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Ms. Attribution: How Authorship Credit Contributes to the Gender Gap

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MS. ATTRIBUTION: HOW AUTHORSHIP CREDIT CONTRIBUTES TO THE GENDER GAP

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ABSTRACT

Misattribution plagues the practice of law in the United States. Seasoned practitioners and legislators alike will often claim full credit for joint work and, in some cases, for the entirety of a junior associate's writing. The powerful over-credit themselves on legislation, opinions, and other legal works to the detriment of junior staff and associates. The ingrained and expected practice of leveraging junior attorneys as ghost-writers has been criticized in the literature as unethical. This practice presents a distinct concern that others have yet to interrogate: misattribution disparately impacts underrepresented members of the legal profession.

This Article fills that space by offering a quantitative and theoretical analysis of gendered disparate impact of normative authorship omissions in law. Using patent practitioner signatures from patent applications and office action responses, which include a national identification number correlated to the time of patent bar admission, this work demonstrates how women's names are disproportionately concealed from the record when the senior-most legal team member signs on behalf of the team. This work illustrates that, when women reach equivalent levels of seniority, they do not overexert their power to claim credit to the same extent as their male peers. This parallels sociological findings that competence-based perception, accent bias, and perceived status differentiation between male and female colleagues can manifest in adverse and disparate attribution for women. The gender gap in the legal profession is exacerbated through this practice by falsely implying

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that women do less work, are more junior, and do not deserve as much credit as their male colleagues.

Addressing the failure of current practices requires cultural changes and regulatory action to ensure proper and equitable attribution in scholarship and industry. Legal obligations to maintain the integrity of the legal profession must include these affirmative steps to remedy *de facto* and *de jure* discrimination.

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I. INTRODUCTION

Gender, race, ethnic inequity, and the resulting harm to individuals and society in general, have long been subjects of academic research, as well as legal, political, and public discourse.[1] Many have quantified the impact of

[1] Gita Sen & Piroska Ostlin, *Gender Inequality in Health: Why it Exists and How We Can Change It*, 3 GLOB. PUB. HEALTH 1 (2008); Chaoqun Ni, Elise Smith, Haimiao Yuan, Vincent Lariviere & Cassidy R. Sugimoto, *The Gendered Nature of Authorship*, 7 SCI. ADVANCES, at https://www.science.org/doi/full/10.1126/sciadv.abe4639 (2021); Karen Pyke, *Service and Gender Inequality among Faculty*, 44 PS: POL. SCI. & POL. 85 (2011);

this resulting harm through studies addressing the wage gap, work experience gap, leadership gap, and occupation gap.[2] Scholars have repeatedly shown that the United States fosters a system where success begets success – and where early differences accumulate to form pervasive, systemic, and growing value gaps.[3]

One such gap prevails in authorship and, more broadly, credit.[4] The adage to "publish or perish" applies to jobs extending from academia to industry.[5] Plagiarism, misattribution, and ghost writing contribute to inequalities between the true author and the person receiving credit for the work.[6] Through a novel statistical analysis of normative authorship omissions

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James Reed Campbell, *The Roots of Gender Inequity in Technical Areas*, 28 J. RSCH. SCI. TEACHING 251 (1991); Deborah N. Archer, Caitlin Berry, G.S. Hans, Derrick Howard, Alexis Karteron, Shobha Mahadev & Jack Selbin, *The Diversity Imperative Revisited: Racial and Gender Inclusion in Clinical Law Faculty*, 26 CLINICAL L. REV. 127 (2019); Stephanie Bornstein, *Equal Work*, 77 MD. L. REV. 581 (2018).

[2] Gaeun Seo, Wenhao Huang & Seung-Hyun Caleb Han, *Conceptual Review of Underrepresentation of Women in Senior Leadership Positions From a Perspective of Gendered Social Status in the Workplace: Implication for HRD Research and Practice*, 16 HUMAN RES. DEV. REV. 35, 35 (2017) ("[T]he evident vertical gender segregation at top management levels still remains a common phenomenon for various organizations.").

