALLACE STEVENS 900, 905 (Frank Kermode & Joan Richardson eds., 1997) ("A poet looks at the world the way a man looks at a woman.").

2. *See* Martha Albertson Fineman, *Feminist Legal Theory*, 13 AM. U. J. GENDER SOC. POL'Y & L. 13, 15 (2005); Deborah Rhode, *The "No Problem" Problem: Feminist Challenges and Cultural Change*, 100 YALE L.J. 1731 (1991).

3. *See, e.g.*, SUSAN ESTRICH, REAL RAPE 11 (1987); Cheryl Hanna, *No Right to Choose: Mandated Victim Participation in Domestic Violence Prosecutions*, 109 HARV. L. REV. 1849 (1996); Linda G. Mills, *Killing Her Softly: Intimate Abuse and the Violence of State Intervention*, 113 HARV. L. REV. 550, 611-13 (1999); Anne M. Coughlin, *Excusing Women*, 82 CALIF. L. REV. 1 (1994).

4. *See, e.g.*, Sally F. Goldfarb, *Violence Against Women and the Persistence of Privacy*, 61 OHIO ST. L.J. 1 (2000).

5. *See, e.g.*, SUSAN MOLLER OKIN, JUSTICE, GENDER, AND THE FAMILY (1989); Martha Minow, *Rights for the Next Generation: A Feminist Approach to Children's Rights*, 9 HARV. WOMEN'S L.J. 1, 15 (1986).

6. *See, e.g.*, Nancy E. Dowd, *Work and Family: The Gender Paradox and the Limitations of Discrimination Analysis in Restructuring the Workplace*, 24 HARV. C.R.-C.L. L. REV. 79, 80 (1989).

7. *See, e.g.*, Gwen Thayer Handelman, *Sisters in Law: Gender and the Interpretation of Tax Statutes*, 3 UCLA WOMEN'S L.J. 39 (1993); Marjorie E. Kornhauser, *The Rhetoric of the Anti-Progressive Income Tax Movement: A Typical Male Reaction*, 86 MICH. L. REV. 465, 518 (1987).

8. Dan L. Burk, *Feminism and Dualism in Intellectual Property Law*, 15 AM. U. J. GENDER SOC. POL'Y & L. 183, 185 (2007) [hereinafter Burk, *Feminism and Dualism*].

the theory and doctrine of intellectual property from a feminist perspective.[9] The majority of this developing literature has focused on the law of copyright and the law of trademarks.[10] Attention to the law of patents has been sparse; while feminist intellectual property scholarship itself is underdeveloped, feminist patent scholarship is almost unheard of.[11]

In previous work, I have argued that although the conversation in Second Wave and even Third Wave feminism might seem to have passed intellectual property by, the tools provided by feminist scholarship are useful in critiquing and evaluating characteristics of intellectual property law that might otherwise go unexamined.[12] In this Article, I extend that discussion, focusing particularly upon the law of patents, in the hope of prompting a more robust examination of a core area of intellectual property, where feminist insights have to date been underdeveloped. I will offer some exploratory thoughts as to areas of patent law where feminist methodologies may be applicable, where there appears to be some consonance between patent doctrine and previous feminist scholarship. In particular, I draw upon prior foundational work that has been done in areas such as tort law, showing the relationship between legal standards and feminist epistemologies.

I begin by considering a variety of ways in which the patent system might entail gender bias, the general criteria by which such a gendered system might be detected, and the concerns that might stem from differing degrees of masculine bias were we to find them. Then, much like a mineralogist or epidemiologist searching for hypothesized phenomena, I sample an area of the patent system where expected evidence of gender might likely be identified. To assay the patent system for possible gendered characteristics, I turn to the objective doctrines of patentability embodied in the legal fiction of the "PHOSITA," the Person Having Ordinary Skill in the Art. I suggest that this standard displays the same gendered characteristics noted in previous feminist critiques of "objective"

9. *See, e.g.*, Carys J. Craig, *Reconstructing the Author-Self: Some Feminist Lessons for Copyright Law*, 15 AM. U. J. GENDER SOC. POL'Y & L. 207 (2007); Debora Halbert, *Feminist Interpretations of Intellectual Property*, 14 AM. U. J. GENDER SOC. POL'Y & L. 431 (2006); Malla Pollack, *Towards a Feminist Theory of the Public Domain, or Rejecting the Gendered Scope of United States' Copyrightable and Patentable Subject Matter*, 12 WM. & MARY J. WOMEN & L. 603 (2006).

10. *See, e.g.*, Ann Bartow, *Fair Use and the Fairer Sex: Gender, Feminism, and Copyright Law*, 14 AM. U. J. GENDER SOC. POL'Y & L. 551 (2006); Dan L. Burk, *Copyright and Feminism in Digital Media*, 14 AM. U. J. GENDER SOC. POL'Y & L. 519 (2006); Craig, *supra* note 9; Halbert, *supra* note 9; Rebecca Tushnet, *My Fair Ladies: Sex, Gender, and Fair Use in Copyright*, 15 AM. U. J. GENDER SOC. POL'Y & L. 273 (2007).

11. Notable exceptions include Burk, *Feminism and Dualism*, *supra* note 8, and Eileen Kane, *Molecules and Conflict: Cancer, Patents, and Women's Health,* 15 AM. U. J. GENDER SOC. POL'Y & L. 305 (2007).

12. *See* Burk, *Feminism and Dualism*, *supra* note 8.

legal standards, such as tort law. I also consider the more general problem of "objectivity" as that has been critiqued in feminist scholarship. Given the close relationship between patent law and technological progress, I draw particularly on critiques of objectivity in feminist studies of science and technology. I conclude with some suggestions as to how patent law might be viewed differently were such feminist critiques of objectivity taken into account in formulating patent policy.

II. IN SEARCH OF THE GENDERED PATENT

The title of this Article poses a question that (as I have been frequently told) strikes many readers as improbable, even nonsensical. What could it possibly mean for a legal document, or a system of exclusive rights, to encompass the attributes of gender? Answering that question, a sort of challenge to the question posed by the title, requires us to address a further series of nested, subsidiary questions. What might a gendered patent or gendered patent system look like? How would we recognize it if we saw it, and why would we care if we did? What in fact do we mean when considering gender in such a context?

To begin answering these questions, I start with the last of them, devoting some attention to considering what is meant by gender. The proper definition for this term is a difficult question that has commanded a good deal of attention from feminist commentators, and even after considerable time and consideration the discussion probably has not resulted in a definition that would entirely satisfy everyone. A thorough exploration of the gender question would certainly entail levels of nuance and complexity that I do not propose to resolve, or even deeply engage here; doing so would take us too far afield. But we can establish at least a general sense of what is meant: feminist commentators have discussed gender in terms of societal roles and attitudes related to sex, but have tended to distinguish gender from sex.[13] On this view, gender constitutes a set of social behaviors and expectations, while sex constitutes a set of physical characteristics. Gender is culturally negotiated, while sex is (largely) determined by biology.

Of course, this distinction is not pristine.[14] The biological determination of sex necessarily comes with a caveat, first because the decision as to which biological characteristics should define sex is itself a socially

13. *See* Jane Flax, *Gender as a Social Problem: In and For Feminist Theory*, 31 AMERIKASTUDERIEN 193 (1986) [hereinafter Flax, *Gender as a Social Problem*]; Sherry Ortner, *Is Male to Female as Nature is to Culture?*, *in* WOMEN, CULTURE, AND SOCIETY 67 (Michelle Rosaldo & Lousie Lamphere eds., 1974); Joan Scott, *Gender: A Useful Category of Historical Analysis*, 91 AM. HIST. REV. 1053, 1054 (1986).

14. *See* Evelyn Fox Keller, *The Gender/Science System: Or, is Sex to Gender as Nature is to Science?*, 2 HYPATIA 37, 38 (1987).

constructed choice,[15] and second because the biological characteristics considered to define sex, from genetics through physiology and morphology, span a continuum of structures rather than falling into discrete binary features for male and female.[16] The decision as to whether a given individual constitutes a biological male or female thus remains something of a constructed choice.[17] At the same time, it would seem foolish in an age of genomics to claim that the cultural construction of gender is never informed by biological differences, even if those differences are culturally interpreted and their biological component is less determinate than popular wisdom might assume.

Thus, while acknowledging the caveats and complexities of this approach, dividing gender from sex allows us to say something useful about the nature of the former term, and something particularly useful to our inquiry here. Gender on this view comprises a certain role; it is a social performative.[18] This implies that "masculine" and "feminine" gender are malleable roles within social relations, and most importantly, within social relations of power.[19] Feminist critiques of gender are particularly concerned with the degree to which such designations may promote and reinforce patterns of dominance and submission. Feminist critiques of law in turn tend to consider the degree to which various social institutions, particularly legal institutions, may promote and reinforce the expected roles of masculinity and femininity—and, consequently, the degree to which legal institutions may promote or perpetuate social patterns of dominance and submission.[20] Gendering of law and legal institutions may be explicitly directed at promoting such social roles, or their effect may be more subtle, incorporating into their structure certain general assumptions on which gendered roles are based.[21]

This insight offers a general guide for our consideration of patent doctrine. The question that has previously been posed in other areas of law

15. *See* DONNA J. HARAWAY, PRIMATE VISIONS: GENDER, RACE, AND NATURE IN THE WORLD OF MODERN SCIENCES 350 (1989); THOMAS LAQUEUR, MAKING SEX: BODY AND GENDER FROM THE GREEKS TO FREUD 11 (1990).

16. Judith Butler, *Variations on Sex and Gender: Beauvoir, Wittig, and Foucault*, *in* FEMINISM AS CRITIQUE 128 (Seyla Benhabib & Drucilla Cornell eds., 1987); Monique Wittig, *One is Not Born a Woman*, 1 FEMINIST ISSUES 47 (1981).

17. *See* P.A. Lee et al., *Consensus Statement on the Management of Intersex Disorders*, 118 PEDIATRICS e488, e489 (2006); W.G. Reiner, *Assignment of Sex in Neonates with Ambiguous Genitalia*, 11 CURRENT OP. PEDIATRICS 363 (1999).

18. *See* JUDITH BUTLER, GENDER TROUBLE: FEMINISM AND THE SUBVERSION OF IDENTITY (1999).

19. *See* Anne Herrmann, *"Passing" Women, Performing Men*, *in* THE FEMALE BODY 178 (Laurence Goldstein ed., 1991).

20. *See* Katherine T. Bartlett, *Feminist Legal Methods*, 103 HARV. L. REV. 829, 830 (1990).

21. *See* Joan C. Williams, *Deconstructing Gender*, 87 MICH. L. REV. 797, 799 (1989).

is the same that we will pose regarding gender in patenting: to what extent might the patent system entail assumptions, practices, or institutional standards that create or reinforce social patterns of dominance and submission?

With that rough definition of what we may be looking for in the patent system, I turn to the other questions posed: considering how we might recognize gendered patents if we found them, and why we would care to make the attempt.

A. Gendered Effects

Problematic effects of gendering might manifest themselves at several different levels of the patent system. The most obvious effect, and the version that most people would most readily perceive as a problem, would arise if we were to find that the patent system is gendered, either intentionally or unintentionally, in such a way as to exclude women. Such exclusions might include signs of overt discrimination, such as formal or informal prohibitions against participation by women; for example, if women were officially barred from obtaining or holding patents, or alternatively, if women were as a practical matter excluded from obtaining or holding patents because of prejudices or attitudes in the institutions that administer the system. The former type of prohibition might occur if women were, say, statutorily excluded from the patent system. But the same outcome might be reached if the latter were to occur; if for example, patent examiners held a particular view of invention or inventors that inclined them to reject applications from women more often than applications from men.

