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MY PATENT, YOUR PATENT, OR OUR PATENT? INVENTORSHIP DISPUTES WITHIN ACADEMIC RESEARCH GROUPS

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I. INTRODUCTION

Many university intellectual property policies are designed to protect the interests of the university and the research faculty.¹ These policies, however, often fail to recognize a graduate student's interest in the invention.² It has been observed "that the fruits of academic research would not be as abundant, and in some cases would not even exist, were it not for the invaluable time, effort, and intellectual contribution [that] graduate students make."³ If the university attempts to enforce a patent with an inventorship defect, the patent could ultimately be rendered invalid or unenforceable.⁴ In either case, the university cannot generate revenue from the patent. Thus, universities should have a particular interest in ensuring that inventorship is correct.

The risk of invalidation arises from the improper naming of inventors.⁵ When a graduate student—who should be listed as a sole or joint inventor—is omitted from a patent, the aggrieved student can seek relief under the Patent Act⁶ and state common law. Student-initiated patent suits have been scarce for two possible reasons: first, universities and the courts afford considerable deference to the inner workings of an academic research group;⁷ second, since graduate students are often required to assign their interests in all patents to the university through a preinvention assignment agreement, some district courts have found that students lack standing to correct the patent.⁸ Accordingly, any pending state law claims asserted against a professor or university for fraud or breach of contract have been dismissed.⁹ The plight of

¹ Veronica Diaz, *Distributed Learning Meets Intellectual Property Policy: Who Owns What?*, Campus Technology, www.campus-technology.com/article.asp?id=+11624 (last visited Oct. 20, 2005).

² Sandip H. Patel, Note, *Graduate Students' Ownership and Attribution Rights in Intellectual Property*, 71 IND. L.J., 481, 485 (1996).

³ *Id.*

⁴ See 35 U.S.C. § 282 (2000 & Supp. II 2003).

⁵ The relevant statute states that, "[a] person shall be entitled to a patent unless . . . he did not himself invent the subject matter sought to be patented." 35 U.S.C. § 102(f) (2000 & Supp. II 2003).

⁶ See 35 U.S.C. § 116 (2000).

⁷ See RICHARD M. REIS, *TOMORROW'S PROFESSOR: PREPARING FOR CAREERS IN SCIENCE AND ENGINEERING* (1997); *In re Katz*, 687 F.2d 450, 455-56 (C.C.P.A. 1982).

⁸ See *Kucharczyk v. Regents of Univ. of Cal.*, 48 F. Supp. 2d 964, 973-75 (N.D. Cal. 1999); *E.I. Du Pont de Nemours & Co. v. Okuley*, No. C2-97-1205, 2000 WL 1911430, at *12 (S.D. Ohio Dec. 21, 2000).

⁹ Federal courts have exclusive jurisdiction of patent cases. See 28 U.S.C. § 1338 (2000) (explaining that district courts have original jurisdiction in patent

aggrieved graduate students changed in 2001 when the Federal Circuit rendered its decision in *Chou v. University of Chicago*.¹⁰ The *Chou* court held that a student-assignor had standing to sue for correction of inventorship, and that the district court should use its supplemental jurisdiction to adjudicate the student's pendent state law claims against the professor and the university.¹¹

Unenforceability,¹² which is often claimed as a defense to patent infringement due to the patentee's alleged failure to disclose a material reference, has been successfully asserted in an inventorship dispute. For example, in *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, PerSeptive Biosystems and Purdue Research Foundation sued a competitor for infringement.¹³ The defendants counterclaimed, *inter alia*, that the patents-in-suit were unenforceable because the plaintiffs intentionally failed to disclose the names of the true inventors to the United States Patent and Trademark Office (PTO) during patent prosecution.¹⁴ The district court found that the plaintiffs' misrepresentations and omissions on inventorship supported a finding of inequitable conduct.¹⁵ The Federal Circuit affirmed,¹⁶ holding that misinformation about inventorship is material.¹⁷ The patent was rendered unenforceable.¹⁸

This article examines *Chou*, *PerSeptive Biosystems*, and several other academic inventorship disputes between student-mentees and professors. Part II provides an overview of research in aca-

cases). District courts can extend their supplemental jurisdiction to state law claims that derive out of a common nucleus of operative facts. 28 U.S.C. § 1367 (2000); *United Mine Workers v. Gibbs*, 383 U.S. 715, 726 (1966); *3D Systems, Inc. v. Aarotech Labs., Inc.*, 160 F.3d 1373, 1377 (Fed. Cir. 1998). Alternatively, the dismissal of the federal cause of action will lead to a dismissal of the pendent state law claims for lack of subject matter jurisdiction. *See, e.g., McMurray v. Harwood*, 870 F.Supp. 917, 917-20 (E.D.Wis. 1994).

¹⁰ 254 F.3d 1347 (Fed. Cir. 2001).

¹¹ *Id.* at 1356-63.

¹² The court in *J.P. Stevens* stated that, "[o]nce a court concludes that inequitable conduct occurred, all the claims—not just the particular claims to which the inequitable conduct is directly connected—are unenforceable. . . . It is an all or nothing proposition." *J.P. Stevens & Co. v. Lex Tex Ltd. Inc.*, 747 F.2d 1553, 1561 (Fed. Cir. 1984).

¹³ *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 12 F. Supp. 2d 69, 71 (D. Mass. 1998) [hereinafter *PerSeptive III*].

¹⁴ *Id.*

¹⁵ *Id.* at 73.

¹⁶ *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1318, 1323 (Fed. Cir. 2000) [hereinafter *PerSeptive IV*].

¹⁷ *Id.* at 1322.

¹⁸ *Id.* at 1322-23.

ademic science. Part III presents the basics of patent law as applied to inventorship in university settings. Part IV examines *In re Katz*, a case that examines the distinction between authorship and inventorship. Parts V and VI present the background for *Chou* and *PerSeptive Biosystems*, respectively, and explain the district court and federal circuit holdings. Part VII highlights two disputes in which postdoctoral researchers resolved inventorship disputes “by taking matters into their own hands.” Part VIII revisits the authorship-inventorship distinction and explores the university’s incentive to prosecute patents with correct inventorship.

II. RESEARCH IN ACADEMIC SCIENCE

A. *The Ph.D.: A Means to an End*

The Ph.D., the highest degree that a university can award, is the key that unlocks many gates for budding scientists.¹⁹ Some students believe that, “although an undergraduate degree in the natural sciences or engineering has been considered the prerequisite for many types of inventive employment, the graduate degree is preferable.”²⁰ Faculty appointments and top-level decision-makers in industry are held almost exclusively by Ph.D. recipients.²¹ Since the Ph.D. confers considerable prestige, privilege, and power, the degree is a means to an end. The key to professional and intellectual growth in science, as well as the concomitant increase in earning potential, is the doctorate.

The bridge between the end of college and the conferral of the Ph.D. is a stint in a research group at a university. Selecting a research advisor is arguably the most important decision that a young scientist will make:

Picking an advisor, the professor/mentor whose lab the student will spend the next four or more years working in, is surely the most important and consequential decision that a graduate student is forced to make. This crucial decision . . . will profoundly influence the chances of eventually pursuing a career in science.²²

¹⁹ Wikipedia, *Doctor of Philosophy*, <http://en.wikipedia.org/wiki/Ph.D.> (last visited Oct. 20, 2005); DALE F. BLOOM ET AL., *THE PH.D. PROCESS: A STUDENT’S GUIDE TO GRADUATE SCHOOL IN THE SCIENCES* 4 (1998).

²⁰ Patel, *supra* note 2, at 485.

²¹ See REIS, *supra* note 7, at 88-89 (providing examples of Ph.D. holders who have gone on to obtain high-level positions in academic institutions and outside industries).

²² BLOOM, *supra* note 19, at 22.

The graduate student often must rely on the professor's reputation, connections, and letter of recommendation in order to obtain employment.²³

B. *The Structure of the Academic Research Group*

A modern research group in academic science functions like a small company. The professor, having articulated a particular research focus, writes grant proposals to secure funding and assembles a research group to perform the funded research projects.²⁴ The research group is often a diverse assemblage of "mentees" consisting of undergraduates, graduate students, postdoctoral associates ("postdocs"),²⁵ and visiting scientists. The composition of a research group is in constant flux. Students graduate, postdocs find permanent positions in industry or academia, and visiting scientists return to their home institutions.²⁶ Graduate students spend the most time in the group because they must complete a substantive independent research project in order to complete the doctoral thesis.²⁷

Everyone involved in academic research has something to gain. The graduate student receives research training, the all-important letter of recommendation, an academic pedigree, and an elevated status in the scientific community. The professor publishes the fruits of the research, which forms the basis for tenure, promotion, increased funding, the recruitment of additional group members, and prestige in the academic community. The academic department bolsters its reputation and ranking by having a research-active faculty. The university receives valuable overhead from the funded research projects²⁸ as well as the prestige

²³ REIS, *supra* note 7, at 188-91.

²⁴ See BLOOM, *supra* note 19, at 169.

²⁵ A postdoctoral research associate works in a research group in order to obtain more research experience. This research is often related, yet different, from the doctoral thesis. During the "postdoctoral stint," the postdoc is expected to quickly initiate a research project and to publish several papers. A postdoctoral stint is almost mandatory for a Ph.D. who seeks a tenure-track faculty position at a research university or a selective liberal arts college. See REIS, *supra* note 7, at 187; BLOOM, *supra* note 19, at 169.

²⁶ See CORYNNE McSHERRY, WHO OWNS ACADEMIC WORK? BATTLING FOR CONTROL OF INTELLECTUAL PROPERTY 1-2 (2001) (discussing how former graduate students could channel information to competing labs in the private sector).

²⁷ See Patel, *supra* note 2, at 483 (explaining how original research plays a role in degree certification programs).

²⁸ Overhead is the fraction of an externally-funded research grant that the university keeps for administrative and other sundry costs. *Id.* at 484-85, nn.6-8. BLACK'S LAW DICTIONARY 1136 (8th ed. 2004) (defining overhead as "expenses

and ancillary financial benefits that accrue from having academic departments populated with research-active faculty.

Although graduate students are the backbone of a healthy research university, professors are at its heart. Universities give professors unbridled freedom to practice their craft, which makes professors total masters of their research and the fruits therefrom. Faculty members have “more leeway to conduct their lives according to their individual wishes than most other members of the modern labor force.”²⁹ Professors live in “a world of comparative institutional autonomy and comparative individual academic freedom.”³⁰

Recognition for research productivity in academic science comes when a professor publishes research in a peer-reviewed scientific journal. The quality and number³¹ of publications weigh heavily in measuring competence, success, productivity, fundability, and suitability for tenure.³² Graduate students are also judged by their publication record,³³ especially when they enter the job market.³⁴ Publications where the graduate student is the “first author” are particularly noteworthy because they indicate that the graduate student made the most substantial contribution to

that cannot be allocated to a particular product or service; fixed or ordinary operating costs”).

²⁹ REIS, *supra* note 7, at 3 (citations omitted).

³⁰ *Id.*

³¹ Academics rank research journals into tiers. The ability to publish in a top-tier journal depends on many objective and subjective factors, including the quality of the research, the reputation of the author, and the caliber of the author’s institution. Although some hiring, tenure, and promotion committees simply “count pubs,” a handful of top-tier publications typically carry more weight than numerous lower-tiered publications. See MARY MORRIS HEIBERGER & JULIA MILLER VICK, *THE ACADEMIC JOB SEARCH HANDBOOK* 57, 184 (3d ed. 2001).

³² See REIS, *supra* note 7, at 21 (stating that “[t]oday at most four-year institutions, the requirements of tenure and promotion continue to focus heavily on research and on articles published in journals, especially those that are referred”) (citations omitted); see also A. LEIGH DENEEF & CRAUFURD D. GOODWIN, *THE ACADEMIC’S HANDBOOK* 287 (1995); P. AARNE VESILIND, *SO YOU WANT TO BE A PROFESSOR: A HANDBOOK FOR GRADUATE STUDENTS* (Sage 2000). It is not uncommon for a new science professor to be told explicitly the quantity of peer-reviewed publications required for promotion and tenure.

³³ The quality and number of publications are criteria in the nomination and selection of graduate students for merit awards, travel grants, and dissertation-year fellowships. See HEIBERGER & VICK, *supra* note 31, at 57.