[3] Vincent Lariviere & Cassidy R. Sugimoto, *The Gendered Nature of Authorship*, 7 SCI. ADVANCES, at https://www.science.org/doi/full/10.1126/sciadv.abe4639 (2021); Karen Pyke, *Service and Gender Inequality among Faculty*, 44 PS: POL. SCI. & POL. 85 (2011); James Reed Campbell, *The Roots of Gender Inequity in Technical Areas*, 28 J. RSCH. SCI. TEACHING 251 (1991); Deborah N. Archer, Caitlin Berry, G.S. Hans, Derrick Howard, Alexis Karteron, Shobha Mahadev & Jack Selbin, *The Diversity Imperative Revisited: Racial and Gender Inclusion in Clinical Law Faculty*, 26 CLINICAL L. REV. 127 (2019); Gaeun Seo, Wenhao Huang & Seung-Hyun Caleb Han, *Conceptual Review of Underrepresentation of Women in Senior Leadership Positions From a Perspective of Gendered Social Status in the Workplace: Implication for HRD Research and Practice*, 16 HUMAN RES. DEV. REV. 35, 35 (2017). Although scholars have written about the growth and impact of this gap on many minoritized communities, this article focuses on gender. The same policy concerns addressed in this article likely apply to assessment and reduction of disparate treatment based on race, ethnicity, and other protected classes.

[4] Chaoqun Ni, Elise Smith, Haimiao Yuan, Vincent Lariviere & Cassidy R. Sugimoto, *The Gendered Nature of Authorship*, 7 SCI. ADVANCES, at https://www.science.org/doi/full/10.1126/sciadv.abe4639 (2021).

[5] Madeleine Rauch & Shahzad Ansari, *From 'Publish or Perish' to Societal Impact: Organizational Repurposing Towards Responsible Innovation through Creating a Medical Platform*, 59 J. MGMT STUD. 61 (2022).

[6] *Plagiarism*, UNIV. OXFORD, https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism (last visited Jan. 4, 2022) ("Plagiarism is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement."; *Misattribute*, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/misattribute (last visited Jan. 4, 2022) (misattribute means "to incorrectly indicate the cause, origin, or creator of (something)"). *Ghostwrite*, MERRIAM-

in law, this paper addresses the relative lack of quantitative proof of existing systemic gender bias in the legal system. This study quantifies these systemic effects by analyzing disparate attorney attribution on legal documents.

Many have opined about the potential results of under-attribution and uneven credit in law firms. For example, an attorney will likely have more difficulty acquiring clients, achieving notoriety, and advancing in their career without proper attribution for their work at the firm.[7] Though an attribution gap would likely not immediately impact a junior associate's status at the firm, the collective impact of biased attribution over time will.

The product of the traditional law firm attribution model – where mostly white, male partners are the only credited authors on legal documents despite material contributions from more diverse junior associates – produces a legal Matthew effect, where "social advantages lead to further advantages…through time, creating widening gaps between those who have more and those who have less."[8] The corresponding legal Matilda effect ensures that "women scholars are less likely to be rewarded than men scholars with comparable accomplishments."[9] The accumulation of these effects manifests in what I have termed a 'credit snowball.'

I propose that the disparate accumulation of the credit snowball between men and women contributes to women's systemic underrepresentation at top leadership levels throughout the United States.[10] Women are capable of producing the same quality and quantity of work product as their peers.[11] Women are working towards the same goal of

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WEBSTER, https://www.merriam-webster.com/dictionary/ghostwrite (last visited Jan. 4, 2022) ("to ghostwrite is to write (a speech, a book, etc.) for another who is the presumed or credited author.").

[7] Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 100 (2006) ("Lawyers want their names on pleadings to make their reputation . . .").

[8] DANIEL RIGNEY, THE MATTHEW EFFECT: HOW ADVANTAGE BEGETS FURTHER ADVANTAGE 1 (2010) (This is also known as circumstances where "the rich get richer and the poor get poorer.").

[9] Thomas Hugh Feeley & Zhouhui Yang, *Is There a Matilda Effect in Communication Journals?*, COMMC'N REPS. 1 (2021). In this article, I define the term "woman" as a person who, regardless of their sex assigned at birth, identifies as a woman. Kalyani Kannan, *Gender Identity Terminology*, UNIVERSITY OF NORTHERN IOWA (2022). For my quantitative study, I assess gender algorithmically through first name comparisons to a pre-identified data set based on the Harvard University Dataverse, *available at* https://dataverse.harvard.edu/dataverse/WGND.