Historically, there is some evidence of just such prohibitions, periods during which women were discouraged from claiming credit for technological innovation, so that either no patents were sought at all for women's inventions, or if patents were sought for women's inventions, they were done so in the names of the fathers, brothers, or husbands of the actual inventor.[22] But it is difficult to find anything so blatantly discriminatory in the present patent system—no statutes or regulations stating that women are forbidden from filing patent applications or holding patents, no statements or overt actions by examiners or Patent and Trademark Office (PTO) officials discouraging women from applying for patents, no formal rules or policies prohibiting women from joining the

22. *See, e.g.*, JUDY WAJCMAN, FEMINISM CONFRONTS TECHNOLOGY 16 (1991); Zorina Khan, *Married Women's Property Laws and Female Commercial Activity: Evidence from US Patent Records, 1790-1895*, 56 J. ECON. HIST. 356 (1996); Deborah Merritt, *Hypatia in the Patent Office: Women Inventors and the Law, 1865-1900*, 35 AM. J. LEGAL HIST. 235 (1991); Carroll Pursell, *Women Inventors in America*, 22 TECH. & CULT. 545, 546 (1981).

examination corps at the PTO, or barring them from taking the patent agent's examination. Such formal or informal deterrents, were they found, would clearly constitute violations of current law, subject to formal legal sanctions.

The lack of explicit prohibitions on female participation in patenting might prompt some observers to conclude that there is no cause for worry over gendered patents. If there are no explicit prohibitions, then perhaps there is no need for alarm. However, while much progress as has been seen in other areas of feminist reform such as employment, the removal of explicit discrimination does not necessarily mean the end of all discrimination.[23] Although women are no longer explicitly excluded from many professions and workplace positions, they continue to be hampered by prejudicial attitudes and social structures even after new laws removed the explicit barriers to participation in those jobs.

Certainly there remain troubling indicators of exclusion in the patent system. It is fairly clear that women obtain fewer patents than men; in addition, there are fewer women than men in the corps of patent examiners, and among the registered agents and attorneys who practice patent law.[24] Such indicators of reduced participation sustain the concern that the present day patent system retains some residue of more overt discrimination. Harking back to the definition of gender considered above, we might wonder whether, even in the absence of overt discrimination, the patent system is somehow calibrated to disadvantage or exclude those who are designated to play the female role in society.

It is also worth noting that evidence of the first kind of gendering, the explicit or de facto exclusion of women from the patent system, could be taken as evidence of the latter kind of gendering, the masculinization of patent doctrine and patentable subject matter. However, a lack of evidence of the former kind of gendering does not necessarily preclude the latter kind of gendering; women might be participating in the patent system, but under social or epistemological constraints that perpetuate subordinate status.

Feminist scholars have expressed a parallel concern that either the culture or epistemology of science and engineering are hostile to women,[25] resulting in relatively few women entering these fields of endeavor, and even fewer succeeding in reaching a point where they can generate the

23. *See* KATHERINE V. W. STONE, FROM WIDGETS TO DIGITS: EMPLOYMENT REGULATION FOR THE CHANGING WORKPLACE 290 (2004).

24. *See* Annette I. Kahler, *Examining Exclusion in Woman-Inventor Patenting: Historical, Economic and Social Perspectives*, 19 AM. U. J. GENDER, SOC. POL'Y & L. 773 (2011).

25. *See, e.g.*, CYNTHIA COCKBURN & SUSAN ORMROD 1 (1993); WAJCMAN, *supra* note 22, at 16.

kinds of technological developments that would qualify for a patent. There is certainly considerable evidence that fewer women than men select careers in physical science and engineering,[26] and some evidence that those who do select such careers encounter gender-based discomfort in their chosen fields.[27] If women generate fewer patents than men, this could simply be a sort of spillover from the paucity of women in science and engineering; if fewer women professionally engage technological innovation, fewer will obtain patents on technological innovations.

But there is also the possibility that the patent system, aligned as it is toward scientific and technological progress, is subject to the same cultural miasma that seems to deter women from full involvement in science and engineering. The sparse participation of women in the patent system may not simply be spillover from an impediment in science, but rather an impediment common to both science and patenting. In particular, if, as some have argued, the fundamental assumptions and practices of science are gendered,[28] and if the patent system is oriented toward those same assumptions and practices, with the goal of promoting technological innovation, then the patent system may be hostile to female participation, quite apart from any independent hostility in the technological arts.

This possibility suggests a more generalized concern: it may be that the patent system is gendered—not overtly in order to promote oppression, or even surreptitiously so as to exclude women—such that it is infected with a prevailing set of attitudes about the social role of women. In this view, the patent system might be harboring and reinforcing patterns of thought and action that disadvantage women systemically, and not merely with regard to patenting or associated technological activities. In that case, the patent system may constitute a component of an overall social system that is biased against women and the roles they play in society.

Of course, in one sense this would suggest that the patent system is no worse than many, or perhaps most, social institutions, and that while such biases in the patent system would be troublesome, they would be by no means unique to patents and patenting. In this case, while the gendering of the patent system may be real, and perhaps requires correction, one might argue that the patent system will simply have to take a number and get in

26. *See* NAT'L SCI. FOUND., WOMEN, MINORITIES, AND PERSONS WITH DISABILITIES IN SCIENCE AND ENGINEERING 222 (2009), http://www.nsf.gov/statistics/wmpd/pdf/nsf09305.pdf.

27. *See* NAT'L ACAD. OF SCI., ENG'G, & MED., BEYOND BIAS AND BARRIERS: FULFILLING THE POTENTIAL OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING 3 (2007); NAT'L COUNCIL FOR RESEARCH ON WOMEN, BALANCING THE EQUATION: WHERE ARE THE WOMEN AND GIRLS IN SCIENCE, ENGINEERING, AND TECHNOLOGY? 21 (2001).

28. *See, e.g.*, SANDRA HARDING, THE SCIENCE QUESTION IN FEMINISM 31 (1986); EVELYN FOX KELLER, REFLECTIONS ON GENDER AND SCIENCE 79-80 (1985).

line behind the myriad of other institutions that share the same defects. Indeed, if the problem is generalized, then perhaps a complete correction might need to wait for a general societal solution to the underlying causes.

But even if the putative inequalities within the patent system are part of a larger problem, it makes little sense to wait for the advent of general solutions to the issue of inequality before addressing gender issues in the patent system. It may be that the paucity of women inventors would resolve itself if there were first a resolution of the problem of sparse participation of women in science and engineering. But the inverse might equally well be true; the patent system could be a key tool in attracting women to science and engineering. Given that the stated purpose of the patent system is to promote innovation, a patent system conducive to female participation might better fulfill that goal, and generate additional contributions from women into the technologies that rely upon patents.

Neither should we assume that addressing the most blatant problems, such as the scarcity of female inventors or female engineers, will necessarily resolve the less obvious structural gendering in the patent system, if such gendering problems can be found. As desirable as solving those most blatant problems might be, merely addressing the symptoms and leaving the underlying problem of gender untouched may allow it to manifest itself in other damaging ways. Certainly the possible lack of a comprehensive, global solution to sexism is no reason to delay critically examining the structure and practices of the patent system to determine what assumptions or doctrines might contribute to gendered outcomes. If the diagnosis does not immediately suggest a cure, we can still have it on hand to guide us when a cure becomes available.

III. OBJECTIVITY AND OBJECTIFICATION

An inquiry into the gendering of patents need not begin from scratch; previous feminist commentary on the roles of women in science and the law shows considerable consonance with the range of possible pathologies identified above. The existing literature that might be brought to bear on this question is enormous. Consequently, I propose to focus here on a discrete set of prior arguments that seem to hold the most promise for illuminating gendering in the patents system. A considerable body of literature exists regarding the gendering of science; much of this analysis links to the purportedly "objective" viewpoint adopted in the epistemology of modern science. Similarly, previous consideration of legal doctrine has often focused on the effects of so-called "objective" standards in the law. Since much of patent doctrine, too, hinges upon an objective legal standard, we will begin an analysis of gendering in the patent system there.

A. The PHOSITA Standard

The standard for patentability in several different areas of the patent statute is defined in terms of the "person having ordinary skill in the art," which is sometimes abbreviated with the acronym PHOSITA.[29] The PHOSITA is not the inventor, since an inventor is by definition someone of *extraordinary* skill in the art, but is someone who is entitled to the grant of a patent for having made available to humankind technology that would not be obvious to mere artisans.[30] However, the person of extraordinary skill is defined in relation to one of ordinary skill; the skill requisite to the inventor is determined by that of the PHOSITA. The inventor is measured against all that the PHOSITA knows, including every reference in the pertinent art, and is assumed to additionally possess a kind of vision or imagination that advances the art beyond what the PHOSITA could conceive.[31]

Perhaps the most memorable formulation of this legal standard may be the visualization of the test for obviousness famously set out in the opinion of Judge Rich in *In re Winslow*.[32] The question in *In re Winslow* was whether the claimed invention, a paper bag filling device, was obvious.[33] Generally, the courts and the PTO use an obviousness standard to measure the skill and knowledge of the PHOSITA with respect to prior art references. In *Winslow*, the patent examiner identified at least two prior art references that had been patented by others and had features similar to those of the claimed Winslow invention.[34] An obvious combination of features from old references is unpatentable,[35] and the legal question was whether Winslow's invention was such an obvious combination.[36]

The PTO decided that the Winslow invention was obvious. The appellate court reviewing the PTO's determination used an imaginary scenario, the famous "*Winslow* tableau," to examine the obviousness of the invention. This analysis envisions the inventor surrounded by the prior art references that entail pertinent aspects or features of the claimed invention:

> We think the proper way to apply the 103 obviousness test to a case like this is to first picture the inventor as working in his shop with the prior art references—which he is presumed to know—hanging on the walls

29. *See* Cyril A. Soans, *Some Absurd Presumptions in Patent Cases*, 10 IDEA 433, 438 (1966) (coining the term "PHOSITA").

30. Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 454 (Fed. Cir. 1995).

31. *See* Joseph P. Meara, Note, *Just Who Is the Person Having Ordinary Skill in the Art? Patent Law's Mysterious Personage*, 77 WASH. L. REV. 267, 276 (2002); John O. Tresansky, *PHOSITA—The Ubiquitous and Enigmatic Person in Patent Law*, 73 J. PAT. & TRADEMARK OFF. SOC'Y 37, 40-41 (1991).

32. *In re* Winslow, 365 F.2d 1017, 1017 (C.C.P.A. 1966).

33. *Id.* at 1020.

34. *Id.* at 1019.

35. KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 416 (2007).

36. *In re* Winslow, 365 F.2d at 1020.

> around him. One then notes that what applicant Winslow built here he admits is basically a Gerbe bag holder having air-blast bag opening to which he has added two bag retaining pins . . . . Winslow would have said to himself, "Now what can I do to hold them more securely?" Looking around the walls, he would see Hellman's envelopes with holes in their flaps hung on a rod. He would then say to himself, "Ha! I can punch holes in my bags and put a little rod (pin) through the holes. That will hold them! After filling the bags, I'll pull them off the pins as does Hellman. Scoring the flap should make tearing easier."[37]

Despite the narrative imagery featured in the *Winslow* tableau, it is not a narrative that reflects actual invention. The court follows the narrative to illustrate and buttress its reasoning, and not to reconstruct any inventive activity that in fact occurs. The *Winslow* scenario is a legal fiction, intended, as Pooh-Bah might have said, to give artistic verisimilitude to an otherwise bald and unconvincing narrative.[38] It is not an inquiry regarding the inventor's real-world course of conduct or state of mind.[39] The standard depicted in *Winslow* is not a "subjective" standard that reflects the particular occurrence of invention, but rather constitutes what the law refers to as an "objective" standard,[40] that is not intended to be tied to any particular inventor or invention.[41] It attempts to adopt a sort of impassive "God's eye view" of the invention process, as it might be idealized in the law.