³⁴ HEIBERGER & VICK, *supra* note 31, at 36, 184-86; see generally CHRISTINA BOUFIS & VICTORIA C. OLSEN, *ON THE MARKET: SURVIVING THE ACADEMIC JOB SEARCH* 249 (1997) (explaining that publications help graduate students to get grant applications funded, making them more attractive in the job market).

the project.³⁵ Whether a graduate student seeks a position in academia, industry, or a government laboratory, the employer wants to see a history of successful, independent research accomplishments and professional promise. In some institutions co-inventorship of a patent carries at least as much weight as first-authored publication in a top-tier journal.³⁶ Therefore, graduate students seek due recognition for research, not simply for ideological reasons; proper accountability for publications and patents has a direct impact on success.

III. PATENT LAW AT UNIVERSITIES

Realizing the potential for groundbreaking information and techniques, universities have become major players in the patent market.³⁷ Patents not only allow the university to obtain royalties from licensed inventions, but “act as a means of strengthening important relationships with industry and as a source of vital income to support further research.”³⁸ However, “[t]he growing university practice of producing and selling [patentable] technological advances [creates] . . . special problems.”³⁹

³⁵ The “first author” of a publication is the person whose name appears first in the author list. It is generally understood that the first author made the most substantive contribution to the research being published. This contrasts sharply with the inventorship designation of a patent, where the order of inventors implies nothing. Although the parties concerned may agree to a particular ordering of inventors on a patent, the United States Patent and Trademark Office considers multiple inventors to be joint inventors. See VESILIND, *supra* note 32, at 120-21.

³⁶ Some university guidelines on the promotion and tenure of faculty specifically mention intellectual property:

[S]cholarship refers to activities that contribute to knowledge or application of knowledge. Scholarly activities include publishing papers in peer-reviewed journals, publishing monographs or textbooks, contributing chapters to edited works, presenting contributed and invited presentations at technical meetings and workshops, transferring technology to industry, filing patent applications, and all other activities aimed at generating, contributing to or disseminating knowledge.

North Carolina State University, College of Engineering, *Reappointment, Promotion and Tenure Standards and Procedures*, <http://www.ncsu.edu/policies/employment/rpt/RUL05.67.308.php> (last visited Oct. 20, 2005).

³⁷ Patel, *supra* note 2, at 486.

³⁸ *Id.*

³⁹ *Id.* at 484-85.

A. *Patent Basics*

A patent is a property right,⁴⁰ granted by the federal government, to exclude others from making, using, selling, offering to sell, or importing the patented invention in the United States during the patent term.⁴¹ The United States Court of Appeals has stated that “the grant of the right to exclude carries the obligation to disclose the workings of the invention, thereby adding to the store of knowledge without diminishing the patent-supported incentive to innovate.”⁴² Claims lie at the core of a patent, as they “set [] the metes and bounds of the invention entitled to the protection of the patent system.”⁴³ However, patent claims do not describe the invention;⁴⁴ indeed they are often “a far cry from what the inventor invented.”⁴⁵ Patent claims are drafted to distinguish the invention from prior art⁴⁶ and are construed to determine what the patentee can exclude potential infringers from doing.⁴⁷

⁴⁰ See 35 U.S.C. § 261 (2000). Alternatively:

A patent can be conceived of as a contract between the inventor and the government. In return for full disclosure of the invention the government gives a monopoly of sorts for a time. The rest of us may be third party beneficiaries of this deal, partaking of the advancement of knowledge the patent represents.

Markman v. Westview Instruments, Inc., 52 F.3d 967, 997 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370, 372 (1996) (holding that the meaning of patent claim terms of art are a matter of law to be determined by the court).

⁴¹ 35 U.S.C. §§ 154(a)(1), 271(a) (2000 & Supp. II 2003).

⁴² Paulik v. Rizkalla, 760 F.2d 1270, 1272, 1276 (Fed. Cir. 1985) (stating that a “patent right is granted to the first inventor rather than the first to file a patent application”).

⁴³ Zenith Lab., Inc. v. Bristol-Myers Squibb Co., 19 F.3d 1418, 1424 (Fed. Cir. 1994).

⁴⁴ The patent document contains three parts: the written description, drawings, and fee and oath. The invention is described in the written description and drawings. 35 U.S.C. §§ 111-115 (2000).

⁴⁵ Janice M. Mueller, *A Rich Legacy*, 81 J. PAT. & TRADEMARK OFF. SOC'Y 755, 758 (1999).

⁴⁶ See 35 U.S.C. § 102 (2000 & Supp. 2003). In addition, “an important part of patent prosecution . . . is comparing the claimed invention to prior inventions” Prior inventions, other patent applications, and publications are known as prior art references. If a claimed invention is either (1) identical to a prior art reference or (2) different from a prior art reference, yet the differences are obvious to one of ordinary skill in the art, the claim(s) can be rendered unpatentable or invalid. ALAN L. DURHAM, *PATENT LAW ESSENTIALS: A CONCISE GUIDE* § 8.9 (2d ed. 2004).

⁴⁷ Mueller, *supra* note 45, at 759; *see also* Markman v. Westview Instruments, Inc., 52 F.3d 967, 985 n.14 (Fed. Cir. 1995).

When an application is filed with the PTO, the office determines if the basic statutory requirements of novelty, utility, and non-obviousness are met.⁴⁸ The claims are meticulously examined in light of prior art references, which are both submitted by the patent applicant and obtained by the patent examiner during the prosecution process.⁴⁹ Citing the U.S. Code, the United States Court of Appeals has held that “[t]here is no discretion on the part of the PTO as to whether or not to grant the patent—if the statutory requirements are met, a patent is issued.”⁵⁰

The key difference between publishing and patenting is exclusion.⁵¹ Whereas journal authors are eager for colleagues to practice their science as long as proper credit is given, the key to patenting is to prevent others from practicing the invention.⁵² This is called “the negative right to exclude,”⁵³ as the Patent Act does not convey a positive right to practice a patented invention.⁵⁴

⁴⁸ See 35 U.S.C. §§ 101-103 (2000 & Supp. 2003). The Patent Act also provides disclosure requirements and the types of subject matter that are potentially patentable. 35 U.S.C. §§ 101, 112 (2000).

⁴⁹ See 35 U.S.C. § 131 (2000 & Supp. 2003).

⁵⁰ *Markman*, 52 F.3d at 985 n.14 (citing 35 U.S.C. § 151 (2000)).

⁵¹ Timothy P. Daniels, *Keep the License Agreements Coming: The Effects of J.E.M. Ag Supply, Incorporated v. Pioneer Hi-Bred International, Incorporated on Universities' Use of Intellectual Property Laws to Protect Their Plant Genetic Research*, 2 *BYU EDUC. & L.J.* 771, 790, 793 (2003).

⁵² *Id.*

⁵³ See, e.g., Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 *DUKE L.J.* 1, 44-45 n.181 (2004) (clarifying that “the patent statute only provides the negative right to exclude . . . but a patentee can utilize such a right to prevent others from selling or licensing a product”). Philip Swain describes how the venerable Judge Giles Rich envisioned the negative right:

One way Judge Rich illustrated how the Constitutional provision for an “exclusive right” came to be described as “a right to exclude” in the patent statute was through mathematical logic. He started the mathematical expression with what the Constitution intended—inventors should have the *exclusive right* to their discoveries (i.e., the exclusive right to make, use, and vend an invention), then he subtracted from that what the inventor would have if there were no patent rights, i.e., a natural *right* to make, use and vend an invention. The difference, the term “exclusive,” or “exclusiveness,” is what the patent right gives him or her, which can only be a grant from the government of a negative “right to exclude others,” which will secure the exclusive right to the invention to the inventor.

This right to exclude others is the essence of any property right, including an “intellectual property” right, as well as a land owner’s real property right to keep someone from trespassing in his or her backyard.

Philip C. Swain, *The One Thing Judge Rich Wanted Everybody to Know About Patents*, 9 *FED. CIR. B.J.* 97, 100 (1999).

⁵⁴ See *Crown Die & Tool Co. v. Nye Tool & Machine Works*, 261 U.S. 24, 36 (1923) (requiring assignment of claims for past infringement be accompanied by

Third parties who want to make, use, or sell a patented invention must obtain a license from the patentee. A license can be viewed as a waiver of the right to exclude, or perhaps more correctly, “a promise by the licensor not to sue the licensee [for infringement].”⁵⁵ In exchange for the license, the licensee usually pays a royalty to the patent owner.

B. *Inventorship and Joint Inventorship*

The Patent Act allows the inventor to obtain a patent in his or her own name.⁵⁶ If two or more persons are inventors, they must jointly apply for the patent with a single application.⁵⁷ Determining inventorship in university research programs is difficult due to collaboration between different institutions, collaboration between research groups in the same institution, collaboration with outside contractors, or even graduate students who have more than one research advisor.⁵⁸ The “[d]etermination of inventorship has been characterized as ‘one of the muddiest concepts in the muddy metaphysics of the patent law,’ and remains one of the most difficult areas of patent law.”⁵⁹ Parties cannot stipulate or consent to inventorship. In *Eli Lilly and Co. v. Aradigm Corp.*, the Court of Appeals for the Federal Circuit held that “[i]nventorship is a mixed question of law and fact: The overall inventorship determination is a question of law, but it is premised on underlying questions of fact.”⁶⁰ Allowing parties to consent to inventorship would violate public policy.⁶¹

If two or more persons contribute to the subject matter of a patent, they can both be named as joint inventors:

When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath,

patent ownership); *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 526 n.8 (1972).

⁵⁵ *Spindelfabrik Suessen-Schurr Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft*, 829 F.2d 1075, 1081 (Fed. Cir. 1987), cert. denied, 484 U.S. 1063 (1988).

⁵⁶ 35 U.S.C. § 101 (2000).

⁵⁷ 35 U.S.C. § 116 (2000 & Supp. 2003).

⁵⁸ See John J. Okuley, *Resolution of Inventorship Disputes: Avoiding Litigation Through Early Evaluation*, 18 OHIO ST. J. ON DISP. RESOL., 915, 922 (2003).

⁵⁹ *Id.* at 918 (citing *Mueller Brass v. Reading Indus.*, 352 F. Supp. 1357, 1372 (E.D. Pa. 1972), *aff'd*, 487 F.2d 1395 (2d Cir. 1973)).

⁶⁰ *Eli Lilly and Co. v. Aradigm Corp.*, 376 F.3d 1352, 1361-62 (Fed. Cir. 2004) (holding that a person is a joint inventor only if he contributes to the conception of the claimed invention).

⁶¹ Okuley, *supra* note 58, at 932.

except as otherwise provided in this title. Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.⁶²

But every contributor is not necessarily an inventor. A putative coinventor must have taken part in the conception of the invention.⁶³ The Federal Circuit has defined a joint invention as “the product of a collaboration between two or more persons working together to solve the problem addressed.”⁶⁴ However, aside from “these simple defining principles, inventorship cases tend to be highly fact specific and seldom provide firm guidance on resolving future disputes.”⁶⁵

In an academic research group, elucidating inventorship can be tricky. Although the professor and student are deemed “colleagues” or “co-workers” in an academic sense, the graduate student may or may not be a joint inventor on a particular project.⁶⁶ Very often a professor will conceive a project and instruct the graduate student to “Go try it.” In this scenario the graduate student is not a joint inventor, because “[o]ne does not qualify as a joint inventor merely by assisting the actual inventor.”⁶⁷ The putative joint inventor must have a “definite and permanent idea of the complete and operative invention.”⁶⁸ In an alternate scenario, a graduate student may conceive an idea which is subsequently discussed with the research advisor. The professor may again say, “Go try it.” In this case the graduate student fulfilled the conception test, and thus a graduate student’s claim to joint or sole inventorship has merit.

⁶² 35 U.S.C. § 116.

⁶³ See *Eli Lilly*, 376 F.3d at 1361-62; *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1327 (Fed. Cir. 2004) (holding that “[t]o meet the clear and convincing evidentiary burden [to correct inventorship], the alleged co-inventors must prove their contribution to the conception with more than their own testimony concerning the relevant facts”).

⁶⁴ *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994).

⁶⁵ ROGER E. SCHECHTER & JOHN R. THOMAS, *PRINCIPLES OF PATENT LAW* 235 (2004).

⁶⁶ See *Bd. of Educ. ex rel. Bd. of Trs. of Fla. State Univ. v. Am. Bioscience, Inc.*, 333 F.3d 1330, 1337-38 (Fed. Cir. 2003) (discussing the input necessary to be deemed an inventor).