The fact that the PHOSITA standard is intended to be legally objective burdens it with considerable epistemological and connotative baggage. Certain notions are bound up in the designation of an objective legal standard. The label "objective" itself entails connotations of neutrality, detachment, and impartiality.[42] The PHOSITA standard is employed and applied in many cases, but what is most striking about the scenario imagined by the court in *Winslow* is the attempt to typify and personify the objective standard. The qualities that are depicted in the court's analytical scenario make the case a compelling entry point into the analysis and critique of objectivity in the patent system.

To begin with, the PHOSITA, as graphically depicted in *Winslow*, is endowed with a sort of superhuman capacity to know all the relevant prior

37. *Id.*

38. William S. Gilbert, *The Mikado,* Act II (1885).

39. Kimberly-Clark Corp. v. Johnson & Johnson, 745 F.2d 1437, 1454 (Fed. Cir. 1984).

40. *In re* Heldt, 43 F.2d 808, 811 (C.C.P.A. 1970).

41. *See id.*; *see also* Hodosh v. Block Drug Co., 786 F.2d 1136, 1144 (Fed. Cir. 1986).

42. *See* CATHERINE MACKINNON, FEMINISM UNMODIFIED: DISCOURSES ON LIFE AND LAW 50 (1987) [hereinafter MACKINNON, FEMINISM UNMODIFIED].

art.[43] The law assesses the invention against the prior art, so in effect holds the inventor responsible for the prior art, even though it may be that no human inventor could actually know all the prior art. Indeed, it could be that actual persons of skill in the art could not locate or obtain all the relevant prior art.[44] But, as depicted in the *Winslow* tableau, the inventor is envisioned as actually knowing—and having almost supernatural access to—the prior art.[45]

A second notable and instructive dimension to the *Winslow* scenario is its depiction of the inventor's activity while inventing. The court's hypothetical is striking in its portrayal of the inventor as engaged in a kind of conceptual re-arrangement of prior art components, divorced from the messy and sometimes frustrating manipulation of physical materials.[46] The *Winslow* inventor need not get his hands dirty, struggle with stripped screws, or sweep up anything dropped on the floor. Rather, in patent law, the inventive act is entirely an act of mental effort; it is complete when the inventor has fully constructed the invention in his mind, and any material instantiation is merely an afterthought.[47]

A third and equally striking characteristic of the *Winslow* tableau is its depiction of an idealized inventor—who, in the *Winslow* case, ultimately proves to be not an extraordinarily skilled inventor, but only a PHOSITA—inventing in splendid isolation from the practitioners of his technological art, or from other outside influences, and for that matter, from the tools and means of invention. The inventor is envisioned as having a kind of rarified connection to the technical community through the references imagined to be hung before him, but no other individual or influence appears on the scene other than the references and the inventor's own imagination. The act of invention in this depiction seems to be a solitary and self-contained event.

These characteristics, implicit or explicit in the *Winslow* court's imagined scenario, convey a graphic sense of how patent law views inventions, the act of invention, and inventors. In this respect, *Winslow* reflects the disposition of legal doctrine surrounding the PHOSITA throughout patent law; the *Winslow* tableau personifies not only an objective legal standard for patenting, but a particular epistemology that accompanies the standard. The aspects of the *Winslow* inventor that I have

43. *See* Michael Ebert, *Superperson and the Prior Art*, 67 J. PAT. & TRADEMARK OFF. SOC'Y 657 (1985).

44. *Kimberly-Clark Corp.*, 745 F.2d at 1453.

45. *Cf. In re* Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998); Custom Accessories Inc. v. Jeffrey Allan Indus., Inc., 807 F.2d 955, 962 (Fed. Cir. 1986).

46. *See* Burk, *Feminism and Dualism*, *supra* note 8, at 194.

47. *See* Technitrol Inc. v. United States, 440 F.2d 1363, 1369 (Ct. Cl. 1971); Townsend v. Smith, 36 F.2d 292, 295 (C.C.P.A. 1929).

highlighted—the sense of isolation, the prior art omniscience, the rarified mental activity—are consonant with those identified in previous analyses of legal personifications in other areas of the law, where commentators have tied such incidents of objectivity to gender. In particular, the analysis of tort law's objective standard for precautions taken by a "reasonably prudent person" sheds light on the character of the PHOSITA.

B. The Reasonably Prudent Person

The PHOSITA is not alone in the law as a legally personified construct; other fictional legal figures exist to define the standards in other areas of law.[48] Perhaps most famously, the "reasonably prudent person" defines the standard of care in tort law: the proper standard of behavior for purposes of tort is the level of care or caution or accident prevention that would be exercised by a reasonably prudent person.[49] Failure to behave at least as cautiously as a reasonably prudent person results in tort liability. Courts and commentators are clear that the reasonably prudent person is not any actual person; it is rather an imagined composite of the communal expectations imposed by law.[50]

The reasonably prudent person has been the subject of feminist critique, perhaps most famously by Leslie Bender, who argues that this standard of tort law entails a gendered construct that deserves re-consideration.[51] Bender relates that she came to re-consider the reasonably prudent person standard by wondering about the odd, counterintuitive results arising out of American tort law's duty to rescue doctrine, or more properly, American tort law's *no* duty to rescue doctrine.[52] American tort law classically holds that, absent some pre-existing special relationship, the reasonably prudent person has no duty to go even slightly out of his way to rescue another individual's life, even in situations where there would be no cost or peril to the potential rescuer.[53] The law imposes not the slightest responsibility to

48. *See* Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1566 (Fed. Cir. 1987).

49. *See* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL AND EMOTIONAL HARM § 3 cmt. a (2010); Edward Green, *The Reasonable Man: Legal Fiction or Psychosocial Reality?*, 2 L. & SOC. REV. 241 (1968); Fleming James Jr., *The Qualities of the Reasonable Man in Negligence Cases*, 16 MO. L. REV. 1 (1951); Osborn M. Reynolds Jr., *The Reasonable Man of Negligence Law: A Health Report on the "Odious Creature*," 23 OKLA. L. REV. 410 (1970).

50. Freeman v. Adams, 218 P. 600, 603-04 (Cal. Dist. Ct. App. 1923).

51. *See* Leslie Bender, *A Lawyer's Primer on Feminist Theory and Tort*, 38 J. LEGAL EDUC. 3 (1988) [hereinafter Bender, *A Lawyer's Primer*].

52. *See id.* at 33.

53. *See generally* John Adler, *Relying on the Reasonableness of Strangers: Some Observations About the Current State of Common Law Affirmative Duties to Aid or Protect Others*, 1991 WIS. L. REV. 867; William M. Landes & Richard A. Posner, *Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism*, 7 J. LEGAL STUD. 83 (1978); Saul Levmore, *Waiting for Rescue: An Essay on the Evolution and Incentive Structure on the Law of Affirmative Obligations*,

rescue a stranger; this is apparently not something the law can reasonably ask of a prudent person.[54]

But, of course the failure to rescue someone, particularly at no cost or peril to the rescuer, immediately strikes most persons as both imprudent and unreasonable.[55] Students first confronted with the rule are frequently surprised, and even shocked, that the law entails not even the most trivial expectation to assist another person who is in distress.[56] This serves as a useful starting point to re-consider the legal duties imposed by American tort law, as well as the duties *not* imposed by tort law. A rule so at odds with the common sensibilities of the community invites one to interrogate the legal standard that leads to such a result.[57]

Bender suggests that such a surprising result stems from a system through which there runs an assumption of separation rather than of connection, and which concomitantly overemphasizes rights rather than responsibilities.[58] The social milieu from which the tort rescue cases arise is one that constructs the individual as self-sustaining, separate from others in the community, and so divorced from their welfare. The law that assumes this view is loathe to impose a responsibility upon the individual, even when the imposition is minimal or costless. Rather, the law is couched in terms of rights that the individual can invoke to defend against intrusions by others. The victim who needs rescue does not need a defense against an encroachment, so no tort principle is invoked. Instead, a duty to rescue the victim would require an affirmative obligation on the part of the potential rescuer, and this is simply not what the law is constructed to do.

Bender and others have pointed out that this construction of the individual is part and parcel of the "objective" legal standard entailed by

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72 VA. L. REV. 879 (1986).

54. *See, e.g.*, Theobald v. Dolcimascola, 690 A.2d 1100 (N.J. 1997) (finding no duty for onlookers to prevent a friend from playing Russian Roulette); Handiboe v. McCarthy, 151 S.E.2d 905 (Ga. Ct. App. 1966) (holding there is no duty to rescue a drowning child); Yania v. Bigan, 155 A.2d 343 (Pa. 1959) (refusing to recognize a duty to rescue a drowning man); RESTATEMENT (SECOND) OF TORTS § 314; RESTATEMENT (THIRD) OF TORTS § 37 (stating that there is no duty to rescue another from independently occurring harm).

55. *Cf.* Peter Singer, *Famine, Affluence, and Morality*, 1 PHIL. & PUB. AFF. 229 (1972) (arguing that failure to save a human life at no risk to the rescuer is objectively immoral).

56. *Id*.

57. *See, e.g.*, Steven J. Heyman, *Foundations of a Duty to Rescue*, 74 VAND. L. REV. 673 (1994); Ernest J. Weinrib, *The Case for a Duty to Rescue*, 90 YALE L.J. 247 (1980); William M. Randolph, *The Duty to Act: A Proposed Rule*, 44 NEB. L. REV. 499, 501 (1965).

58. *See* Bender, *A Lawyer's Primer*, *supra* note 51, at 35-36; *see also* Leslie Bender, *Feminist (Re)Torts: Thoughts on the Liability Crisis, Mass Torts, Power, and Responsibilities*, 1990 DUKE L.J. 848, 895 (1990) [hereinafter Bender, *Feminist (Re)Torts*] (arguing that rights are emphasized over responsibility in mass torts).

the reasonably prudent person.[59] Objectivity carries with it the connotation of arm's-length disengagement—of distance, detachment, neutrality, and an underlying assumption of separation between subject and object, between observer and observed. Thus, an "objective" tort standard constructs the ideal citizen as dispassionate, distanced, and divorced from personal connections to the surrounding community.[60] These qualities are perhaps most apparent in the duty to rescue cases, but suffuse the tort system generally. The duty to rescue doctrine poses the extreme case, but the qualities it typifies are by no means unique.

Indeed, Bender notes that even the gender neutrality of the reasonably prudent "person" is a nomenclature of relatively recent vintage.[61] Only a few decades ago, the standard in tort law was that of the reasonably prudent *man*.[62] Only more recently was the more gender-neutral term *person* attached to the standard. But the change in terminology was unaccompanied by a change in doctrinal substance. Bender suggests that the original masculine designation of the tort standard was not trivial, nor accidental, nor substantially altered in any substantive respect by the rhetorical switch to a gender-neutral designation.[63] The reasonably prudent person still reflects the isolated, self-regarding, rights-based regime of the reasonably prudent man.

It is worth noting that the reasonable person is not confined to tort law; the reasonable person also appears in Anglo-American criminal law, typically in the context of manslaughter or justifiable homicide, where one suspects that, again, the standard is not so gender neutral as the term "person" might suggest. For example, the perpetrator of homicide might be considered justified in his actions, or liable for a lesser offense than murder, if the "reasonable person" would have reacted similarly under the circumstances. Classically, the circumstances in which a reasonable "person" would commit homicide involve catching his wife or girlfriend *in flagrante* with another man.[64] Some cases also suggest that the reasonable

59. *See* Leslie Bender, *An Overview of Feminist Tort Scholarship*, 78 CORNELL L. REV. 575 (1993); Naomi R. Cahn, *The Looseness of Legal Language: The Reasonable Woman Standard in Theory and in Practice*, 77 CORNELL L. REV. 1398 (1992).

60. *See* Bender, *A Lawyer's Primer*, *supra* note 51, at 36; *see also* Francis H. Bohlen, *The Moral Duty to Aid Others as the Basis of Tort Liability*, 56 U. PA. L. REV. 217, 220 (1908) (noting that the no-duty rule "is founded on that attitude of extreme individualism so typical of Anglo-Saxon legal thought").

61. Bender, *A Lawyer's Primer*, *supra* note 51, at 22.

62. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS § 285 (1965) (discussing the "reasonable man" standard); *see also* Ronald K. L. Collins, *Language, History, and the Legal Process: A Profile of the "Reasonable Man"*, 8 RUTGERS L.J. 311, 315-16 (1977) (noting that because women historically had no legal status, they were excluded from consideration of the legal standard).

63. *See* Bender, *The Lawyer's Primer*, *supra* note 51, at 7.

64. *See* Susan D. Rozelle, *Controlling Passion: Adultery and the Provocation Defense*, 37 RUTGERS L.J. 197 (2005).

"person" becomes homicidal in response to homoerotic sexual overtures.[65] Generally speaking, one might conclude that criminal law permits the reasonable person to behave unreasonably where his sexual proclivities are threatened. Again, as in Bender's analysis of tort, this seems a standard divorced from community concerns, more focused upon rights than upon responsibilities.

Bender concludes her analysis by suggesting a re-formulation of the tort standard that might take better account of the values embraced by feminism—a formulation not so insistent upon rights at the expense of responsibilities, a formulation that would recognize community and connection over autonomy and isolation. She characterizes this as a caring and concerned neighbor standard,[66] a standard that, in contrast to the reasonably prudent person standard, might require an individual to make some effort to rescue another who was in distress.[67] In many other cases—for example, where the effort to rescue might place the rescuer in some peril—the "caring and concerned neighbor" standard might lead to the same result as an analysis under the reasonably prudent person standard. But in general, Bender's re-formulation of tort duties would require more engaged—and some might say, more intrusive—requirements of behavior under the tort system.

C. Objectivity in Law

Bender is not alone in her assessment of the purportedly neutral, dispassionate, objective legal standard. Other commentators have also critiqued legal objectivity, arguing that other legal standards are closely tied to "masculine" themes of dominance and subordination. In this essay, I do not propose to review neither all of these standards, nor all the debates against (and among) them. However, I will touch on one of the most prominent and influential critiques of legal objectivity, which has been offered by Catherine MacKinnon.[68] MacKinnon's work has a direct bearing on feminist critique of objectivity outside of law, tying the debate in law to that in other disciplines, including the question of objectivity in science.

MacKinnon draws a direct correlation between objectivity and objectification; she has argued that "to look at the world objectively is to

65. Cynthia Lee, *The Gay Panic Defense*, 42 U.C. DAVIS L. REV. 471 (2008); Robert B. Mison, Comment, *Homophobia in Manslaughter: The Homosexual Advance as Insufficient Provocation*, 80 CAL. L. REV. 133 (1992).

66. *See* Bender, *A Lawyer's Primer*, *supra* note 51, at 30.

67. *See id.* at 36.

68. *See* CATHERINE MACKINNON, TOWARDS A FEMINIST THEORY OF THE STATE (1989) [hereinafter MACKINNON, FEMINIST THEORY OF THE STATE]; MACKINNON, FEMINISM UNMODIFIED, *supra* note 42.

objectify it."[69] To view something objectively is to view it as having by its nature certain characteristics.[70] Frequently, the "natural" characteristics of the object that are foregrounded by the observer are those that are useful to the observer.[71] The objective stance thus allows the observer to attribute to the object the attributes desired by the observer.[72] Here, the objective trope of distance and of neutrality becomes important; the purported separation of objectifier and object allows the objectifier to assert detachment, and therefore impartiality, when observing the attributes of an object.[73] The character attributed to the object is therefore asserted to be its innate and natural character rather than that projected by the observer.[74]

In MacKinnon's view, objectivity therefore masks or hides the power of the observer: the power to assign certain attributes to the objects of his consideration.[75] MacKinnon argues that this facade in turn allows objectivity to be used to perpetuate social conditions of hierarchy;[76] the dominant social order can be characterized as "natural" rather than created.[77] She is particularly concerned that an objective standpoint can be so used to create and perpetuate subordinate status for women.[78] Objectivity thus fosters the view that the social differences between men and women are viewed as objectively natural or characteristic of the sexes, rather than socially constructed. Objectivity becomes a key trope in creating and enforcing gender.[79]

This critique of objectivity may be helpful in a number of respects to illuminate the relationship between several elements we have already encountered in thinking about legal standards: the move from objectivity to objectification, the role of distance and impartiality, and a commonality between objectivity in science and objectivity in law. But in thinking about patent standards, at some point it may perhaps be necessary to part company with MacKinnon's line of argument. In all of her work, MacKinnon is primarily and famously concerned with the problem of sexual violence against women; she argues that a pervasive culture of

69. *See* MACKINNON, FEMINISM UNMODIFIED, *supra* note 42, at 50.

70. *See id.*

71. *See* Sally Haslanger, *On Being Objective and Being Objectified*, *in* A MIND OF ONE'S OWN: FEMINIST ESSAYS ON REASON AND OBJECTIVITY 209, 228-29 (Louise M. Antony & Charlotte E. Witt eds., 2d ed. 2002).

72. *See id.* at 229, 233-34.

73. *See id.* at 231-32 (discussing neutrality in MacKinnon's logic).

74. *See* MACKINNON, FEMINISM UNMODIFIED, *supra* note 42, at 59.

75. *See* Haslanger, *supra* note 71, at 231-32; Zukert, *supra* note 1, at 273, 279.

76. MACKINNON, FEMINISM UNMODIFIED, *supra* note 42, at 50-52.

77. *See* Haslanger, *supra* note 71, at 229.

78. *See* MACKINNON, FEMINIST THEORY OF THE STATE, *supra* note 68, at 113-14; MACKINNON, FEMINISM UNMODIFIED, *supra* note 42, at 6-7.

79. *See* MACKINNON, FEMINISM UNMODIFIED, *supra* note 42, at 50.

objectification is the cultural antecedent that leads to rape and other forms of sexual assault.[80] This concern colors her analysis at every juncture. MacKinnon appears to claim that all acts of domination entail a sexual aspect: "The act of control," she says, ". . . is itself eroticized under male supremacy."[81] Objectification is a mechanism of control, and control or dominance is in her analysis always erotic.[82] This stance may pose something of a problem in drawing upon MacKinnon to consider objective standards in patent law, as it implies that the material or, ultimately, financial control conferred by patent law's objective standards part of the patriarchy's overall culture of erotic dominance. Dominance of the material world from which the invention is drawn, of the materials or processes that comprise the invention, of licensors and users of the invention, is on MacKinnon's analysis ultimately grounded in a standpoint of sexual subordination.[83]

This focus by MacKinnon on eroticization has been controversial[84] and seems dubious the farther one gets from areas of law that deal directly with sexualized behaviors. Certainly it is not difficult to see how the theory applies to employment discrimination or to the law of rape. But it is problematic as a general theory of objectivity; the theory seems better suited to criminal law or family law than to intellectual property. One might well question the extent to which an objective standard in patent law implicates sexual domination of women—the assertion seems reminiscent of the Freudian penchant for seeing sexuality everywhere, and one is reminded of the admonition that "sometimes a cigar is just a cigar."[85] Similarly, it may be that sometimes subordination and discrimination are just subordination and discrimination, without necessarily being erotic subordination and discrimination.

But even setting aside this controversial dimension of MacKinnon's views, her critique remains a powerful indictment of the objective stance, and with implications beyond legal objectivity. Under her analysis, any field that purports detachment, neutrality, or objectivity, is an endeavor where power relationships are being masked. The implication is that objectivity, as represented in such contexts, is impossible, leads to false or mistaken beliefs about the world, and indeed, constitutes a method of

80. *See id.* at 6.

81. *Id.* at 50.

82. *See id.* at 7.

83. *See* MACKINNON, FEMINIST THEORY OF THE STATE, *supra* note 68, at 108.

84. *See, e.g.*, DONNA HARAWAY, SIMIANS, CYBORGS, AND WOMEN: THE REINVENTION OF NATURE 158-59 (1991) (criticizing MacKinnon's construction of feminism as unidimensional).

85. Which, although attributed to Freud, appears to be largely apocryphal. *See* RALPH KEYES, NICE GUYS FINISH SEVENTH: FALSE PHRASES, SPURIOUS SAYINGS, AND FAMILIAR MISQUOTATIONS 173 (1992).

domination.[86] For our purposes here, this would be true not only of objective legal standards, but also of the objective standards purported for scientific observation and experimentation; as MacKinnon asserts, "What is objectively known corresponds to the world and can be verified by being pointed to (as science does) because the world itself is controlled from the same point of view."[87] These same effects of objective standards have been explored by feminist scholars as well.

D. Objectivity in Science

Objectivity is the practical and epistemological foundation of modern science; this is perhaps not quite the same objectivity as found in legal standards, but, as MacKinnon intimates, it is at least a close conceptual cousin.[88] Like legal standards, scientific observation is expected to be detached, neutral, and dispassionate. Feminist scholarship on science has interrogated such claims, producing a range of critiques that roughly correlate to the continuum of potential concerns that I outlined in the first section above,[89] asking successively more fundamental questions about the scientific enterprise. Each of these scholars have noted some degree of gendering in current scientific practice, and at least three different schools of critique have evolved,[90] each successively indicting more fundamental tenets of the traditional scientific enterprise.

The first set of scholars, nominated by some as "feminist empiricists" accept that the fundamental epistemology and method of science are sound, but that gender bias inhibits science from being executed properly.[91] These critics suggest that due to gendering, science has been not true to its own principles. Rather, science as it is currently constituted is by its own criteria bad science, because it fails to engage and involve women.[92] For example, a historical failure to include women in clinical medical trials skews the outcome and excludes valuable, valid scientific data. Such science fails on its own terms; it is empirically deficient as science. Curing such gender bias in scientific thought and practice enables science to live

86. *See* Zukert, *supra* note 1, at 276.

87. *See* MACKINNON, FEMINIST UNMODIFIED, *supra* note 42, at 122.

88. *See id.* at 54-55.

89. *See infra* notes 22-28 and accompanying text.

90. *See* Sandra Harding, *The Instability of the Analytical Categories of Feminist Theory*, 11 SIGNS 645 (1986) [hereinafter Harding, *The Instability of Analytical Categories*] (discussing different schools of feminist epistemology).

91. *See id.* at 651-52.

92. *See* HELEN E. LONGINO, CAN THERE BE A FEMINIST SCIENCE? (1986); LYNN HANKINSON NELSON, WHO KNOWS: FROM QUINE TO A FEMINIST EMPIRICISM (1990); Helen E. Longino, *Subjects, Power, and Knowledge: Description and Prescription in Feminist Philosophies of Science*, *in* FEMINIST EPISTEMOLOGIES 101 (Linda Alcoff & Elizabeth Potter eds., 1993); Edrie Sobstyl, *Re-Radicalizing Nelson's Feminist Empiricism*, 19 HYPATIA 119 (2004).

up to its potential; it produces better science.