⁶⁷ *Id.* at 1338.

⁶⁸ *Id.* (citation omitted).

C. Preinvention Assignment Contracts

The Patent Act gives an inventor the right to obtain a patent for an invention in his own name: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title."⁶⁹ An inventor can freely assign ownership of the patent to another.⁷⁰ Scientists who work in research labs, corporations, and universities are often required to assign all interests in their inventions to the institution. After assignment, the inventor-assignee retains little interest in the patent. For example, the right to sue for infringement passes to the new owner.⁷¹ Inventors, nevertheless, have a statutory right to be correctly listed on the patent.⁷²

Professors and graduate students are often required to sign a preinvention assignment contract as a condition of employment.⁷³ Although professors can negotiate salary, research space, and teaching loads, assignment agreements are typically non-negotiable form contracts.⁷⁴ If any bargaining takes place, it "occurs at the time the employee is hired, before there is any sense on the employee's part of what might be discovered or what its value is."⁷⁵ The federal courts have found that even in the absence of a contractual provision⁷⁶ or a signed contract,⁷⁷ a researcher may have a duty to assign.

Many science professors obtain the bulk of their research funding from government agencies, which impose guidelines on grant support. Who owns inventions that arise out of government-supported research? The federal patent policy for sponsored research was codified as a 1980 amendment to the Patent Act.⁷⁸ The Bayh-

⁶⁹ 35 U.S.C. § 101 (2000).

⁷⁰ 35 U.S.C. § 261 (2000).

⁷¹ *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1551 (Fed. Cir. 1995); *Crown Die & Tool Co. v. Nye Tool & Machine Works*, 261 U.S. 24, 40-41 (1923); *Waterman v. Mackenzie*, 138 U.S. 252, 255 (1891).

⁷² 35 U.S.C. §§ 116, 256 (2000).

⁷³ Rochelle C. Dreyfuss, *Collaborative Research: Conflicts on Authorship, Ownership and Accountability*, 53 VAND. L. REV. 1161, 1212 (2000).

⁷⁴ *See id.* at 1212-15.

⁷⁵ *Id.* at 1213.

⁷⁶ *See Filmtec Corp. v. Allied-Signal, Inc.*, 939 F.2d 1568, 1573 n.10 (Fed. Cir. 1991) (noting "that, in the employment context, a specific contractual provision may not be the only basis for a duty to assign rights in inventions").

⁷⁷ *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1356-57 (Fed. Cir. 2001).

⁷⁸ 35 U.S.C. § 200 (2000).

Dole Act allows universities to retain the “entire right, title, and interest”⁷⁹ in inventions arising out of research sponsored by a federal agency if, *inter alia*, (1) the government is granted an irrevocable, non-exclusive license and (2) royalty revenues from exclusive licenses are shared with the inventor.⁸⁰ The Act requires universities to protect the government’s interest with a written agreement.⁸¹

In many cases the requirements of the Bayh-Dole Act and the preinvention assignment are combined into one intellectual property agreement:

I understand that in the course of my activities at the University . . . I may participate in a research program sponsored through grants or contracts by government agencies, corporations, foundations, or others outside the University. I also understand that these grants or contracts usually require that the University protect sponsor’s rights to intellectual property. . . . I agree that I will: 1. Disclose promptly to the Office of Research . . . full information concerning inventions or discoveries I may make in the course of any such sponsored research or training program; 2. Assign to the University . . . all of my right, title, or interest to such inventions, discoveries, patent applications, or patents; [and] 3. Upon request of the University execute any document and do everything necessary and proper to secure the issue of letters patent, United States or foreign. I understand that the University’s policies may provide for sharing of any income arising from inventions, discoveries, or patents that I assign to the University under this agreement.⁸²

⁷⁹ 37 C.F.R. § 401.14(b) (2004).

⁸⁰ 35 U.S.C. § 202(c)(3)-(4), (7) (2000). Alternatively, if the university opts not to take title to the invention, title defaults to the government.

⁸¹ The statute sets forth the inventor’s duty to disclose all inventions, the scope of the government’s interest, and the requirement of a written agreement:

The *contractor* agrees to require, by written agreement, its [technical] . . . employees, . . . to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the *contractor* each subject invention made under *contract* in order that the *contractor* can comply with the disclosure [requirements,] . . . and to execute all papers necessary to file patent applications on subject inventions and to establish the government’s rights in the subject inventions. . . . The *contractor* shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

37 C.F.R. § 401.

⁸² University of Rochester Intellectual Property Agreement, Office of Research and Property Administration, <http://www.rochester.edu/ott/policies/> (last visited Oct. 20, 2005).

Therefore, a university's intellectual property agreement can protect the interests of the university, the professor, and the government. The university obtains title, the professor secures inventorship and the promise of royalties from potential licenses, and the government obtains a non-exclusive license.

D. *The Present System*

When a university decides to prosecute a patent, the attorneys involved usually rely on the professor to identify the inventors. John J. Okuley describes the typical institutional practice for patent prosecution:

While inventors apply for a patent in their own names, [university] assignees . . . are often involved in determining the inventors as well as in drafting and prosecuting the patent application. A corporate legal department or an institutional intellectual property office may have an established process that researchers use to disclose potentially patentable inventions. *In practice, the supervisor of a research group will often be the individual completing an initial disclosure statement . . .*⁸³ The legal department responsible may rely on the disclosed information, along with any information derived from an interview with the supervisor, in deciding whether to file a patent application. An attorney normally will proceed with the application by gathering additional information from the supervisor and from other involved individuals identified by the supervisor. *If the supervisor either fails to fully identify those involved in the research or is not made aware of the contribution of other researchers (or outside collaborators), the drafter of the patent application may remain unaware that the information is incomplete regarding the individual contributions to the disclosed subject matter.*⁸⁴

The interests of the university and professor may not be the same, which adds to the complexity.

The university's task of obtaining licensees is made easier with "an unambiguous, yet correct, identification of inventors."⁸⁵ Once the university determines that the research is patentable, the university will "get in touch with possible licensees to determine

⁸³ Okuley, *supra* note 58, at 919-20 (emphasis added). The Information Disclosure Statement (IDS) is a document that a patentee must file which discloses material information to the USPTO for patent prosecution. The IDS includes a listing of prior art references such as publications, U.S. patents and foreign patents. U.S. Dep't of Commerce Patent and Trademark Office, Manual of Patent Examining Procedure 609(A)(1) (2000). The IDS is filed in compliance with the applicant's duty of candor. 37 C.F.R. § 1.56 (2004).

⁸⁴ Okuley, *supra* note 58, at 919-20 (emphasis added).

⁸⁵ *Id.* at 920.

'marketability' [of the invention]."⁸⁶ The professor "may already have a potential licensee in mind."⁸⁷ Quite often licensing deals are negotiated before the patent application is filed "because the university prefers to have licensees pay the filing fees and legal costs of patent prosecution."⁸⁸

Although the professor may be very eager to obtain royalties from licensing the invention, the professor may be more concerned with publishing, academic reputation, or other matters. Thus "certain interested parties may personally benefit from an incomplete disclosure of inventorship contributions."⁸⁹

IV. AUTHORSHIP AND INVENTORSHIP: TWO DISTINCT CONCEPTS

A. Introduction

Inventorship disputes often arise within universities because professors, graduate students, and possibly university attorneys "commonly are uneducated regarding inventorship law (especially regarding how inventorship is differentiated from academic authorship)."⁹⁰ The distinction between the two concepts was highlighted in *In re Katz*.⁹¹

B. Highlighting the Distinction: *In re Katz*

1. Background

Dr. David Katz, a professor at Harvard Medical School, filed a patent application in 1977 for a therapeutic agent listing himself as the sole inventor.⁹² Several months earlier Katz published an article which described the invention with two graduate student co-authors.⁹³ Katz filed a declaration with the patent application

⁸⁶ McSHERRY, *supra* note 26, at 156.

⁸⁷ *Id.*

⁸⁸ *Id.* at 157.

⁸⁹ Okuley, *supra* note 58, at 925.

⁹⁰ *Id.* at 923.

Researchers do not necessarily differentiate between a contribution that is sufficient to warrant authorship and a contribution to the conception of an invention that would warrant inventorship. In some situations, authorship on a publication is conferred as an honorarium or "gift," although the contribution is clearly insufficient to warrant inventorship. Though authorship in this situation fosters collegiality, this sort of authorship does not, by itself, indicate inventorship.

Id. at 923-924 (citations omitted).

⁹¹ 687 F.2d 450, 451-52 (C.C.P.A. 1982).

⁹² *Id.* at 452.

⁹³ *Id.*

stating that the graduate students were not co-inventors: “The other authors of the publication, Nicholas Chiorazzi and Zelig Eshhar[,] were students working under the direction and supervision of the inventor, Dr. David H. Katz, and while co-authoring the publication, are not co-inventors of the subject matter described therein.”⁹⁴

The patent examiner rejected several claims in the application as being anticipated by the publication under 35 U.S.C. § 102(g).⁹⁵ In finding that “there [was] no evidence of record which makes it clear that appellant [was] the *sole* inventor of the *claimed* invention,”⁹⁶ the examiner—not impressed by the declaration—stated that “[w]here a reference is from a collection of authors, it must be assumed that all authors contributed equally [to the invention].”⁹⁷ In order to overcome the rejection, the patent examiner required that Katz either (1) amend his application to include the graduate students; or (2) get the graduate students to file affidavits “disclaiming the invention claimed.”⁹⁸ In affirming the patent examiner’s rejection, the Board of Patent Appeals and Interferences also cited 35 U.S.C. § 102(a) as a ground for rejection.⁹⁹

2. The C.C.P.A. Decision

The Court of Customs and Patent Appeals¹⁰⁰ disavowed the 35 U.S.C. § 102(g) rejection because disclosure in an article alone is “not deemed a constructive reduction to practice.”¹⁰¹ Since the publication presented no statutory bar to patenting,¹⁰² the only issue remaining for the court was whether Katz’s evidence was

⁹⁴ *Id.*

⁹⁵ *Id.* at 454 (stating that “[a] person shall be entitled to a patent unless . . . before the applicant’s invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it . . .”).

⁹⁶ *Id.* at 452-53.

⁹⁷ *In re Katz*, 687 F.2d 450, 453 (C.C.P.A. 1982).

⁹⁸ *Id.*

⁹⁹ *Id.* at 454. “A person shall be entitled to a patent unless . . . the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent.” 35 U.S.C. § 102(a) (2000).

¹⁰⁰ Congress combined the jurisdictions of the Court of Customs and Patent Appeals and the Court of Claims into one court, the Court of Appeals for the Federal Circuit, in 1982. BLACK’S LAW DICTIONARY 1570 (8th ed. 2004).

¹⁰¹ *Katz*, 687 F.2d at 454.

¹⁰² The article was published less than one year prior to Katz’s application; thus the 35 U.S.C. § 102(b) statutory bar did not apply. *Id.* at 455 (applying 35 U.S.C. § 102(b)).

sufficient to show “that the subject disclosure was his original work, and his alone.”¹⁰³

The *Katz* court found that the applicant had made a sufficient showing.¹⁰⁴ The court pointed out that the examiner erred in making a presumption about inventorship: “As an initial matter, we hold that authorship of an article by itself does not raise a *presumption* of inventorship with respect to the subject matter disclosed in the article. Thus, co-authors may not be *presumed* to be coinventors merely from the fact of co-authorship.”¹⁰⁵

The court stated that the Board of Patent Appeals and Interferences should have avoided speculation and accepted the declaration specifically because it stated that the students were “working *under the direction and supervision of appellant*.”¹⁰⁶ From this relationship, “joint inventorship cannot be inferred.”¹⁰⁷

C. Reinforcing the Traditional Academic Mindset

It has been speculated “that the CCPA would [not] have made the same decision had a graduate student refused to list two professors as co-inventors.”¹⁰⁸ The *Katz* decision reinforces the belief by faculty “that they alone [are] . . . the originators of the ideas, partly by virtue of their structural position.”¹⁰⁹ Thus “in situations of unequal status, researchers . . . want to distinguish between originality and labor.”¹¹⁰ In her book *Who Owns Academic Work?*, Corynne McSherry recounts the sentiment of one senior researcher on the distinction between the contributions of a professor and that of a postdoctoral researcher:

I think there's rarely more than one inventor If you wake up and you have an idea, that's the invention The postdoctoral researchers contributed to the work [around the idea], but they didn't do any really innovative work such as contributing new concepts, [or] coming up with something that, in my lab, I haven't thought about. It doesn't happen . . . [not because] they aren't innovative people. . . . [T]hey don't have time to think as much [because] they have a lot of manual labor to do.¹¹¹

¹⁰³ *Id.*

¹⁰⁴ *Id.* at 456.