Other feminist scholars go further in their critiques. A range of commentators, dubbed feminist "standpoint" theorists, have tended to argue that the scientific endeavor is itself incomplete, as it fails to take into account the unique perspectives or standpoint that might be brought to bear by women or others outside the current framework of science.[93] They view the problem not as science failing on its own terms; rather, they question the terms on which science is conducted. It may be that there are valuable forms of knowledge that are not captured by the scientific method; such knowledge should be viewed as legitimate even if "unscientific."[94] Indeed, these scholars sometimes argue that knowledge drawn from the standpoint of women or other subordinated peoples may be preferable to mainstream science, since as "outsiders," women are less likely to be blinded by the dominant societal paradigm, and so may offer unique and more accurate views of the world.[95]

The classic example offered by standpoint critics of the scientific method is that of Barbara McClintock, the celebrated discoverer of transposons, or "jumping genes," that replicate themselves autonomously in the DNA of higher organisms.[96] McClintock's genetics work leading to the discovery of transposons was performed with maize, a genetically complex organism. McClintock related that her hypotheses and targets of investigation were based upon having had a "feeling for the organism" that led her to postulate, and ultimately prove, her unorthodox theories about migrating DNA sequences.[97] Such empathy or emotional consonance with the subject of investigation is not part of the textbook scientific method, which requires dispassionate, distanced observation of the object under investigation. McClintock's story suggested to feminist commentators that the distanced methodology of science may overlook or reject ways of knowing that are not "objective" or that do not maintain strict separation between observer and observed.

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93. *See* Sandra Harding, *A Socially Relevant Philosophy of Science? Resources from Standpoint Theory's Controversiality,* 19 HYPATIA 25 (2004); Sandra Harding, *Strong Objectivity: A Response to the New Objectivity Question*, 104 SYNTHESE 331 (1995); Sandra Harding, *Rethinking Standpoint Epistemology: What is "Strong Objectivity*"?, *in* FEMINIST EPISTEMOLOGIES 49 (Linda Alcoff & Elizabeth Potter eds., 1993); Hilary Rose, *Hand, Brain, and Heart: A Feminist Epistemology for Natural Sciences*, 9 SIGNS 73 (1983).

94. *See* KELLER, REFLECTIONS, *supra* note 28; Ruth Hubbard, *Science, Facts, and Feminism*, 3 HYPATIA 5 (1988).

95. *See* Donna Haraway, *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*, 14 FEMINIST STUD. 575, 584 (1988); Harding, *The Instability of Analytical Categories*, *supra* note 90, at 655, 657.

96. Keller, *supra* note 14.

97. *Id.* at 41; EVELYN FOX KELLER, A FELLING FOR THE ORGANISM: THE LIFE AND WORK OF BARBARA MCCLINTOCK (1985).

This kind of analysis has been criticized as running the risk of essentialism—of perpetuating in some sense gender stereotypes by arguing that certain types of knowledge or behavior are inherently the provenance of one sex or the other.[98] But if we accept the distinction drawn earlier between gender and sex, between social role and biological characteristics, essentialism may become less of an objection.[99] The standpoint argument then suggests that science excludes knowledge or ways of knowing that have been assigned to individuals playing a particular subordinated social role; while there may be considerable identity between the carriers of female biological characteristics and the members of the social class, the set of individuals who participate in the disfavored ways of knowing need not be exclusively biologically female.[100] Thus, if we believe science divides "masculinized" ways of knowing from "feminized" ways of knowing, that remains an observation about the character of science rather than necessarily about the character of men or of women.

At some point, standpoint theory shades into a third set of critiques that challenge not only the terms by which science is conducted, but the motivations and social role that science performs.[101] Such "postmodern feminist" theory examines the position of the scientific enterprise in the modern social and cultural milieu.[102] Feminist scholars in this camp charge that gendered science produces not merely bad data, or incomplete knowledge, but constitutes a fundamentally oppressive social construct that serves to obscure the plurality of human experience.[103] On this view, the scientific endeavor, and the technological applications that follow from scientific discovery, assumes a coherent and unitary view of reality that lends itself to control and domination. The implication is that because the assumptions and ideologies on which science are based are culturally pervasive, and because those assumptions and ideologies are gendered, a society based upon the scientific enterprise will systematically disadvantage women and other subordinated groups.[104]

Because this view challenges not only the fundamental principles of sciences, but also the fundamentals of their place in society, it is difficult to

98. *See* Anne-Jorunn Berg & Merete Lie, *Feminism and Constructivism: Do Artifacts Have Gender?*, 20 SCI. TECH. & HUM. VALUES 332, 341 (1995).

99. *See* Sandra Harding, *Women's Standpoints on Nature: What Makes Them Possible?*, 12 OSIRIS 186, 190 (1997).

100. *See id.* at 196.

101. *See* Mary E. Hawkesworth, *Knowers, Knowing, Known: Feminist Theory and Claims of Truth*, 14 SIGNS 533, 535 (1989).

102. *See, e.g.*, Jane Flax, *Postmodernism and Gender Relations in Feminist Theory*, *in* FEMINISM/POSTMODERNISM 39 (Linda Nicholson ed., 1990); Susan Heckman, *Gender and Knowledge: Elements of a Postmodern Feminism*, 19 SIGNS 201 (1990).

103. *See, e.g.*, Hawkesworth, *supra* note 101, at 536-37.

104. *See* Flax, *Gender as a Social Problem*, *supra* note 13.

imagine what de-gendered science would look like.[105] Meeting this set of objections requires not merely re-thinking scientific epistemology from the ground up, but thinking entirely "outside the box" of our current social positioning of science. Such an approach, as suggested by Donna Haraway, rejects the feasibility of an omniscient viewpoint or "god trick" in considering either scientific knowledge or technological practice.[106] Haraway's approach embraces the concept of "situated knowledge," which only exists in a specific context and cannot be evaluated without reference to that context.[107] Haraway argues that it is critical to take into account the network of contributors, collaborators, influences, and ingredients that attend any insight, innovation, or intuition.[108] Abstracting away the network of inputs to knowledge creates a false sense of objectivity that invites political manipulation. Consequently, Haraway argues that we must be satisfied with "partial perspective" rather than objective perspectives, and indeed regard the concrete grounding of situated, partial perspectives as an advantage rather than a disadvantage.[109]

Haraway's approach offers a potential remedy to MacKinnon's concern that the objective stance allows the observer to project onto the object of consideration his own desires and expectations. A situated context takes account of the observer's relationship to the observed and indeed moves the subject of observation from the category of passive object to active participant in knowledge development. Haraway takes particular note of the relationship between human and material actors in the development of technology.[110] Drawing in part on concepts from actor-network theory[111], Haraway argues that technology must be viewed as a co-construction between humans and non-humans.[112] The material world does not merely reflect the conditions and expectations of human actors, but must be recognized as having its own character, possibly even its own type of agency. Haraway invokes the image of the legendary Native American Coyote or Trickster as the metaphor to visualize the participatory, if perhaps non-volitional, nature of material agency.[113] Mythologically, the Trickster represents a non-human entity that behaves in unexpected and disruptive fashion. In Haraway's conception of materiality, the Trickster

105. *See* Harding, *The Instability of the Analytical Categories*, *supra* note 90, at 656.

106. *See* Haraway, *supra* note 95, at 584.

107. *Id.* at 583, 589.

108. *Id*. at 584.

109. *Id*. at 590.

110. *Id.* at 593-94.

111. *See* John Law, *Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogeneity*, 5 SYS. PRAC. 379 (1992) (describing actor-network theory).

112. Haraway, *supra* note 95, at 592.

113. *Id.* at 593.

archetype underscores the independent and unruly contributions of material participants to invention and discovery, reminding us, as Karen Barad puts it, that "the world kicks back."[114]

Such indictment of gendering in science bears directly on the question of gender in patents, not only as a general critique of objectivity, but also as an indicator of how objectivity may be operating within patent law. If objectivity in science leads to an inaccurate account of the world, if it masks the relationships and interactions that lead to scientific discovery and innovation, and most of all, if it fosters a hierarchy that excludes valuable forms of participation in order to shore up the privileges of a few, then it may be doing the same in patent law. Patent law explicitly draws its legal standards from scientific research and technological development; the PHOSITA standard contemplates a level of skill in the *art*, that is, in a particular field of technological expertise. If we were to amend the patent system to address the potential bias of objective standards in science and in law, the results for patent law could run the gamut from subtle to profound, depending upon whether we ascribe to feminist empiricist, standpoint, or postmodern critiques. It is to that potential range of reform that we now turn.

IV. PATENTS RECONSIDERED

As should be apparent from the discussion up until this point, the objective PHOSITA standard in patent law shows considerable consonance with the issues identified and analyzed in feminist scholarship on law and on science. The PHOSITA, not surprisingly, displays many of the characteristics criticized by Bender in her evaluation of tort law's objective personification of a legal standard.[115] As depicted in the *Winslow* tableau, the standard fosters a view of innovation that is detached, isolated, and divorced from the community. That insight might be pursued yet further, applying insights generated by MacKinnon, Haraway, and other commentators, to query whether the ostensible objectivity or neutrality of the PHOSITA standard is masking social biases and power relationships.

Indeed, a little investigation reveals that the PHOSITA, like the reasonably prudent person, is a relative latecomer to its ostensibly gender-neutral designation. The PHOSITA became a "person" of skill only quite recently. Older cases discussing the obviousness standard refer to the "skilled man," and indeed this terminology is still current in the patent

114. Karen Barad, *Agential Realism: Feminist Interventions in Understanding Science Practices*, *in* THE SCIENCE STUDIES READER 2 (Mario Biagioli ed., 1999).

115. *See* Michael Davis, *Patent Politics*, 56 S.C. L. REV. 337, 355 (2004) (comparing the PHOSITA to the reasonably prudent person).

systems of other industrialized English-speaking countries.[116] This suggests that we might ask regarding the PHOSITA, as Bender does in the case of tort law's reasonably prudent person, whether the original, gendered designation of the legal standard may be revealing with regard to an underlying practical bias. We might also wonder whether the switch to less gendered terminology in fact makes any difference to the underlying assumptions of the standard. If the biases in science and other "objective" practices are found in the PHOSITA, then the arguments we have reviewed thus far regarding objectivity have direct implications for the patent system that harbors the PHOSITA.

A. The Range of Possibilities

As suggested by the range of feminist critiques of science and of objectivity, a range of interventions might be considered for patent law. Translating the arguments reviewed here across disciplines into patent law suggests a continuum of increasingly pervasive changes in patent law, from the operational to foundational. At a functional level, the feminist critique of objectivity might lead us to question whether such a standard might frustrate or hamper the purposes of the patent system as those purposes are now conceived. If patents are intended to encourage new ideas, new knowledge, and innovation, a standard that implicitly valorizes only certain types of knowledge might cause the system to either completely overlook other types of knowledge that might be beneficial, or to simply place too little value on developing types of knowledge that do not fit the profile of objectivity. Thus, one implication of both standpoint and postmodern feminist arguments may be that an objective patenting standard overlooks or actively excludes innovation that could be included under a feminist reworking of patent doctrine.

This concern aligns generally with the concern of some feminists that objectivity subordinates methods of knowing that might be classified as "feminine" ways of knowing, rather than "masculine" ways of knowing—that is to say, epistemologies that have been culturally associated with the female gender.[117] Feminists have argued this point not only, as we have seen, with regard to science,[118] but with regard to Western thought generally, and patent law certainly shows signs of the same influences.[119] For patents, the problem on this view is not so much the exclusion of one

116. *See, e.g.*, Kirin Amgen Inc. v. Hoechst Marion Russell Ltd. [2004] UKHL 46, [2005] RPC 9 (H.L.) [34, 35] (appeal taken from Eng.) (referring interchangeably to the "person skilled in the art" and the "skilled man").

117. GENEVIEVE LLOYD, THE MAN OF REASON: "MALE" AND "FEMALE" IN WESTERN PHILOSOPHY (2d ed. 1993); SUSAN BORDO, THE FLIGHT TO OBJECTIVITY 102 (1987).

118. *See infra* notes 94-101 and accompanying text.

119. *See* Burk, *Feminism and Dualism*, *supra* note 8, at 194.

sex from full participation in the patent system as it is the exclusion of knowledge and innovations that have been historically associated the social role of that particular sex. Men may generate "feminine" forms of knowledge, but that knowledge, whether generated by men or by women, goes equally unregarded by the patent system. The net result, however, would be that the sex most frequently associated with the unregarded knowledge would be most frequently excluded from recognition or the reward of exclusive rights via patents.

Of course, the system might be intentionally designed to promote only certain types of knowledge; indeed, the patent statute does explicitly exclude knowledge that is not new, useful, or a significant advance over the prior art.[120] Moreover, the patent statue does not explicitly state that "feminine" innovation lies outside patentable subject matter. But, the danger is that one of these stated criteria, or other patentability criteria such as the disclosure doctrines,[121] may entail unrecognized and inadvertent exclusions, or at least exclusions that in some dimension were not explicitly intended. Inventions considered non-obvious or useful under current patent doctrine, may not include feminine innovation, if feminine innovations are not what we consider non-obvious or useful. It may be that we are comfortable with this outcome, that we are correctly excluding obvious and useless inventions, and if that includes feminine innovation, then feminine innovation is just what we wanted to exclude. But, it may also be that our definitions of obviousness and utility are excluding knowledge that cultural biases have caused us to overlook. In this case, much as the feminist empiricists have argued with regard to science, the patent system would be failing on its own terms, failing to promote knowledge that a better, unbiased patent system would properly elicit.

On a different level, the critique of objectivity might raise the concern that the patent system fosters a certain type of intrinsic deception about the characteristics of the subject matter that it encompasses. I have suggested in previous work that the patent system in fact encompasses a highly stylized view of nature and the natural, a dualist view that is readily exposed by the critical tools of feminist analysis.[122] MacKinnon might suggest that such objective distortion creates a kind of self-serving delusion regarding technology, that the epistemic structure of the patent systems attributes to machines, manufactures, processes, and compositions of matter a nature that comports to the needs and desires of those innovators who hope to exploit such inventions.[123] Thus, it may be that the criteria for

120. *See* 35 U.S.C. §§ 101-03 (2006).
121. *See* 35 U.S.C. § 112 (2006).
122. Burk, *Feminism and Dualism*, *supra* note 8, at 195.
123. *Cf. infra* notes 71-78 and accompanying text.

patentability, and the process for vetting those criteria, recognize only those aspects of materiality that lend themselves to technological exploitation and control, effectively projecting onto patentable subject matter the attributes necessary for domination by means of a patent. In this case, the patent system may not only be overlooking "feminine" technologies, but also actively promoting technologies that facilitate and reinforce current social hierarchies, including gender hierarchies.

At a heightened level of concern, the critique of objectivity could lead us to question the current purposes of the patent system itself. The patent system is generally justified as intended in some fashion to promote technological innovation, but it may be that the desire to do so reflects an unhealthy patriarchal drive toward domination of resources, both material and social.[124] The patent system might be working well, or it might be working poorly in promoting innovation,[125] but we might be concerned that even if it is working "well" in the sense of promoting technological innovation, it is in a different sense working poorly because technological innovation is simply a bad idea. To the extent that technological innovation translates into accelerated and expanded means of consumption, we might be concerned that promoting technological innovation effectively means promoting environmental disaster, social disparity, materialism, and personal alienation. Certainly much, perhaps most, of the innovation found in the history of the industrialized world seems to entail these kinds of harms.

Alternatively, a somewhat less extreme version of this viewpoint might hold, not that all technological innovation is a bad idea, but at least that the kind of innovation that will be prompted by the prospect of exclusive rights is the wrong kind of innovation to promote.

On this view, the patent incentive, as it currently exists, is a deleterious influence on the path of innovation. The patent incentive may skew who will be motivated, and what technologies they will be motivated to develop. Other motivations might produce more benign forms of innovation. This view is not too far divorced from critiques of the patent system that argue it warps or disrupts institutions, such as academic research, that promote innovation via non-pecuniary rewards.[126] This view also aligns with the

124. *See* VAL PLUMWOOD, FEMINISM AND THE MASTERY OF NATURE (1993); ROSEMARY RADFORD RUETHER, NEW WOMAN NEW EARTH (1975).

125. The empirical data on this question is mixed and appears to vary by industry. *See* DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT (2009); JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 3 (2008); ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2006).

126. *See, e.g.*, Rebecca Eisenberg, *Proprietary Rights and the Norms of Science in*

concerns expressed by some feminists that objectivity impels society towards domineering and destructive forms of technological development, and so propagates exploitation of both people and natural resources.[127]

Intermediate to these levels of concern might be the position that exclusive rights are the proper kind of carrot to dangle in front of prospective innovators, but the patent system is simply oriented toward the wrong outcomes. On this view, it may be that we should grant exclusive rights to certain inventions, but not on the basis of the criteria currently enshrined in the patent system. It may be that novelty, utility, and non-obviousness are not the proper criteria for judging the sort of innovation that we want to reward, or perhaps that these should not be the sole criteria. If our goal were to encourage innovation that would promote equality or social justice, not merely the PHOSITA standard would require re-consideration, but also the overall patentability criteria to which that standard is integral.

B. Implementing Insights

The concerns articulated by feminist theorists suggest a range of possible amendments to patent law, and patent doctrine offers a wide range of possible entry points to effect such changes. But holding to the theme of this essay, I will briefly examine the results that might be expected if we were to vary only our understanding of the objective characteristics embodied in PHOSITA, holding the rest of present patent doctrine constant, and considering how those variations might affect different aspects of patent law. The possible variations contemplate the qualities of reciprocal PHOSITA: connected, communally engaged, responsible, and epistemologically situated.

1. Situating the PHOSITA

Feminist critiques of objectivity, particularly Haraway's approach of situated knowledge, suggest that patentability might be better framed in terms of the situated, partial perspective that an inventor might have. One question that requires some consideration at the outset of such a project is whether the knowledge of the PHOSITA is not already situated. In some sense, the PHOSITA is intended to represent the knowledge of the community, and so is situated within that community. Recent decisions by the Supreme Court have emphasized that the PHOSITA should be regarded

Biotechnology Research, 97 YALE L.J. 177 (1987); Robert P. Merges, *Property Rights Theory and the Commons: The Case of Scientific Research*, 13 SOC. PHIL. & POL'Y 145 (1996).

127. *See, e.g.*, PLUMWOOD, *supra* note 124; JANET BIEHL, RETHINKING ECOFEMINIST POLITICS (1991); RUETHER, *supra* note 124.

as being informed or motivated by the unwritten or "common sense" understanding in the technical community.[128]

But as we have seen, the PHOSITA's "situation" is uncanny, as he is hypothetically presumed to know the sum total of the prior art in the relevant technological field.[129] Haraway's critique suggests that the PHOSITA ought not to be formulated as having the kind of limited omniscience imagined in the *Winslow* tableau. Removing the PHOSITA's "god's eye view" of the prior art would likely result in a lower obviousness standard that ironically might produce more patents. Situationally limiting the prior art and the expectation as to what an inventor might do with the prior art would likely result in more combinations seeming nonobvious. Winslow might well have gotten his paper bag apparatus patent had the references conceptually arrayed before his inventive doppelganger in the court's imagination been limited to those references that might have been combined by a situated inventor.

The seeds of such a situated approach might already be nascent in cases that limit the universe of prior art. Even though the PHOSITA is presumed to know all the relevant prior art, the universe of "relevancy" in some doctrinal formulations is circumscribed by the question the inventor is working on, and the technological relationship of the references.[130] The PHOSITA's familiarity with the prior art does not extend to every art, but only to "analogous" arts that are conceptually close to that of the claimed invention.[131] Limiting the universe of prior art to that which is accessible, relevant, and comprehensible to a situated inventor's knowledge might not be a radical departure from this approach.

At the same time, under a non-objective approach to disclosure, the patentee might be able to rely upon knowledge not presently taken into account in structuring the PHOSITA standard. It might be that more types of knowledge would come under the patent rubric. Current patent law appears to encompass only those ways of knowing that are categorized as rational and objective. Patent law excludes those types of knowledge that could not be easily conveyed to the man of ordinary skill,[132] the skilled man, and these presumably include knowledge that might be accessible outside the confines of objective rationality. If patent standards move

128. *See, e.g.*, KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 421 (2007).

129. *See infra* notes 43-45 and accompanying text.

130. *In re* Clay, 966 F.2d 656 (Fed. Cir. 1992); *In re* Wood, 599 F.2d 1032, 1036 (C.C.P.A. 1979).

131. *In re* Wood, 599 F.2d at 1036.

132. *See* 35 U.S.C. § 112 (2006). Indeed, a fundamental tenet underlying patent law's "mental steps" doctrine, by which claims drawn to purely mental processes were excluded from patentability, was the difficulty or impossibility of describing many such processes, whether rational or intuitive. *See* Dan L. Burk, *Patenting Speech*, 79 TEX. L. REV. 99 (2000).

beyond objectivity, the knowledge available to a situated PHOSITA might include not only the kind of linear, rational knowledge typically expected in a patent disclosure, but also an extended version of the Supreme Court's suggestion that inventive knowledge includes the "inferences and creative steps"[133] that one of ordinary skill in the art might employ. Such non-"masculine" ways of knowing could also perhaps be relied on for purposes of patent disclosure, easing the patentee's enablement and written description requirements—the PHOSITA who has a "feeling for the organism"[134] perhaps does not need to be explicitly told how to practice that kind of technology, if indeed such knowledge can be committed to text.[135] As a result, patents might be easier to obtain in technologies that are difficult to describe.

However, other effects of situating the PHOSITA might tend to restrict patenting. Assuming the continued viability of something like our present disclosure standards, removing the PHOSITA's god's eye view might heighten the requirements of disclosure under section 112. The limited omniscience of the current PHOSITA includes all the vocabulary and knowledge of the relevant art; the inventor can rely on that knowledge in drafting her disclosure. She need not reproduce in the patent what the PHOSITA is presumed to know, and can expect that when making and using the claimed invention, the PHOSITA will use that body of knowledge to the extent feasible to fill in any gaps in the specification.[136] A more situated PHOSITA would have less prior art knowledge to supplement a patent disclosure, requiring more meticulous disclosure by the patentee, and raising the level of necessary disclosure to obtain such patents.

2. Inventive Community

Casting our net somewhat wider, it might be that a recognition of the PHOSITA's interconnection to the community should result in more instances of joint inventorship. We have seen that the PHOSITA, as found in the *Winslow* scenario, is imagined as engaged in a lone and solitary act of mental creation.[137] But this is undoubtedly wrong as both a practical and a philosophical matter: inventors seldom invent in isolation from co-

133. *KSR Int'l Co.*, 550 U.S. at 418.

134. *See supra* note 97 and accompanying text.

135. Such intuitive types of knowledge may be within the category of "tacit" knowledge that typically goes unrecorded, because it is difficult or impossible to reduce to a code. *See* Dan L. Burk, *The Role of Patent Law in Knowledge Codification*, 23 BERKELEY TECH. L.J. 1009 (2008).

136. Liebel-Flarsheim Co. v. Medrad, 481 F.3d 1371, 1380 (Fed. Cir. 2007).

137. *See supra* notes 47-48 and accompanying text.

workers, technicians, and other contributors,[138] and they are in any event unquestionably influenced by the ambient ideas, discussions, controversies, and expectations in their technical fields. Recognizing the interconnection of the situated inventor, as Bender or Haraway would have us do, might lead us to recognize the suite of contributors who are integral to any inventive act.