¹⁰⁵ *Id.* at 455 (emphasis added).

¹⁰⁶ *Id.* at 456 (emphasis added).

¹⁰⁷ *In re Katz*, 687 F.2d 450, 456 (C.C.P.A. 1982).

¹⁰⁸ McSHERRY, *supra* note 26, at 183-184.

¹⁰⁹ *Id.* at 183.

¹¹⁰ *Id.*

¹¹¹ *Id.*

It appears that the possibility of joint inventorship would never arise in the above-quoted professor's research group. Nearly twenty years after *Katz*, the Federal Circuit revisited the joint inventorship issue in the academic context in *Chou v. University of Chicago*.¹¹²

V. INVENTORSHIP CORRECTION: A REMEDY THAT SAVES THE PATENT FROM INVALIDATION

A. Resolution of Inventorship Disputes

Professors, universities, graduate students, and the public all have an interest in resolving inventorship disputes. First, a graduate student has a reputational interest in being correctly listed on a patent.¹¹³ Second, a professor who fails to give a student researcher due credit may not be able to obtain royalties¹¹⁴ and may face tort liability.¹¹⁵ Third, not only can the university be liable for the professor's torts under *respondeat superior*,¹¹⁶ but a patent with defective inventorship can be rendered invalid or unenforceable.¹¹⁷ Invalidity or unenforceability would limit the university's ability to generate income from patent licenses and royalty agreements.¹¹⁸ Finally, the actual inventors and the public have a strong interest in assuring that inventorship designations on patents are correct.¹¹⁹

B. Overview of the Inventorship Correction Statute

The Patent Act requires that all inventors be properly named on a patent:¹²⁰ "If more or less than the true inventors are named," the patent can be rendered invalid under § 102(f).¹²¹ Inventorship errors in pending applications can be corrected under § 116, and those for issued patents can be corrected under § 256.¹²² Adding

¹¹² See Part V, *infra*; *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1353-54 (Fed. Cir. 2001).

¹¹³ *Chou*, 254 F.3d at 1359.

¹¹⁴ *Id.* at 1363.

¹¹⁵ *Id.* at 1362-63.

¹¹⁶ *Id.* at 1362.

¹¹⁷ *Id.* at 1359.

¹¹⁸ *Id.*

¹¹⁹ *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1358 (Fed. Cir. 2001).

¹²⁰ 35 U.S.C. § 102(f) (2000); see also 35 U.S.C. §§ 111(a)(1), 115, 116 (2000).

¹²¹ *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1349-50 (Fed. Cir. 1998) (citing § 102(f) as the applicable provision); *Trovan, Ltd. v. Sokymat SA, Irori*, 299 F.3d 1292, 1301 (Fed. Cir. 2002).

¹²² 35 U.S.C. §§ 116, 256 (2000).

the omitted inventors spares the patent from invalidity.¹²³ In the academic context, if the omitted graduate student most likely discovers the omission *after* the patent has issued, he or she can then sue for joint¹²⁴ or sole¹²⁵ inventorship under § 256.

Section 256 provides two avenues for the correction of inventorship.¹²⁶ Both avenues “allow[] correction in all misjoinder cases featuring an error and in those nonjoinder cases where the unnamed inventor is free of deceptive intent.”¹²⁷ The first paragraph of § 256 is invoked when there is no inventorship dispute.¹²⁸

Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Director may, *on application of all the parties and assignees*, with proof of the facts and such other requirements as may be imposed, issued [sic] a certificate correcting such error.¹²⁹

The requirements for the application are outlined in 37 C.F.R. § 1.324.¹³⁰ This type of inventorship error is often a “technical defect” that is “easily curable.”¹³¹ Alternatively, when there is no consensus “the second paragraph of section 256 permits redress in federal court” to resolve an inventorship dispute or contest.¹³²

The second paragraph of section 256 states that “[t]he court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.”¹³³

¹²³ *Pannu*, 155 F.3d at 1350.

¹²⁴ There are two causes of action for joint inventorship: nonjoinder (“failure to add a joint inventor”) and misjoinder (“erroneous addition of a person who is not in fact a joint inventor”). *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1381 (Fed. Cir. 2000). Nonjoinder and misjoinder “are as fatal to the validity of a patent (or the effectiveness of a filed application) as a case of complete inventorship error.” *Id.*

¹²⁵ See *Stark v. Advanced Magnetics, Inc.*, 119 F.3d 1551, 1552 (Fed. Cir. 1997); *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1354 (Fed. Cir. 2001).

¹²⁶ 35 U.S.C. § 256 (authorizing corrections by both the Director or the Court).

¹²⁷ *Stark*, 119 F.3d at 1555.

¹²⁸ *MCV, Inc. v. King-Seeley Thermos Co.*, 870 F.2d 1568, 1570 (Fed. Cir. 1989) (discussing inventorship application requirements).

¹²⁹ 35 U.S.C. § 256, para. 1 (2000) (emphasis added).

¹³⁰ 37 C.F.R. § 1.324 (2000); see also *Winbond Elec. Corp. v. Int’l Trade Comm’n*, 262 F.3d 1363, 1371 (Fed. Cir. 2001).

¹³¹ *Id.* (quoting *Canon Computer Sys. Inc. v. Nu-Kote Int’l, Inc.*, 134 F.3d 1085, 1089 (Fed. Cir. 1998)).

¹³² *MCV*, 870 F.2d at 1570.

¹³³ 35 U.S.C. § 256, para. 2.

Relief under § 256, second paragraph, is often sought in an infringement case. When a defendant pleads invalidity due to incorrect inventorship, the court will allow the patentee to seek relief under the statute.

The consent of all parties is not necessary to state a claim for correction of inventorship under § 256 because “inventorship contests by definition will lack consent of all inventors.”¹³⁴ There is “only one prerequisite to judicial action: all [the] parties must be given notice and an opportunity to be heard.”¹³⁵ Thus the named inventor, the putative omitted inventor,¹³⁶ or even a defendant asserting invalidity¹³⁷ can invoke the statute.

C. Chou v. University of Chicago

1. Background

Joany Chou worked for Dr. Bernard Roizman in the Department of Molecular Genetics and Cell Biology at the University of Chicago for fourteen years; first as a graduate student for four years and then as a postdoctoral research associate.¹³⁸ As the head of an active research group, Roizman assumed responsibilities for all patenting decisions¹³⁹ and accordingly required confidentiality:¹⁴⁰ “The work at the laboratory was, by policy, not to be disclosed outside the laboratory until Dr. Roizman approved public disclosure, at which time he was to insure that individual scientists were properly credited for their work.”¹⁴¹ Roizman specifically indicated to Chou that he was her mentor, and “it was his duty to ensure that [Chou] would be properly and fairly treated for the research which she conducted.”¹⁴² Chou had no reason to doubt Roizman’s assurances because he had significant experience in the patent process.¹⁴³

¹³⁴ *Stark v. Advanced Magnetics, Inc.*, 119 F.3d 1551, 1553 (Fed. Cir. 1997).

¹³⁵ *MCV*, 870 F.2d at 1570.

¹³⁶ *See, e.g., J & J Mfg. v. Logan*, 24 F. Supp. 2d 692, 694-95, 697, 700 (E.D. Tex. 1998) (finding that a “purported equitable title holder” to a patent can seek equitable relief under 35 U.S.C. § 256).

¹³⁷ *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1345-47 (Fed. Cir. 1998).

¹³⁸ *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1353 (Fed. Cir. 2001).

¹³⁹ *Id.* at 1362.

¹⁴⁰ Corrected Brief for Plaintiff-Appellant, *Chou v. Univ. of Chicago*, No. 99 C 4495, 2000 WL 222638, at *5 (N.D. Ill. Feb. 22, 2000).

¹⁴¹ *Chou*, 2000 WL 222638, at *1.

¹⁴² Corrected Brief for Plaintiff-Appellant, *supra* note 140, at *5.

¹⁴³ *Id.*

Roizman and Chou both had a duty to assign¹⁴⁴ all rights and interests in their inventions to the University of Chicago or ARCH Development Corporation—an entity which was “founded in 1986 as a wholly-owned not-for-profit affiliate of the University of Chicago charged with handling all of the University’s intellectual property and technology commercialization matters.”¹⁴⁵ Assignors were entitled to royalties: “Under University policy, inventors [were to] receive 25% of the gross royalties and up-front payments from licensing of the patents, as well as 25% of the stock of new companies that are based on their inventions.”¹⁴⁶ Chou and Roizman were joint inventors on at least one other patent and several patent applications outside of the patents-in-suit.¹⁴⁷

2. The ‘688’ Patent¹⁴⁸

Chou approached Roizman in February of 1991 to discuss the patentability of research directed at exploiting the properties of a herpes simplex gene.¹⁴⁹ The research had been published in a series of journal articles where Chou was listed as the primary author.¹⁵⁰ Roizman told Chou that the research should not be patented, even though Roizman had already filed the ‘688 patent application in September of 1990 where he listed himself as the sole inventor.¹⁵¹ During the patent prosecution process, the PTO

¹⁴⁴ Interestingly, Chou never signed a preinvention assignment agreement. At trial Chou asserted unsuccessfully that she had standing to sue, *inter alia*, because she had never formally assigned her interests to the university. *Chou*, 2000 WL 222638, at *2. The Federal Circuit affirmed the district court’s ruling on this point: the court found that “she accepted her academic appointment subject to the administrative policies of the University.” *Chou*, 254 F.3d at 1357. The Federal Circuit applied Illinois law to determine Chou’s assignment obligation. *Id.*

¹⁴⁵ UCTech: Office of Technology and Intellectual Property, *UCTech takes over the responsibilities of ARCH Development Corporation*, <http://uctech.uchicago.edu/about/history.shtml> (last visited Oct. 20, 2005).

¹⁴⁶ *Chou*, 254 F.3d at 1353.

¹⁴⁷ *Chou*, 2000 WL 222638, at *1.

¹⁴⁸ The lawsuit involved three patents; however, U.S. Patent No. 5,328,688 (‘688) is the only one where Chou claimed to be the sole inventor. *Id.*

¹⁴⁹ Corrected Brief for Plaintiff-Appellant, *supra* note 140, at *8

¹⁵⁰ Joany Chou & Bernard Roizman, *The Terminal a Sequence of the Herpes Simplex Virus Genome Contains the Promoter of a Gene Located in the Repeat Sequences of the LComponent*, 57 J. VIROLOGY 629 (1986); Joany Chou & Bernard Roizman, *The Herpes Simplex Virus 1 Gene for ICP34.5, Which Maps in Inverted Repeats, Is Conserved in Several Limited-Passage Isolates but Not in Strain 17Syn+*, 64 J. VIROLOGY, 1014 (1990); Joany Chou et al, *Mapping of Herpes-Simplex Virus-1 Neurovirulence to $\gamma_134.5$, a Gene Nonessential for Growth in Culture*, 250 SCI., 1262 (1990).

¹⁵¹ *Chou*, 254 F.3d at 1353.

rejected the claims of the '688 application as being unpatentable over the Chou-Roizman publications.¹⁵² Roizman responded to the prior art rejection in July of 1993 with a declaration stating that Chou was not a joint inventor: "At the time the work reported in the attached publication was carried out and reported, Joany Chou, the other author of the publication, was a Research Associate working under my direction and supervision. While coauthoring the publication, Joany Chou is not an inventor of the subject matter reported therein."¹⁵³

The '688 application was ultimately assigned to ARCH, who then granted an exclusive license of the herpes simplex technology to Aviron.¹⁵⁴ Roizman was the founding director of, and a significant shareholder in, Aviron, a corporation created to exploit the subject matter of the '688 patent.¹⁵⁵

One month prior to submitting the declaration to the PTO, Roizman and Chou signed an agreement to share the royalties for the herpes simplex technology.¹⁵⁶ Roizman drafted the document, which provided that "the royalties resulting from the pending patent application to exploit the properties of the herpes simplex virus 34.5 gene be split equally between us, Joany Chou and Bernard Roizman . . ."¹⁵⁷ Interestingly, the "pending patent application" mentioned in the agreement was not '688; the statement referred to an application where Chou and Roizman were properly listed as coinventors.¹⁵⁸ Chou was still unaware of the '688 application at the time the royalty agreement was executed.¹⁵⁹

The '688 patent was issued in July 1994.¹⁶⁰ In July 1996 Roizman told Chou that he would fire her if she did not resign.¹⁶¹ He did so not only "because [of] the fact that he had taken full credit for her inventions in the '688 patent,"¹⁶² but also because his personal benefit "was going to be made public in Aviron's Ini-

¹⁵² *Id.*

¹⁵³ Corrected Brief for Plaintiff-Appellant, *supra* note 140, at *13; *Chou*, 254 F.3d at 1353.

¹⁵⁴ *Chou*, 254 F.3d at 1353-54.

¹⁵⁵ Corrected Brief for Plaintiff-Appellant, *supra* note 140, at *4, *16.

¹⁵⁶ *Chou*, 254 F.3d at 1354.

¹⁵⁷ Corrected Brief for Plaintiff-Appellant, *supra* note 140, at *13

¹⁵⁸ "It is undisputed that the letter referred to the '233 patent on which the two of them are listed as co-inventors - a patent not in dispute here." Chou v. Univ. of Chicago, No. 99 C 4495, 2000 WL 222638, at *4 (N.D. Ill. Feb. 22, 2000).

¹⁵⁹ *Id.*

¹⁶⁰ U.S. Patent No. 5,328,688 (filed Sept. 10, 1990) (issued July 12, 1994).

¹⁶¹ *Chou*, 254 F.3d at 1354.

¹⁶² Corrected Brief for Plaintiff-Appellant, *supra* note 140, at * 20.

tial Public Offering[.]”¹⁶³ and “[Chou] would be in a stronger position to contest his inventorship if she were still conducting research at the University.”¹⁶⁴

In 1999, Chou filed suit in U.S. District Court for the Northern District of Illinois against Roizman, the University of Chicago/ARCH, and Aviron asserting federal and state claims.¹⁶⁵ Her federal claims included, *inter alia*, correction of inventorship of the ‘688 patent under 35 U.S.C. § 256.¹⁶⁶ Chou asserted that she was the sole inventor of this patent.¹⁶⁷ Chou’s pendent state law claims were for breach of fiduciary duty, fraudulent concealment, unjust enrichment, breach of express contract, breach of implied contract, and academic theft and fraud.¹⁶⁸

3. The District Court Decision

The district court dismissed all of Chou’s federal law claims.¹⁶⁹ The defendants successfully asserted that Chou lacked standing to sue under § 256 because she had assigned her interests in the patent to the University/ARCH.¹⁷⁰ The court followed *Kucharczyk v. Regents of the University of California*.¹⁷¹ In *Kucharczyk*, several science professors sued the University and its licensee, *inter alia*, for correction of a patent that allegedly listed an individual who was not a true co-inventor.¹⁷² Those professors, like Chou, had a duty to assign their inventions to the university.¹⁷³ The *Kucharczyk* court dismissed the correction of inventorship claim:

[W]hether [the misjoined party] is listed as a co-inventor or not, plaintiffs will have no interest in the patent whatsoever. The only reasonable interpretation of the assignment agreement is that plaintiffs relinquished their right to sue to correct inventorship – along

¹⁶³ *Id.*

¹⁶⁴ *Chou*, 254 F.3d at 1354.

¹⁶⁵ *See id.* at 1353-54.

¹⁶⁶ Chou also sought correction of inventorship for other patents related to the herpes simplex technology. She claimed to be a joint inventor of those patents. “Chou also sued for a declaratory judgment [under 28 U.S.C. § 2201] that she was an inventor on the U.S. patents and their corresponding foreign applications.” *Id.* at 1354.

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.* at 1353.

¹⁷⁰ *Chou*, 254 F.3d at 1354.

¹⁷¹ *See Kucharczyk v. Regents of the Univ. of Cal.*, 48 F. Supp. 2d 964, 970-74 (N.D. Cal. 1999).

¹⁷² *Id.* at 965-66.

¹⁷³ *Id.* at 973.

with all other rights pertaining to the patent – when they executed the contract.¹⁷⁴

Although Chou tried to assert that she was not bound by the assignment because she “never signed a contract with the University specifically obligating her to assign her inventions to the University,”¹⁷⁵ the district court reasoned that her continued employment manifested acceptance of the patent policy.¹⁷⁶

In dictum, the district court doubted that Roizman was a proper defendant in the correction of inventorship claim since he was “not an owner of the patent himself and [had] no apparent legally protected interest in whose name appears as inventor.”¹⁷⁷

The district court dismissed all of Chou’s pendent state law claims except for conversion; however, the court suggested that this count may not be sound under Illinois law.¹⁷⁸ One of Chou’s dismissed claims included a breach of fiduciary duty.¹⁷⁹ Chou based this claim on the nature of the relationship between her and Roizman, and particularly his representation to her as a “friend, faculty advisor, [and] mentor.”¹⁸⁰ The court found that in academia there is “no duty to advise about the patenting of laboratory discoveries,” and that the lack of a partnership between Chou and Roizman “would [not] allow Dr. Chou to invoke fiduciary duties imposed upon business partners.”¹⁸¹

4. The Federal Circuit Decision

The Federal Circuit held that an assignor has standing to sue for correction of inventorship under § 256 if Article III constitutional standing requirements are met.¹⁸² The court began its

¹⁷⁴ *Id.* at 973-74.

¹⁷⁵ *Chou*, 254 F.3d at 1356-57.

¹⁷⁶ *Id.*; *Chou v. Univ. of Chicago*, No. 99 C4495, 2000 WL 222638, at *2 (N.D. Ill. Feb. 22, 2000).

¹⁷⁷ *Chou*, 2000 WL 222638, at *2 The Federal Circuit directly addresses this issue when the court articulates the interest that society and the patentee have in correct inventorship designations on patents. *Chou*, 254 F.3d at 1358.

¹⁷⁸ “Conversion survives because Dr. Chou can arguably claim ownership in her diagrams, drawings, writings, and documentation prepared while she was an employee. . . . What is valuable is the intellectual property recorded in these papers, and Illinois does not permit a claim of conversion for intangible property.” *Chou*, 2000 WL 222638, at *3 (citing *In re Oxford Marketing Ltd.*, 444 F. Supp. 399, 404 (N.D. Ill. 1978)).

¹⁷⁹ *Chou*, 254 F.3d at 1362; *Chou*, 2000 WL 222638, at *3.

¹⁸⁰ *Chou*, 2000 WL 222638, at *3.

¹⁸¹ *Id.*

¹⁸² *Chou*, 254 F.3d at 1356-58 (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-561 (1992)).

analysis by upholding the district court's ruling that Chou had a duty to assign her interests in patentable research even without a signed contract.¹⁸³ That conclusion did not defeat Chou's standing to sue under § 256.¹⁸⁴ After giving all concerned parties notice and an opportunity to be heard, the district court can "order correction of the patent."¹⁸⁵ The *Chou* court expressly disavowed *Kucharczyk* and *Okuley* and concluded that "[t]he statute imposes no requirement of potential ownership in the patent on those seeking to invoke it."¹⁸⁶

Chou argued that her "reputational interest alone" was enough to satisfy Article III standing requirements.¹⁸⁷ The court found this assertion "not implausible" because being designated as an inventor in one's field is "a mark of success" and is "comparable to being an author of an important scientific paper."¹⁸⁸

Chou's claim for entitlement to royalties also satisfied Article III standing requirements.¹⁸⁹ The district court erred by overlooking Chou's "concrete financial interest in the patent."¹⁹⁰

D. *Post-Chou: A Graduate Student's Options*

Until recently a graduate student-assignor who sought to correct the inventorship of a patent faced two hurdles: (1) a lack of standing, and (2) a narrow restriction on the type of inventorship claim that could be asserted under § 256.¹⁹¹ The Federal Circuit's holding in *Chou* addressed both issues and now affords a graduate student several forms of redress. In addition to possessing standing to bring a federal claim asserting joint or sole inventorship, the aggrieved student *may* bring a host of tort claims against the professor and university. These claims may include fraudulent concealment, breach of contract, and breach of fiduciary duty. The merits of these claims will depend on state law.

In cases where a graduate student solely conceives the invention, the graduate student should seek designation as the sole inventor on the patent. Before 1997, the district courts were reluctant to invoke § 256 to replace one sole inventor for another,

¹⁸³ See *id.* at 1356-57.

¹⁸⁴ *Id.* at 1357.

¹⁸⁵ *Id.*; see also 35 U.S.C. § 256, para. 2 (2000).

¹⁸⁶ *Chou*, 254 F.3d at 1358.

¹⁸⁷ *Id.* at 1359.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ *Id.* at 1358.

particularly when the named inventor acted with deceptive intent.¹⁹² In *McMurray v. Harwood*, for example, the district court dismissed an employee-plaintiff's § 256 claim where an employer-defendant terminated the employee after the employer obtained a patent for the employee's invention.¹⁹³ The Federal Circuit overruled *McMurray* and broadened the scope of § 256 in *Stark v. Advanced Magnetics, Inc.*¹⁹⁴ The *Stark* court held that § 256, which encompasses both "honest and dishonest" mistakes,¹⁹⁵ "allows complete substitution of inventors as long as the true inventors are without deceptive intent."¹⁹⁶

VI. INEQUITABLE CONDUCT: A DEFENSE WHICH CAN RENDER A PATENT UNENFORCEABLE

A. *The Doctrine*

The PTO charges patentees with a duty of candor in the prosecution process.¹⁹⁷ Thus, the patentee must disclose all information that is *material*; i.e., that information which may affect patentability.¹⁹⁸ Inequitable conduct—the failure to meet the duty of candor in the patent prosecution process—is often raised

¹⁹² See, e.g., *McMurray v. Harwood*, 870 F. Supp. 917, 917-20 (E.D. Wis. 1994) (explaining that 35 U.S.C. § 256 remedies "innocent errors" and cannot correct inventorship errors arising from deceptive intent by the named inventor).

¹⁹³ *Id.*

¹⁹⁴ 119 F.3d 1551, 1555 (Fed. Cir. 1997).

¹⁹⁵ *Id.* at 1554.

¹⁹⁶ *Id.* at 1556.

¹⁹⁷ 37 C.F.R. § 1.56 (2002). Section 1.56 sets forth the duty of candor required in the patent prosecution process. This duty extends to the inventor, the attorney handling the prosecution, and other parties involved in the application:

Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office [USPTO], which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. . . . [N]o patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. . . . Individuals associated with the filing or prosecution of a patent application within the meaning of this section are: (1) Each inventor named in the application; (2) Each attorney or agent who prepares or prosecutes the application; and (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application. . . .

Even though the federal courts are not bound by the C.F.R., they typically follow it.

¹⁹⁸ *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1257 (Fed. Cir. 1997).

as a defense to patent infringement.¹⁹⁹ If proven, the patent may be ruled unenforceable.²⁰⁰ The Federal Circuit has held that “[t]he concept of inequitable conduct in patent procurement derives from the equitable doctrine of unclean hands: that a person who obtains a patent by intentionally misleading the PTO can not enforce the patent.”²⁰¹

In *Dayco Products, Inc. v. Total Containment Inc.*, the Federal Circuit Stated that:

The inequitable conduct analysis is performed in two steps comprising “first, a determination of whether the withheld [information] meets a threshold level of materiality and intent to mislead, and second, a weighing of the materiality and intent in light of all the circumstances to determine whether the applicant’s conduct is so *culpable* that the patent should be held unenforceable.”²⁰²

The court also stated that “intent and materiality are questions of fact” that the party alleging inequitable conduct must prove with “clear and convincing evidence.”²⁰³ An intent to deceive need

¹⁹⁹ *Id.* at 1258.

²⁰⁰ *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988) (*en banc*); *J.P. Stevens & Co. v. Lex Tex Ltd. Inc.*, 747 F.2d 1553, 1561 (Fed. Cir. 1984).

²⁰¹ *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1394 (Fed. Cir. 1988).