Acknowledging that inventors do not create in splendid isolation, but draw upon a network of contributors, we might be impelled to say that more of those contributions should be considered to constitute patentable invention. Under current law, an inventor must contribute to the conception of at least one claim of the patent.[139] Participation in the physical process of reducing the invention to practice does not make one an inventor.[140] Some of my previous work argues that this view of invention entails a gendered philosophy about invention, valorizing certain types of mental work while discounting the physical labor of material invention.[141] And, participation to the rarified mental construction of the invention has been artificially constrained to reinforce a particularly hierarchy of participation.

Such limitations are nicely illustrated by the inventorship dispute surrounding Feline Immunodeficiency Virus (FIV).[142] The presence of this virus was first recognized by Marlo Brown, who operated a shelter for stray and abandoned cats.[143] As an animal health technician and former veterinary hospital manager, Brown recognized that some of the cats in her shelter were apparently suffering from immunodeficiency, and she concluded that they were infected with a virus similar to Human Immunodeficiency Virus (HIV).[144] She took her hypothesis, together with the detailed observation and records regarding her cats, to virologist Dr. Neils Pederson at U.C. Davis School of Veterinary Medicine.[145] Following her leads, Pederson and his associates isolated FIV and filed for patents on the purified virus as well as methods for diagnosing it.[146] The patent did not include Brown as an inventor.[147]

138. *See* BURK & LEMLEY, *supra* note 125, at 40-41.

139. Ethicon, Inc. v. United States Surgical Corp., 135 F.3d 1456, 1460 (Fed. Cir. 1998).

140. Burroughs Wellcome Co. v. Barr Lab., Inc., 40 F.3d 1223, 1227-28 (Fed Cir. 1994).

141. *See* Burk, *Feminism and Dualism*, *supra* note 8, at 190.

142. Brown v. Regents of Uni. of California, 866 F. Supp. 439, 440 (N.D. Cal. 1994).

143. *Id.*

144. *Id.*

145. *Id.*

146. *Id.* at 440-41.

147. *Id.* at 440.

When Brown sued to be added to the patent as an inventor, the court concluded that her observations and suggestions, while key to beginning the search for the virus, were not part of the conception of the claimed invention.[148] Since she was, as the court put it, a "non-scientist" and had not participated in the laboratory work to isolate the virus, she did not know the structure or properties of the actual virus as claimed in the patent; rather, she merely recognized its existence and offered guidance on where to look for it.[149] The court's opinion draws a clear line, correct as a matter of patent doctrine, between Brown's contributions and the invention claimed in the patent. Knowing where to look for an invention, and indeed what one will find when one looks, is distinct from conceiving of the claimed invention.

Viewed from outside the technical distinctions of patent doctrine, this result has to seem somewhat odd. Brown was clearly a key contributor to the discovery of the virus—as indeed the opinion acknowledges—and by any logic played a pivotal role regarding the patents arising from that discovery. The virus was only identified, isolated, and characterized because of her keen and expert perception. Thus, Brown's contribution was undoubtedly a causal, "but for" factor leading to the final invention: had Brown not recognized the condition of the cats and called it to the attention of the virologists, the invention would not have occurred, and Dr. Pederson would have obtained no patents on it. Indeed, it seems almost nonsensical to say that Brown did not contribute to the conception of one or more of the claims, as there would have been no conception without Brown's prompting and guidance.

Such an anomalous outcome suggests that perhaps something is amiss in patent inventorship, if the standard is constructed so as to exclude contributions that were necessary, if perhaps not sufficient, to the conception of the invention. The standard, as we have seen, assumes that inventors invent in a kind of conceptual isolation.[150] But, the legal construct defining patentability might be re-visioned along the same lines as Leslie Bender's re-visioning of the reasonably prudent person in tort. Much as Bender suggests that the isolated and decontextualized reasonable man might be recast as a caring or concerned neighbor,[151] the standard for patentable activity might be re-connected to community and context, placed back into association with the influences that convene to produce an invention. Rather than the isolated *Winslow* inventor or the objectively detached "skilled man," the proper patent standard might be the person

148. *Id.* at 445.
149. *See id.*
150. *See infra* notes 47-48 and accompanying text.
151. *See* Bender, *Feminist (Re)Torts*, *supra* note 58, at 901-04.

engaged in a dialog with the prior art. Or it may be that the patent standard should be envisioned as the person connected to the relevant social network.

The objection could be raised that recognizing the contributions of currently unrecognized contributors is likely to complicate inventorship in unfamiliar ways. But that would of course be precisely the point of moving to a less insular view of invention: to recognize and reflect the complexity of the inventive process. Even as it stands, inventorship is inevitably an exercise in line-drawing, and there is no reason to think that courts could not become adept at drawing the line in a new place. A variety of tools is available to help them do so; there is no reason that inventorship need constitute Blackstone's "sole and despotic" control over property.[152] Contributors might be entitled to a range of potential entitlements that need not all be exclusive: perhaps only to attribution, or to an accounting for profits, or to a royalty or other proportional distributions. Requiring inventors to account to a larger group of contributors for how the invention is deployed might hamper exploitation of the invention, but perhaps imposing some impediments, even consensus on the development of inventions would not be altogether a bad thing.[153]

3. The Nature of Products

Feminist perspectives point out that the network of influences leading to invention is not limited to human contributors. Haraway's approach to recognizing the partnership of humans with the material world in co-creating technology potentially extends the problem of joint invention—in Haraway's view, material substrates are part of the network in which humans invent, and are in some sense partners in invention, having a quirky agency all their own.[154] The mercurial character of material invention is perhaps most apparent in cases such as Barbara McClintock's "jumping genes"[155] or other biological inventions, where the invention seems to have a "mind of its own," unexpectedly propagating and demonstrating characteristics unforeseen by the inventor.

152. W. BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND *2 (1776), *available at* http://lonang.com/exlibris/blackstone/bla-201.htm.

153. Some might worry about the development of a "common pool" tragedy of the commons, or about a tragedy of the anti-commons, but as a variety of commentators have pointed out, groups with common interests routinely develop normative structures to get past each of these problems. *See* ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES (1991); ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990); Robert P. Merges, *Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996).

154. *See* Haraway, *supra* note 95, at 592-93.

155. *See infra* notes 96-97 and accompanying text.

In such cases it is apparent that humans are not necessarily in control of the situation, which in turn implies that the qualities of the invention are not altogether attributable to the inventor, and perhaps not attributable to the inventor at all. Traditionally, that would likely put the invention, or discovery, outside patentable subject matter. The subject matter of the patent system is paradigmatically intended to encompass "anything under the sun made by man";[156] naturally occurring phenomena or materials in their natural state are excluded from patentable subject matter.[157] Material attributes that do not stem from "man" would most likely be denominated by skeptical observers as "discoveries" that are "products of nature" rather than actual "inventions" that stem from human ingenuity. This product of nature doctrine would likely exclude phenomena attributable to material agency.

Patent skeptics relying on the discovery/invention dichotomy are relying on a dualism, which I have examined elsewhere, to try to capture the quality of the invention's independence from human domination.[158] But the product of nature dualism entails the familiar strategy of adopting a distanced, objective view of "nature" that attempts to separate human actors from the material realities of invention. Thus, Marilyn Strathern notes that the product of nature doctrine attempts to artificially divide nature from culture, effectively leaving the raw material of "nature" publicly available for appropriation.[159] Haraway similarly notes that objective or masculinized science views nature as simply the raw material for culture.[160] She argues that patented inventions should instead be viewed as hybrids of human and non-human contributions: separating the natural substrates from cultural imprimatur reinforces tendency toward alienation, commodification, and ultimately exploitation.[161]

Recognizing this danger of classification as "products of nature," we might look elsewhere in patent doctrine for the beginnings of Haraway's hybrid approach. Current patent law is not altogether oblivious to the wayward behavior of its substrates, certainly not in those cases, such as biotechnological and chemical inventions, where the behavior of the

156. *See* Diamond v. Chakrabarty, 447 U.S. 303, 310 (1980) (quoting S. Rep. No. 82-1979, at 5 91952).

157. *See* Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127 (1948); *see also* John M. Conley & Roberte Makowski, *Back to the Future: Rethinking the Product of Nature Doctrine as a Barrier to Biotechnology Patents*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 301 (2003).

158. *See* Burk, *Feminism and Dualism*, *supra* note 8.

159. Marilyn Strathern, *Cutting the Network*, 2 J. ROYAL ANTHROPOLOGICAL INST. 517, 523-35 (1996); Marilyn Strathern, *The Patent and the Malanggan*, 18 THEORY CULT. & SOC'Y 1 (2001).

160. *See* Haraway, *supra* note 95, at 592.

161. *See id*. at 592-93.

material makes itself most apparent. These wet sciences seem more likely to misbehave, and so have been designated as the "unpredictable arts" by the courts, in contrast to the fields of mechanical or electrical invention, which are presumed to be better behaved.[162] Useful developments in the unpredictable arts are less likely to be held obvious where the substrate is, by definition, unpredictable.[163] At the same time, inventions in biotechnology or chemistry carry with them a heightened expectation of disclosure, requiring a more detailed description of how the inventor succeeded in taming the subject matter, and advising those of ordinary skill how they may in turn tame the invention without undue effort.[164]

The independent quality of patentable substrates may be most obvious in biological inventions such as seeds or transposons, but is by no means unique to materials that are self-propagating or motile. Haraway's insight applies to a greater or lesser extent to materials that we would consider inert or lifeless; the same unruly qualities can also be glimpsed in Bert Adam's celebrated cuprous chloride solution.[165] Adams, a "garage inventor," had tried unsuccessfully to develop a better, more durable type of electrical battery. After trying numerous chemical compositions, he was preparing yet another, on his kitchen stove. Ash from his cigarette accidentally fell into the batch, producing a mixture with exactly the desired properties for an improved battery.[166] The invention, held to be patentable and non-obvious by the Supreme Court,[167] was an entirely fortuitous mixture of materials that the inventor had not intended to combine.

Adams's accidental breakthrough is not unique, although perhaps more prominent in patent lore than other serendipitous inventions. The economic theory of patenting assumes that patents constitute an incentive to invention, but patent law nonetheless grants the same rewards for serendipitous or accidental technologies as it does for calculated, deliberate technological developments.[168] Indeed, given that unexpected results are the least likely to be held obvious, the non-obviousness criterion in patent law may tend patent law towards favoring serendipitous technologies. The unruly character of material invention is to some degree embraced within

162. *See* Eisai Co. Ltd. v. Dr. Reddy's Labs., Ltd, 533 F.3d 1353, 1359 (Fed. Cir. 2008); Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1533 n.5 (Fed Cir. 1987).

163. *In re* O'Farrell, 853 F.2d 894, 903 (Fed. Cir. 1988).

164. Bilstad v. Wakalopulos, 386 F.3d 1116, 1125 (Fed. Cir. 2004); *In re* Curtis, 354 F.3d 1347, 1356-57 (Fed. Cir. 2004).

165. *See* United States v. Adams, 383 U.S. 39 (1966).

166. *See* RICHARD L. GAUSEWITZ, PATENT PENDING: TODAY'S INVENTORS AND THEIR INVENTIONS 54-66 (1983).

167. *See Adams*, 383 U.S. at 51.

168. *See* Sean B. Seymore, *Serendipity*, 88 N.C. L. REV. 185, 187-89 (2009).

current patent doctrine.

Such instances where "the world kicks back" in surprising ways may provide a starting point for the situated perspective endorsed by Haraway. These serendipitous inventive moments provide perhaps the clearest example of the "hybrid" nature of human and material inventive interactions identified by Haraway and others.[169] Adams' kitchen chemistry alone was ineffective to produce an improved electrical cell; his battery would never have been perfected but for the "Coyote" moment of material recombination.[170] At the same time, the "Coyote" moment of invention would not have occurred had Adams not been in the kitchen mixing that particular batch of chemicals, watching for particular material qualities to emerge.