²⁰² *Dayco Prod., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1362-1363 (Fed. Cir. 2003) (citations omitted). The former Asst. Secretary of Commerce and Commissioner of Patents and Trademarks has analyzed court decisions where inequitable conduct has been alleged and has suggested that six criteria must be satisfied in order for a court to find inequitable conduct:

- (1) The party challenging a patent must show inequitable conduct by *clear and convincing evidence*;
- (2) Information known to an individual listed in Rule 56 and not disclosed to the USPTO must be *material to patentability* of one or more claims of the patent, and the information must not be *cumulative* to the information that was before the examiner;
- (3) The individual listed in Rule 56 must have *actual knowledge* of the information *and its materiality*;
- (4) There must be a link between what the individual actually knew and what may objectively be later shown to be information under 35 U.S.C. § 102;
- (5) The individual listed in Rule 56 must have an *intent to mislead the USPTO*; and
- (6) There is a *balancing* of the materiality of the information not disclosed to the USPTO and the alleged intent to mislead, but that balancing is done only after an intent to deceive is established or inferred.

Hon. Gerald J. Mossinghoff, *The Duty of Candor and Good Faith to the United States Patent and Trademark Office*, Remarks at the 17th Annual Intellectual Property Law Conference (Apr. 12, 2002), *available at* <http://www.abanet.org/intelprop/2002springmaterials/papers/mossinghoff.doc>.

²⁰³ *Dayco*, 329 F.3d at 1362.

not be proven by direct evidence; it is often shown from acts and inferred from the facts surrounding the applicant's conduct.²⁰⁴ The intent cannot be inferred from gross negligence.²⁰⁵ The court evaluates materiality in light of the PTO's duty of disclosure.²⁰⁶ According to Rule 56, information is material if:

(1) [i]t establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) [i]t refutes, or is inconsistent with, a position the applicant takes in: (i) [o]pposing an argument of unpatentability relied on by the [USPTO], or (ii) [a]sserting an argument of patentability.²⁰⁷

If the court determines that both factual elements have been proven beyond a threshold standard, then "the court conducts a balancing test and determines whether the scales tilt to a conclusion that 'inequitable conduct' occurred."²⁰⁸

The Federal Circuit affords considerable deference to a trial court's inequitable conduct analysis.²⁰⁹ The trial court's "factual findings regarding materiality and intent are reviewed for clear error, and thus will not be disturbed on appeal unless this court has a 'definite and firm conviction' that a mistake has been made."²¹⁰ The court also reiterated that "[t]he trial court's ultimate conclusion that inequitable conduct has occurred is reviewed for an abuse of discretion."²¹¹

²⁰⁴ *Semiconductor Energy Lab. Co. v. Samsung Elec. Co.*, 204 F.3d 1368, 1374-75 (Fed. Cir. 2000).

²⁰⁵ *Kingsdown*, 863 F.2d at 873.

²⁰⁶ See 37 C.F.R. § 1.56 (2002); *Bruno Indep. Living Aids, Inc. v. Acorn Mobility Serv., Ltd.*, 394 F.3d 1348, 1352 (Fed. Cir. 2005) ("In evaluating materiality, we have consistently referred to the definition provided in 37 C.F.R. § 1.56, by which the PTO has promulgated the duty of disclosure.").

²⁰⁷ 37 C.F.R. § 1.56. The Rule 56 definition of materiality has evolved over the past two decades. The old rule deemed information material when "there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue." 37 C.F.R. § 1.56 (1991) (amended 2000). See *Hoffmann-La Roche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1367 (Fed. Cir. 2003); *J.P. Stevens & Co. v. Lex Tex Ltd. Inc.*, 747 F.2d 1553, 1559 (Fed. Cir. 1984) (applying the pre-1991 version of the rule).

²⁰⁸ *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1256 (Fed. Cir. 1997); see also *Dayco*, 329 F.3d at 1362-1363.

²⁰⁹ See *Purdue Pharma L.P. v. Endo Pharm. Inc.*, 410 F.3d 690, 696 (Fed. Cir. 2005) ("We review the trial court's rulings on inequitable conduct deferentially.").

²¹⁰ *Id.* (quoting *Kingsdown*, 863 F.2d at 872).

²¹¹ *Id.*

B. PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.

1. Background

PerSeptive Biosystems sued its competitor, Pharmacia, for infringement of three patents related to polymer beads used in liquid chromatography.²¹² Pharmacia pleaded invalidity in its counterclaim, stating that PerSeptive failed “to designate one or more of the true inventors” of the patents-in-suit.²¹³ Specifically, Pharmacia alleged that PerSeptive had collaborated with scientists from Polymer Laboratories, who were allegedly the “true inventors of the subject matter.”²¹⁴

2. The District Court Cases

*PerSeptive I.*²¹⁵ The parties moved for summary judgment on invalidity.²¹⁶ The court found that the Polymer Laboratories’ personnel were joint inventors, which was proven by “clear and convincing evidence.”²¹⁷ PerSeptive’s motion was denied, and Pharmacia’s cross-motion was allowed.²¹⁸ However, the court lacked sufficient evidence to determine the named inventors’ state of mind in omitting the Polymer Laboratories’ personnel.²¹⁹ Thus, in order to prevent invalidation, the court gave PerSeptive a chance to correct inventorship with a § 256 hearing.²²⁰

*PerSeptive II.*²²¹ As a result of the § 256 hearing, the court found that “[t]he named inventors intentionally misrepresented their role in developing . . . [the invention], and intentionally underplayed the role of Polymer Laboratories.”²²² For example, the named inventors falsely stated that they discovered key features of the invention, that the named inventors failed to acknowledge the extensive exchange of data between PerSeptive and

²¹² PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., No. 93-12237-PBS, 1996 U.S. Dist. LEXIS 21908, at *25 (D. Mass. Jan. 9, 1996) [hereinafter *PerSeptive I.*].

²¹³ *Id.* at *3.

²¹⁴ *Id.* at *4.

²¹⁵ *Id.* at *1.

²¹⁶ *Id.* at *3.

²¹⁷ *Id.* at *36.

²¹⁸ PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., No. 93-12237-PBS 1996 U.S. Dist. LEXIS 21908, *45-46 (D. Mass. Jan. 9, 1996) [hereinafter *PerSeptive I.*].

²¹⁹ *Id.* at *44.

²²⁰ *Id.* at *45-46.

²²¹ PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., No. 93-12237-PBS, 1997 U.S. Dist. LEXIS 8600 (D. Mass. Mar. 31, 1997) [hereinafter *PerSeptive II.*].

²²² *Id.* at *133.

Polymer Laboratories, and that “the named inventors misleadingly and falsely suggested that Polymer Labs was only a source of raw materials.”²²³ The court advised the omitted inventors that they could intervene, but they declined.²²⁴ The court concluded that PerSeptive did not meet its burden of showing that the non-joinder was made in error “without deceptive intent”; thus its motion to correct inventorship was denied.²²⁵ The court, however, applied the wrong legal standard.²²⁶

PerSeptive III.²²⁷ A few months after the court handed down the ruling in *PerSeptive II*, the Federal Circuit decided *Stark*.²²⁸ The *Stark* court stated that correction of inventorship under § 256 requires an inquiry into the deceptive intent of the *omitted inventors*, not the named inventors.²²⁹ The *PerSeptive III* court recognized that it applied the wrong standard in light of *Stark*;²³⁰ accordingly, the *PerSeptive II* decision was vacated.²³¹ Before the *Stark* decision, the defendants had filed a motion for a determination of inequitable conduct.²³² Acting on this motion, the court decided to broaden its focus to *all* issues concerning inventorship.²³³ Although the court had insufficient facts to elucidate the intent of the omitted inventors, the previously construed facts were enough to establish inequitable conduct on the part of the named inventors.²³⁴ Thus, the § 256 issue became moot.

3. The Federal Circuit Decision

The Federal Circuit affirmed the judgment.²³⁵ PerSeptive argued that the district court erred in finding that Polymer Laboratories’ personnel should have been named as joint inventors.²³⁶ PerSeptive also argued that the patent claims were narrowed to

²²³ *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1320 (Fed. Cir. 2000) (citations omitted) [hereinafter *PerSeptive IV*].

²²⁴ *PerSeptive II*, 1997 U.S. Dist. LEXIS 8600, at *8.

²²⁵ *Id.* at *3.

²²⁶ *PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 12 F. Supp. 2d 69, 70-71 (D. Mass. 1998) [hereinafter *PerSeptive III*].

²²⁷ *Id.* at 69.

²²⁸ *Stark v. Advanced Magnetics, Inc.*, 119 F.3d 1551, 1551 (Fed. Cir. 1997).

²²⁹ *Id.* at 1555.

²³⁰ *PerSeptive III*, 12 F. Supp. 2d at 70-71.

²³¹ *Id.* at 74.

²³² *Id.* at 72.

²³³ *Id.*

²³⁴ *Id.* at 72-74; *PerSeptive IV*, 225 F.3d at 1318.

²³⁵ *PerSeptive IV*, 225 F.3d at 1317.

²³⁶ *Id.* at 1321.

avoid inventorship problems.²³⁷ The Federal Circuit stated that the inventorship determination was separate from an inequitable conduct determination because “whether the inventorship of the patents as issued is correct does not determine the materiality of the statements.”²³⁸ The court also stated that “the issue is not inventorship per se, but *misinformation* about inventorship.”²³⁹ Narrowing amendments to make statements immaterial misses the point; the collaborative relationship was material to patentability.²⁴⁰

The *PerSeptive Biosystems* holding is a marked departure from the Federal Circuit’s prior inventorship jurisprudence. Now “it seems that a court may find inequitable conduct occurred in misnaming the inventive entity regardless of what is actually claimed in the issued patent.”²⁴¹

C. *Post-PerSeptive Biosystems: A Warning Sign for Universities*

The availability of “inventorship-based” inequitable conduct as a defense for infringement should place universities on notice to review their patent policies for two related reasons. First, inequitable conduct is routinely offered as a defense to infringement, even in cases where there may not be a good faith basis for the assertion.²⁴² Second, potential infringers may target patents emerging from research universities because the true inventor-

²³⁷ *Id.* at 1322.

²³⁸ *Id.*

²³⁹ *Id.* (emphasis added).

²⁴⁰ *Id.*

²⁴¹ Antigone Kriss, *Misrepresentation of Inventorship and the Inequitable Conduct Defense: PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 12 FED. CIR. B.J. 285, 287 (2002).

²⁴² The Federal Circuit has referred to the proliferation of the inequitable conduct defense as “an absolute plague”:

[T]he habit of charging inequitable conduct in almost every major patent case has become an absolute plague. Reputable lawyers seem to feel compelled to make the charge against other reputable lawyers on the slenderest grounds, to represent their client’s [sic] interests adequately, perhaps. They get anywhere with the accusation in but a small percentage of the cases, but such charges are not inconsequential on that account. They destroy the respect for one another’s integrity. . . . A patent litigant should be made to feel, therefore, that an unsupported charge of “inequitable conduct in the Patent Office” is a negative contribution to the rightful administration of justice.

Burlington Indus., Inc. v. Dayco Corp., 849 F.2d 1418, 1422 (Fed. Cir. 1988).

ship, especially in collaborative research environments, may be defective.²⁴³

VII. PREEMPTIVE STRIKES: RESEARCH ASSISTANTS WHO “TOOK MATTERS INTO THEIR OWN HANDS”

Although professors are usually regarded as masters of their research programs, occasionally graduate students and postdocs “take matters into their own hands” when it comes to patenting research. Two notable instances are *University of West Virginia, Board of Trustees v. VanVoorhies*²⁴⁴ and the widely-publicized disagreement between Chad Mirkin and Peter Schwartz at Northwestern University.²⁴⁵ In both cases the research assistant was an older student who knew how to prosecute patents.²⁴⁶ Inevitably, the student breached the university’s patent policy.²⁴⁷

A. *University of West Virginia v. VanVoorhies*

1. Background

Kurt VanVoorhies left a job at Automotive Systems Laboratory, Inc. to enroll in the engineering Ph.D. program at West Virginia University (WVU) in 1990.²⁴⁸ VanVoorhies chose WVU specifically to work under the direction of Dr. James Smith.²⁴⁹ In 1991, VanVoorhies and Smith co-invented an antenna, which they disclosed to WVU according to the university’s patent policy.²⁵⁰ The invention was disclosed in U.S. Patent Application 07/922,970 (the ‘970 Application) and issued as U.S. Patent No. 5,442,369 (the ‘369 Patent).²⁵¹ Pursuant to the university’s patent policy, “VanVoorhies and [Smith] assigned their rights to the ‘369 patent

²⁴³ See ROGER E. SCHECHTER & JOHN R. THOMAS, PRINCIPLES OF PATENT LAW § 7.3 (West 2004) (discussing the factors considered in inventorship determinations).