This need not necessarily mean that the substrates of invention deserve recognition on the patent for their contributions. But Haraway's material agency approach particularly challenges the myth of the "heroic inventor," the archetypal genius whose talent or perseverance are the genesis of new technological advances, and who by implication deserves exclusive control of those advances by virtue of such talent or perseverance.[171] Haraway recognizes that invention is in fact the product of a complex intersection of factors, including the agential quality of the material environment.[172] This approach might militate in favor of more limited exclusivity—it seems somewhat counterintuitive to grant to a serendipitous inventor rights in a technology that in some senses invented itself. Yet we would presumably want the system to offer enough encouragement to impel the Bert Adamses of the world into the kitchen so as to give material tricksters the right setting to display their agency.

Indeed, if we acknowledge the Coyote nature of material agents, it may not be possible to definitively describe how to make and use the claimed invention, only how to put one's self in a position to collaborate with the materials.[173] This is perhaps not all that far away from what inventors in the "unpredictable arts," such as monoclonal antibody screening, do now.[174] Patent law has had to make allowances for such technological practice, where those of skill generate enormous numbers of biological

169. *See, e.g.*, Barad, *supra* note 114; Haraway, *supra* note 95, at 592-93; Lucy Suchman, *Agencies in Technology Design: Feminist Reconfigurations*, http://www.lancs.ac.uk/fass/sociology/papers/suchman-agenciestechnodesign.pdf (last visited Feb. 19, 2010).

170. *See infra* notes 113-114 and accompanying text.

171. *See* Mark Janis, *Patent Abolitionism*, 17 BERKELEY TECH. L.J. 899, 908 (2002).

172. *See* DONNA HARAWAY, MODEST_WITNESS@SECOND_MILLENIUM.FEMALEMAN©_MEETS_ONCOMOUSE™ 79-80 (1997).

173. *See* Haraway, *supra* note 95, at 594.

174. *See, e.g.*, *In re* Wands, 858 F.2d 731, 733 (Fed. Cir. 1988).

combinations in the hope of encountering a few with interesting, desirable properties.[175] Haraway's work suggests that such preludes to serendipity are different in scale, but not in kind, from invention generally, and that patent doctrine might embrace that view in formulating less hierarchical concept of invention.

4. Patent Responsibility

We have already noted that the PHOSITA is ubiquitous in patent doctrine, and it would not be surprising if the character of the PHOSITA were similarly pervasive. The gendered assumptions embedded in the PHOSITA standard may be emblematic of a more generalized, systemic set of assumptions in the patent system. Patent law appears to entail a grant of exclusive rights with little consideration of concomitant responsibilities. Like the emphasis that Bender identified in tort law on rights over responsibilities, patent law clearly emphasizes the grant of exclusive rights, with essentially no consideration of any responsibility that might attend those rights.

True, there is a body of cases that might be characterized as recognizing a responsibility not to misuse the patent in an anticompetitive fashion.[176] Also, certain countries have embraced a patent regime that entails a responsibility to work the patent rather than let the technology lie fallow, with the penalty of loss of right, or imposition of a compulsory license when that responsibility is not met.[177] But for the most part, such examples are rare, and becoming rarer, as patent law becomes almost exclusively justified on models of economic incentive.

This orientation of patent law has been rather dramatically illustrated by a scenario drawn from the widely debated Canadian *Schmeiser* case.[178] Schmeiser is a canola farmer who was discovered to have had patented, genetically modified, herbicide resistant canola plants growing in his fields.[179] Schmeiser had no license or other authorization to grow such crops and when sued by the patent holder, Monsanto, was found to be infringing the patent.[180] However, Schmeiser claimed that he had no idea how the patented crops came to be growing in his fields.[181] In his factual

175. *See, e.g.*, *id.* at 738-40.

176. *See, e.g.*, Brulotte v. Thys Co., 379 U.S. 29, 30-31 (1964); Morton Salt Co. v. G.S. Suppinger Co., 314 U.S. 488, 494 (1942).

177. *See* Xiaohai Liu, *A Study on Patent Compulsory License System in China – With Particular Reference to the Drafted 3rd Amendment to the Patent Law of the P.R.of China*, *in* 6 PATENTS AND TECHNOLOGICAL PROGRESS IN A GLOBALIZED WORLD 115, 116-19 (Wolrad Prinz zu Waldeck und Pyrmont et al. eds., 2009).

178. Monsanto Canada Inc. v. Schmeiser, [2004] 1 S.C.R. 902 (Can.).

179. *See id.*

180. *Id.*

181. *Id.*

assertions during the case, he suggested that pollen or seeds from Monsanto crops may have blown onto his land and sprouted there among his other plants without his knowledge.[182] In either case, whether the use was fortuitous or deliberate, the culpability would be the same; patent infringement provisions do not require knowledge or intent.[183] They impose strict liability for making, using, selling, offering for sale, or importing the claimed invention.[184] Even inadvertent husbandry of patented crops would fall within the making and using provisions.

The possibility of such involuntary infringement has prompted a considerable degree of scrutiny of the *Schmeiser* case and of patent law's strict liability regime.[185] The possibility that infringement might occur, not only inadvertently, but also involuntarily, strikes both patent novices and patent experts as intuitively wrong.[186] Scholars who are well aware of the strict liability nature of patent infringement have explored various contortions of legal doctrine that might lead to a different, less repugnant result, or have simply proposed that the law cannot be allowed to remain in a state that would impose liability for involuntary infringement of a patent.[187]

Just as the duty to rescue cases provide a luminal example shocking enough to invite reconsideration of tort law's fundamental strictures, so the Schmeiser scenario may provide a similar luminal case in patent law. Visceral reactions to the two cases seem similar. Just as Bender's students were incredulous that the law would ignore, perhaps even encourage, callous failures to rescue, so people confronted with the Schmeiser situation may respond with incredulity, even a sense of outrage, that an errant breeze could visit liability on an unwitting farmer. And here, Bender's critique of tort law's dissociation from the community might again be translated to patent law. Just as the act of invention cannot stand apart from the community that integrally fosters and supports the act of inventions, neither can deployment of the invention occur without consideration of the impact that invention may have on the wider community in which it is situated.

182. *Id.*

183. *Id.*

184. 35 U.S.C. § 271(a) (2006).

185. *See* Stephen R. Munzer, *Plants, Torts, and Intellectual Property*, *in* PROPERTIES OF LAW: ESSAYS IN HONOR OF JIM HARRIS 189, 190, 210-11 (Timothy Endicott et al. eds., 2006); Jeremy de Beer, *The Rights and Responsibilities of Biotech Patent Owners*, 40 U.B.C. L. REV. 343, 344 (2007); Paul J. Heald & James C. Smith, *The Problem of Social Cost in a Genetically Modified Age*, 58 HASTINGS L.J. 87, 90-92 (2006).

186. *See, e.g.*, Smith-Kline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1361 (Fed. Cir. 2005) (Gajarsa, J., concurring) (opining that hypothetical patent liability based on the Schmeiser scenario "cannot possibly be correct").

187. *See, e.g.*, de Beer, *supra* note 185, at 355.

5. Progress of the Useful Arts

More radical re-visioning of the patent statute is of course possible. Following the argument that the patent system promotes the wrong kind of progress, or encourages the wrong kinds of innovation, we might consider whether the familiar criteria of utility, non-obviousness, and novelty should be supplemented or replaced by other criteria. These criteria seem to be successful, at least some of the time, in producing technologies that provide more and better material goods, or improved health, for exchange in the marketplace. But of course, they also produce technologies that damage the environment, harm human health, and promote empty materialism. We might well decide that the kinds of technologies we would prefer to promote are those that are characterized by entirely different criteria than novelty, utility, and non-obviousness—perhaps instead technologies characterized by inclusivity, or equality, or social justice.

Such considerations are not entirely unknown to the patent system. Historically, U.S. patent law excluded some inventions on the basis of morality; inventions that had no discernable use other than to promote immoral or illegal behavior were denied patents.[188] Although that doctrine fell into disuse and ultimately into judicial disfavor,[189] other jurisdictions continue to prohibit certain types of inventions from patentable subject matter on social or moral justifications. In Europe, certain types of biotechnological inventions are restricted or excluded on the basis of "public order."[190] But such disqualifications are not only rare, they are negative rather than affirmative. Particularly in the United States, the criteria for patentability have never been oriented toward promoting moral or socially virtuous innovation. Patentable subject matter doctrine has been and remains divorced from non-pecuniary social policy. As Bender observed in the case for tort's duty to rescue doctrine, patents have focused on rights rather than responsibilities, exclusion rather than engagement, and individualism rather than community. We might conclude, as Bender has for tort law, that patents reflect an ethic of distance and separation rather than association and connection.

At the same time, patents are a form of property explicitly created to benefit the public.[191] If we were to give that purpose an affirmative rather

188. *See* Margo Bagley, *Patent First, Ask Questions Later: Morality and Biotechnology in Patent Law*, 45 WM. & MARY L. REV. 469 (2003); Dan L. Burk, *Patenting Transgenic Human Embryos: A Nonuse Cost Analysis*, 30 HOUS. L. REV. 1597, 1628 (1993).

189. *See* Juicy Whip, Inc. v. Orange Bang, Inc., 382 F.3d 1367 (Fed. Cir. 2004).

190. *See, e.g.*, Rainer Moufang, *The Concept of <<Ordre Public>> and Morality in Patent Law*, *in* PATENT LAW, ETHICS AND BIOTECHNOLOGY 65 (Geertrui Van Overwalle ed., 1998).

191. *See* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 480-81 (1974).

than a negative character, certain fundamental assumptions of patent law would likely need reconsideration. Given that at least some of our current patentability criteria have been held by the Supreme Court to flow from a constitutional mandate in Article I, section 8, clause 8,[192] a substitution of radically different patentability criteria might require some reconsideration of the constitutional basis for patenting. In particular, new criteria might require a different view of the constitutional requirement of "progress."[193] Commentators have come to varying conclusions as to exactly what the Framers of the constitution meant by this term; in general, most of the historical and policy analyses seem to conclude that "progress" must have something to do with bettering the human condition.[194] It may be that bettering the human condition often involves providing more and better material means to humankind; but, there is no particular reason that "progress" need encompass a trajectory driven toward financial rather than, say, social or ecological considerations. "Progress," properly considered, might well be furthered by criteria other than those currently specified for patentability.

V. CONCLUSION

A close examination of patent law doctrines associated with the PHOSITA standard indicate underlying gendered assumptions similar to those previously identified in other areas of the law. A shift away from this objective standard for patentability and disclosure would entail a considerable number of changes in patent doctrine, ranging from the subtle to the profound. As I have outlined, the tug and pull between a new obviousness standard and a new disclosure standard could shift patenting in differing directions; it is unclear whether a new epistemology of obviousness and disclosure would produce more or fewer patents. However, such changes could certainly be expected to produce *different* patents, and that would presumably be the point of adopting such changes: to generate a patent system that is less hierarchical, less patriarchal, but more socially transparent. Given the likely resistance to developing such a patent system, the likelihood of implementing these changes is probably remote. But, at a minimum, there is value in critically examining the system to unearth the unrecognized assumptions relating patents and gender.

192. Graham v. John Deere Co., 383 U.S. 1, 12-16 (1966).

193. *See* Margaret Chon, *Postmodern "Progress": Reconsidering the Copyright and Patent Power*, 43 DEPAUL L. REV. 43, 97-147 (1993).

194. *See* Dotan Oliar, *Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress's Intellectual Property Power*, 94 GEO. L.J. 1771 (2006); Malla Pollack, *What is Congress Supposed to Promote?: Defining 'Progress' in Article I, Section 8, Clause 8 of the United States Constitution, or Introducing The Progress Clause*, 80 NEB. L. REV. 754 (2002).