²⁴⁴ 342 F.3d 1290 (Fed. Cir. 2003) [hereinafter *VanVoorhies IV*].

²⁴⁵ See, e.g., Stephen K. Ritter, *Publication Ethics: Rights and Wrongs*, CHEMICAL AND ENGINEERING NEWS, Nov. 12, 2001 (acknowledging the aforementioned dispute); Lydia Villa-Komaroff, *Publishing Rights Revisited*, CHEMICAL AND ENGINEERING NEWS, July 30, 2001 (providing letters from the parties in the dispute).

²⁴⁶ *VanVoorhies IV*, 342 F.3d at 1292; Ritter, *supra* note 245, at 26.

²⁴⁷ *VanVoorhies IV*, 342 F.3d at 1292; Villa-Komaroff, *supra* note 245, at 10.

²⁴⁸ *Univ. of W.Va. Bd. of Trs. v. VanVoorhies*, 84 F. Supp. 2d 759, 762 (N.D. W.Va. 2000) [hereinafter *VanVoorhies II*].

²⁴⁹ *Id.*

²⁵⁰ *Id.* at 762-63.

²⁵¹ *VanVoorhies IV*, 342 F.3d at 1292.

to the University²⁵² and agreed to cooperate in maintaining resulting patents.²⁵³ During his tenure as a Post Graduate Research Assistant Professor at WVU, VanVoorhies became a registered patent agent.²⁵⁴ VanVoorhies' training in patent law drew his attention to the accuracy of the inventorship of the '970 application; he ultimately concluded that "[he] could not find a single claim for which [he] was not the exclusive inventor."²⁵⁵ The university's research affiliate, West Virginia University Research Corporation (WVURC),²⁵⁶ licensed the antenna technology to Integral Concepts, Inc. (ICI), a company wholly owned by Smith.²⁵⁷ VanVoorhies graduated in late 1993 and soon afterwards accepted a research faculty position at WVU.²⁵⁸

2. Patents-in-Suit

VanVoorhies invented an improvement to the invention disclosed in the '970 application, which he disclosed to WVU.²⁵⁹ He advised WVU to prosecute the new invention as a continuation-in-part (CIP) to the '970 application.²⁶⁰ When WVU sent VanVoorhies a preliminary application and an assignment contract for the second invention, he did not respond.²⁶¹ WVU nevertheless filed a CIP, U.S. Patent Application No. 08/486,340 (the '340 applica-

²⁵² *Id.* (citation omitted).

²⁵³ *VanVoorhies II*, 84 F. Supp. 2d at 763. "The inventor shall cooperate fully with the University in all respects; to the evaluation of an invention, the preparation of the filing and prosecution of an application and the transfer of rights in the same as well as the maintenance and protection of any resultant patents." *Id.* at 763 n.27.

²⁵⁴ *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, 278 F.3d 1288, 1293 (Fed. Cir. 2002) [hereinafter *VanVoorhies III*].

²⁵⁵ *VanVoorhies II*, 84 F. Supp. 2d at 765.

²⁵⁶ The WVURC was . . . created as a not-for-profit corporation in 1987 to foster and support research at West Virginia University, and to provide evaluation, development, patenting, management, and marketing services for inventions of the faculty, staff and students of the University. . . . The WVURC entered into an affiliation agreement with the West Virginia Board of Regents on behalf of West Virginia University in 1989 to provide for services and activities related to the promotion, encouragement, and stimulation of research.

West Virginia University, WVU Research Corporation, <http://www.wvu.edu/~research/res-corp.htm> (last visited Oct. 20, 2005).

²⁵⁷ *VanVoorhies II*, 84 F. Supp. 2d at 763, 765.

²⁵⁸ *Id.* at 765.

²⁵⁹ *Id.* at 765-66.

²⁶⁰ *Id.* at 765; see also *In re Wertheim*, 646 F.2d 527, 536 (C.C.P.A. 1981). "A continuation-in-part application, by definition, adds new matter to the parent application previously filed." The CIP application must be filed during the pendency of the parent application by the same applicant.

²⁶¹ *VanVoorhies II*, 84 F. Supp. 2d at 766.

tion), which listed VanVoorhies as the sole inventor.²⁶² WVU filed the CIP application under 37 C.F.R. §1.47(b),²⁶³ “which permits a party with a sufficient interest in an invention to file a patent application when [the] inventor refuses to execute the application.”²⁶⁴ The CIP application was ultimately issued as U.S. Patent No. 6,028,558.²⁶⁵

While WVU sought patent protection for the second invention, VanVoorhies submitted two patent applications directed toward the second invention: U.S. Patent Applications No. 08/514,609 (the ‘609 application) and 08/514,610 (the ‘610 application).²⁶⁶ VanVoorhies submitted the ‘610 application “for the purpose of provoking an interference²⁶⁷ with the Application ‘970.”²⁶⁸

3. The District Court Decision

WVU sued VanVoorhies in 1997 for failure to assign the second invention. Although the duty to assign is governed by state law, the University’s right to relief “necessarily depended upon the resolution of a substantial question of patent law” which allowed the district court to properly assert jurisdiction.²⁶⁹ After the district court denied VanVoorhies’ motion to dismiss, he filed a counter-

²⁶² *Id.*

²⁶³ Whenever all of the inventors refuse to execute an application for patent, or cannot be found or reached after diligent effort, a person to whom an inventor has assigned or agreed in writing to assign the invention, or who otherwise shows sufficient proprietary interest in the matter justifying such action, may make application for patent on behalf of and as agent for all the inventors

37 C.F.R. § 1.47(b) (2004).

²⁶⁴ *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, 278 F.3d 1288, 1293 (Fed. Cir. 2002) [hereinafter *VanVoorhies III*] (citations omitted).

²⁶⁵ *Id.*

²⁶⁶ *VanVoorhies II*, 84 F. Supp. 2d at 767.

²⁶⁷ *Id.* An interference is a proceeding initiated by the USPTO to determine who was the first to invent a particular invention:

Whenever an application is made for a patent which, in the opinion of the Director, would interfere with any pending application, or with any unexpired patent, an interference may be declared and the Director shall give notice of such declaration to the applicants, or applicant and patentee, as the case may be. The Board of Patent Appeals and Interferences shall determine questions of priority of the inventions and may determine questions of patentability. . . . [T]he Director may issue a patent to the applicant who is adjudged the prior inventor.

35 U.S.C. § 135(a) (2000 & Supp. 2003).

²⁶⁸ *VanVoorhies II*, 84 F.Supp.2d at 767.

²⁶⁹ The substantial question was “whether the ‘340 application was a CIP of the ‘970 application.” *VanVoorhies III*, 278 F.3d at 1295.

claim that listed fifteen causes of action.²⁷⁰ In his countersuit VanVoorhies included Smith, ICI, and WVURC as third-party defendants.²⁷¹ Most of VanVoorhies' claims did not withstand motions to dismiss.²⁷²

The district court disposed of VanVoorhies' remaining claims and WVU's claims by summary judgment.²⁷³ VanVoorhies' claims included fraud, fraudulent concealment, and misrepresentation (first claim); declaration of invalidity of assignment under the Patent Act (fifteenth claim); and declaration of patent invalidity under the Patent Act (fourteenth claim).²⁷⁴ The University claimed "[b]reach of [d]uty [u]nder [c]ontract and [c]ommon [l]aw, to [a]ssign to the University, [i]nventions and [r]elated [p]atent [p]roperty."²⁷⁵ The court found, *inter alia*, that: (1) VanVoorhies' fraud based claims were meritless and barred by a statute of limitations; (2) assignor estoppel barred a challenge to patent validity; and (3) VanVoorhies had a duty to assign applications '340 and '609 to the University since they were outgrowths of the subject matter of the '970 application.²⁷⁶ The court issued a final order in favor of WVU in February of 2000.²⁷⁷

4. The Federal Circuit Decision

On appeal, VanVoorhies argued that the district court erred in granting WVU's motions for summary judgment.²⁷⁸ Interestingly, VanVoorhies, like Chou, asserted a breach of fiduciary duty claim.²⁷⁹ VanVoorhies claimed that Smith breached a fiduciary duty to him because they "had a relationship of trust concerning their inventions, and that Smith breached that trust by inducing VanVoorhies to list Smith as a co-inventor of the '970 application so that Smith could share in the revenues."²⁸⁰ Unlike *Chou*, the

²⁷⁰ *VanVoorhies II*, 84 F. Supp. 2d at 767.

²⁷¹ *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, No. 1:97-CV-144 1999 U.S. Dist. LEXIS 23049, at *3 (N.D. W. Va. 1999) [hereinafter *VanVoorhies I*].

²⁷² *Id.* at *4-6.

²⁷³ *VanVoorhies II*, 84 F. Supp. 2d at 761.

²⁷⁴ *Id.* at 767.

²⁷⁵ *Id.*

²⁷⁶ *Id.* at 769-70, 772, 774.

²⁷⁷ *Id.* at 774-75.

²⁷⁸ *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, 278 F.3d 1288, 1296 (Fed. Cir. 2002) [hereinafter *VanVoorhies III*].

²⁷⁹ *Id.*; *Chou v. Univ. of Chicago*, 254 F.3d 1347, 1354 (Fed. Cir. 2001).

²⁸⁰ *VanVoorhies III*, 278 F.3d at 1299. VanVoorhies also argued the existence and breach of a fiduciary duty between him and WVU. *Id.*

VanVoorhies court found neither the existence nor breach of a fiduciary duty:²⁸¹

VanVoorhies was at all times aware of the patenting and inventorship decisions being made regarding the first invention, and he participated in and acceded in those decisions by jointly signing the '970 application and assignment with Smith, whom he knew would be entitled to a share of the proceeds under the patent policy.²⁸²

Since the fiduciary duty claim against Smith was insufficient, the claim against WVU was similarly insufficient.²⁸³

VanVoorhies also claimed on appeal that he had no duty to assign the '340 and '609 applications to WVU; thus the district court's summary judgment ruling was erroneous.²⁸⁴ Specifically, VanVoorhies argued that '340 lay outside of the '970 assignment provision because the claimed invention was "independent and distinct."²⁸⁵ VanVoorhies also alleged that the '970 assignment provision was inapplicable to '609 because "he conceived [the] invention and reduced it to practice while he was not associated with WVU."²⁸⁶ The Federal Circuit found that VanVoorhies' argument lacked merit for several reasons. First, the definition of a CIP implies that parts of the new invention will be different from the first.²⁸⁷ Second, "VanVoorhies himself, a *patent agent with knowledge of patent law*, suggested to WVU that the second invention be designated . . . a CIP."²⁸⁸ Therefore, he could not make a contrary argument on appeal.

5. Post-*VanVoorhies*: The Narrow Scope of *Chou*

Chou and *VanVoorhies* both dealt with research associates who asserted that they were wronged by a professor. After *Chou*, many people thought that this landmark decision in academic intellectual property law would "open the door" for graduate stu-

²⁸¹ *Id.* at 1300. The court applied West Virginia state law: "A fiduciary duty arises when a person assumes a duty to act for another's benefit, while subordinating his or her own personal interest to that other person."; *see also* *Elmore v. State Farm Mut. Auto. Ins. Co.*, 504 S.E.2d 893, 898, 901 (W.Va. 1998) (discussing the topic of fiduciary duty).

²⁸² *VanVoorhies III*, 278 F.3d at 1300 (citation omitted).

²⁸³ *Id.*

²⁸⁴ *Id.* at 1296.

²⁸⁵ *Id.*

²⁸⁶ *Id.*

²⁸⁷ *Id.* at 1297 ("A continuation-in-part application is just what its name implies. It partly continues subject matter disclosed in a prior application, but it adds new subject matter not disclosed in the prior application.")

²⁸⁸ *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, 278 F.3d 1288, 1297 (Fed. Cir. 2002) (emphasis added) [hereinafter *VanVoorhies III*].

dents and postdocs seeking relief in an inventorship dispute with a professor. The key difference between *Chou* and *VanVoorhies* is that *VanVoorhies* was knowledgeable of patent law and extensively involved in most decisions. All of the patent-related decisions in *Chou*'s case were made by Roizman. Therefore, as the *VanVoorhies* court points out, academic inventorship disputes are very fact specific; the outcome of the cases will depend on the relevant state law pertaining to contracts and fiduciary duties,²⁸⁹ the claimant's involvement in patenting decisions,²⁹⁰ and the claimant's knowledge and assent to university patent policies.²⁹¹

B. *The Schwartz/Mirkin Controversy*

A recent, highly-publicized dispute between a chemistry professor at Northwestern University and a former postdoc over the publishing and patenting of research highlights the confusion over authorship and inventorship law,²⁹² and demonstrates how the confusion can jeopardize patent procurement. In this dispute "[the] issue was not whether [a] researcher was afforded an opportunity to get due credit for contributing to the work, but whether one member of a group had the right to pursue the publication [and the patenting] of his scholarly work without the consent of others in the group."²⁹³

Dr. Peter Schwartz joined the research group of Dr. Chad Mirkin, a chaired professor at Northwestern University, in 1999 as a postdoc.²⁹⁴ Mirkin's group contained approximately 26 members during Schwartz's one-year tenure.²⁹⁵ Before leaving the group to accept a teaching position,²⁹⁶ Schwartz approached Mirkin about publishing the results of a research project. Mirkin claims that Schwartz came to the group with limited expertise in the area of research and only contributed to one part of the project.²⁹⁷ Schwartz, however, claims that he had an adequate back-

²⁸⁹ *Id.* at 1296.

²⁹⁰ *Id.* at 1297-1298 (discussing the assignment of applications).

²⁹¹ *Id.* at 1298.

²⁹² See *supra* Part IV; McSHERRY, *supra* note 26 at 181.

²⁹³ Ritter, *supra* note 245, at 25.

²⁹⁴ See Mirkin Research Group, Dr. Chad Mirkin, <http://www.chem.northwestern.edu/~mkngrp/> (last visited Oct. 20, 2005); The Mirkin Group, <http://www.chem.northwestern.edu/~mkngrp/group.html> (last visited Oct. 20, 2005).

²⁹⁵ Villa-Komaroff, *supra* note 245, at 8.

²⁹⁶ Ritter, *supra* note 245, at 26. Schwartz is currently a lecturer in Physics at California Polytechnic State University, San Luis Obispo. Villa-Komaroff, *supra* note 245, at 8.

²⁹⁷ Ritter, *supra* note 245, at 26 (stating Schwartz's work was incomplete).

ground and was “the only significant contributor” to the research-at-issue,²⁹⁸ although he “acknowledges the help of several colleagues in the Mirkin group who prepared [chemical reagents], helped him view results and analyze data . . . and provided other input.”²⁹⁹

Schwartz ultimately offered co-authorship to two group members and Mirkin, although it is disputed whether Schwartz did this because of prodding from Mirkin or on his own initiative. When neither Mirkin nor the group members agreed to co-author the publication,³⁰⁰ Schwartz submitted the manuscript on his own so that he could “get the science into the research community so [that] others could come to their own conclusions about the validity of his work” and protect his interests in the progress of his career.³⁰¹ The manuscript received good reviews but publication was delayed due to the dispute.³⁰² Mirkin and Schwartz ultimately reached a compromise which allowed the paper to be published with Schwartz as the sole author.³⁰³ The Mirkin group ultimately published its own paper with complete and verifiable results.³⁰⁴

Before leaving Northwestern, Schwartz met with the Vice-President for Research to express “concern that Mirkin might not include him as coauthor or inventor on work to which [Schwartz] felt he had made major contributions [while] . . . in Mirkin’s laboratory.”³⁰⁵ At that time Schwartz disclosed the work he had done. The Vice-President agreed to pursue the matter in accordance with Northwestern’s patent policy.³⁰⁶ In a subsequent communication, the Vice-President informed Schwartz “that, consistent with Northwestern’s patent policy [that] he had signed, the intellectual property belonged to Northwestern.”³⁰⁷ The University

²⁹⁸ Villa-Komaroff, *supra* note 245, at 8.

²⁹⁹ Ritter, *supra* note 245, at 25-26.

³⁰⁰ *Id.* at 26. According to Mirkin, no one from his group signed on as a co-author because the research was not ready for publishing. *Id.*

³⁰¹ *Id.*

³⁰² *Id.*

³⁰³ See P. V. Schwartz, *Meniscus Force Nanografting: Nanoscopic Patterning of DNA*, 17 *LANGMUIR* 5971 (2001) (naming only Peter Schwartz as author).

³⁰⁴ L. M. Demers et al., *Direct Patterning of Modified Oligonucleotides on Metals and Insulators by Dip-Pen Nanolithography*, *SCI. MAGAZINE*, June 7, 2002, at 1836.

³⁰⁵ Villa-Komaroff, *supra* note 245, at 10.

³⁰⁶ *Id.*

³⁰⁷ *Id.*

having not released the intellectual property,³⁰⁸ Schwartz “could [neither] file for a patent”³⁰⁹ nor “attempt to publish any articles regarding the research until the issues of invention and authorship had been resolved.”³¹⁰

Schwartz was bound by Northwestern’s patent policy,³¹¹ which obligated him to follow the university’s disclosure guidelines:

[T]o protect academic priority as well as commercial priority, any inventor making any invention or discovery subject to this policy is encouraged to report it promptly in writing and in reasonable detail to the Technology Transfer Program, preferably within 30 days of making the invention or discovery. *Public disclosure of the research results may affect patent rights.*³¹²

Submitting the manuscript started the patent clock,³¹³ which could have jeopardized Northwestern’s ability to patent the research. When the manuscript reached the addressee, this “public disclosure” became a “printed publication” for the purposes of 35 U.S.C. § 102(b), which gave the patentee one year to file a patent application.³¹⁴

³⁰⁸ It is the university’s policy that “[i]f the University does not file a patent application, the Technology Transfer Program will so notify the inventor, preferably within 180 days from full disclosure of the discovery to the University, and the University will release its rights in the invention or discovery to the inventor.” Northwestern Univ., Tech. Transfer Program, <http://www.northwestern.edu/ttp/policies/new-patent.html> (last visited Oct. 20, 2005).

³⁰⁹ Villa Komaroff, *supra* note 245, at 10.

³¹⁰ *Id.*

³¹¹ The university’s policy also states that “[a]cceptance of the Northwestern University Intellectual Property Policies is a condition of employment or enrollment. The . . . [p]olicies apply to all full-time and part-time faculty and non-faculty employees, students, and appointees or visitors who are funded by the University or who use University facilities or materials in the process of discovery or invention or in creating copyrightable materials.” Northwestern Univ., *supra* note 308.

³¹² *Id.* (emphasis added).

³¹³ See Villa-Komaroff, *supra* note 245, at 11. The relevant statute states that “[a] person shall be entitled to a patent unless . . . the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b) (2002).

³¹⁴ 35 U.S.C. § 102(b); see also Grace P. Malilay et al., *Prior Art: Silent Time Bombs That Can Blow Away Your Licensing Deals*, 8 J. ASS’N OF UNIV. TECH. MANAGERS, § 1 (1996), available at <http://www.autm.net/pubs/journal/96/3-96.html> (“An abstract or a manuscript becomes a printed publication as of the date it reaches the addressee.”). The statutory bar was also mentioned in the university’s patent policy: “United States patent law permits the filing of a patent application within one year of publication. . . . Public disclosure of the research results may affect patent rights.” Northwestern Univ., *supra* note 308.

Schwartz, however, filed a patent application *before* submitting the manuscript.³¹⁵ It has been noted that “Northwestern’s intellectual property interests . . . [were] protected when Schwartz . . . filed the related patent paperwork prior to independently pursuing publication of the work.”³¹⁶ Schwartz filed a provisional application, which has less formal requirements than a regular patent application.³¹⁷ Although Mirkin was included as a co-inventor, Schwartz acted without the consent of Northwestern or Mirkin. Even if Schwartz acted to protect his own interests in authorship or inventorship, he violated Northwestern’s patent policy. The policy even included a provision for resolving inventorship disputes.³¹⁸

VIII. RESEARCH IN ACADEMIC SCIENCE CONCLUSION

Although professors, students, and universities should share an interest in obtaining patents with correct inventorship, the statutory requirement of identifying the first and true inventor is often muddled in academic science by ego, authorship, and reputation. Thus the egalitarian, objective and factual determination of inventorship often must yield to the aforementioned nonegalitarian, subjective practices which lie at the foundation of academic science. Unfortunately, and “[d]espite claims of scientists and attorneys to the contrary, the inventive entity is not discov-

³¹⁵ Ritter, *supra* note 245, at 26.

³¹⁶ *Id.*

³¹⁷ “A provisional application for patent is a U.S. national application for patent filed in the USPTO under 35 U.S.C. §111(b). It allows filing without a formal patent claim, oath or declaration, or any information disclosure (prior art) statement. It provides the means to establish an early effective filing date in a non-provisional patent application filed under 35 U.S.C. §111(a).” U.S. PATENT AND TRADEMARK OFFICE, PROVISIONAL APPLICATION FOR PATENT, *available at* <http://www.uspto.gov/web/offices/pac/provapp.htm> (last visited Oct. 20, 2005).

³¹⁸ Disputes among inventors at Northwestern University are resolved by the Executive Director of the Technology Transfer Program and the Intellectual Property Committee:

Where there is disagreement among the inventors or the inventors and the University as to ownership rights or the retention of rights by the University, the Executive Director shall ask the Intellectual Property Committee to review the case and provide a recommendation, with supporting rationale, for resolving the disagreement. Conflicting interests will be adjudicated and, where necessary, resolved by the Steering Committee, chaired by the President.

Disagreements between inventors as to ownership rights will be resolved by the Executive Director.

Northwestern Univ., *supra* note 308.

ered but rather determined in and through social relationships.”³¹⁹

The university is in the best position to ensure that all inventors are properly identified and listed on university-sponsored patents. First, the university is in control: it promulgates an intellectual property policy which students and professors must follow. Second, the university cannot rely on professors to make proper inventorship decisions. Not only do professors rarely understand and appreciate patent law, but as one senior researcher stated in McSherry’s book, “I have to worry about my papers. That’s more important in my career than having patents.”³²⁰ Authorship is “what really matters in the academic hierarchy.”³²¹ Third, universities cannot expect postdocs and graduate students – in a traditionally-structured research group under ordinary circumstances – to challenge a professor’s inventorship decision. Universities allow and even prefer for research groups to resolve matters without external intervention, due in part to the autonomous role of the professor. Mentees like Chou, VanVoorhies, and Schwartz are the exception: most research “underlings” are neither trained in patent law nor have the courage to challenge a professor.

Many professor-mentee disputes arise not because of flaws in university patent policies, but because the interested parties do not understand it. University employees are often given a copy of a pre-invention assignment contract at the time of hire.³²² Graduate students and postdocs usually must accept the contract on a take-it-or-leave-it basis.³²³

Universities can cure the lack of understanding by explaining the university patent policy in detail to all interested parties before the pre-invention assignment contract is signed. Since faculty, graduate student, and postdoctoral “new hires” typically attend a personnel or department-sponsored orientation, it is conceivable that an administrator from the university’s technology transfer office, office of general counsel, or outside patent counsel could present a short seminar on the patent policy and inventorship law. This instruction may prevent future inventorship defects and also serve to protect the university in case an equita-

³¹⁹ McSherry, *supra* note 26, at 186.

³²⁰ *Id.* at 187.

³²¹ *Id.*

³²² See Patel, *supra* note 2, at 506.

³²³ *Id.*

ble defense is asserted when the university has to enforce the contract.³²⁴

Although universities should always strive to promulgate policies which fully comport with the law, the biggest incentive for universities to insist on correct inventorship is financial. The rise in mentee claims for sole or joint inventorship, as well as the ever-present threat of an inequitable conduct defense in a patent infringement suit, jeopardize the ability of the university to generate royalties from licensing agreements. Arguably in academia the ability of a patent to generate revenue supersedes any intellectual innovation that comes from patenting a new and useful process. To protect this revenue stream universities will have to revisit their “hands off” approach to the inner workings of the academic research group, at least with respect to determining the correct inventorship for a patent application. The university must instruct members of the academic research community on the fundamental, statutory requirements of inventorship law, and make clear that inventorship – unlike authorship – is a matter of fact which is determined independently of prestige, status, or the amount of labor contributed to the research project.

³²⁴ See *id.* at 505; *supra* Part IV.