[10] Gaeun Seo, Wenhao Huang & Seung-Hyun Caleb Han, *Conceptual Review of Underrepresentation of Women in Senior Leadership Positions from a Perspective of Gendered Social Status in the Workplace: Implication for HRD Research and Practice*, 16 HUMAN RES. DEV. REV. 35, 35 (2017).

[11] Robby Berman, *Women are More Productive Than Men, According to New Research*, WORLD ECON. FORUM (Oct. 8, 2018), https://www.weforum.org/agenda/2018/10/women-are-more-productive-than-men-at-work-these-days (showing that women and men both

promotion as their peers.[12] Women are putting an equal amount of effort into achieving that goal as their peers and are objectively capable of excelling in leadership.[13] However, lack of equitable attribution perpetually disadvantages women, negatively impacts their career progression, and likely creates an insurmountable chasm between their capabilities and their prestige.[14]

Via qualitative analysis of narrative data, many scholars assume that systemic bias has been a significant root cause of this chasm.[15] However, due to the lack of hard evidence regarding causation, some have argued that the inequities are a result of random and natural factors, or factors caused by minoritized communities.[16] Scholars – especially those who qualitatively

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complete about 66% of their assigned work, but women are assigned 10% more work than men).

[12] CATHLEEN CLERKIN, WHAT WOMEN WANT—AND WHY YOU WANT WOMEN—IN THE WORKPLACE, CENTER FOR CREATIVE LEADERSHIP (2017), https://files.eric.ed.gov/fulltext/ED582896.pdf (showing 74.1% of women and 60.1% of men are interested in a promotion and 81.4% of women and 81.8% of men are interested in leadership development training).

[13] Jack Zenger & Joseph Folkman, *Research: Women Score Higher Than Men in Most Leadership Skills*, HARV. BUS. REV., June 25, 2019, https://hbr.org/2019/06/research-women-score-higher-than-men-in-most-leadership-skills (demonstrating that women are perceived to be as effective as men in leadership positions); Roslin Growe & Paula Montgomery, *Women and the Leadership Paradigm: Bridging the Gender Gap*, 17E NAT'L FORUM J. (2000) (defining discrimination-based reasons as an explanation of the organizational structures and practices discriminate against women; defining socialization-based reasons as an explanation of how the different socialization patterns for women and men impact the gender gap).

[14] Chaoqun Ni, Elise Smith, Haimiao Yuan, Vincent Lariviere & Cassidy R. Sugimoto, *The Gendered Nature of Authorship*, 7 SCI. ADVANCES, at https://www.science.org/doi/full/10.1126/sciadv.abe4639 (2021).

[15] Sophie Soklaridis, Ayelet Kuper, Cynthia R. Whitehead, Genevieve Ferguson, Valerie H. Taylor & Catherine Zahn, *Gender Bias in Hospital Leadership: a Qualitative Study on the Experiences of Women CEOs*, 31 J. HEALTH ORG. & MGMT 253 (2017).

[16] Roslin Growe & Paula Montgomery, *Women and the Leadership Paradigm: Bridging the Gender Gap*, 17E NAT'L FORUM J. (2000) (citing Suzanne E. Estler, *Women as Leaders in Public Education*, 1 SIGNS 363, 370 (1975)). Generally, the gender gap refers to a disparate representation of men and women, presenting gender as a binary. *See, eg.,* Crystal L. Hoyt, *Women, Men, and Leadership: Exploring the Gender Gap at the Top*, 4 SOC. & PERSONALITY PSYCH. COMPASS 484 (2010) ("One approach to understanding this gender gap is to examine differences between women and men on attributes relevant to leadership."). This paper defines the gender gap as a gap between people identifying as women and people not identifying as women, and attempts to include men, women, and nonbinary individuals whenever possible. Peter Hegarty, Y. Gavriel Ansara & Meg-John Barker, *Nonbinary Gender Identities*, *in* GENDER, SEX, AND SEXUALITIES: PSYCHOLOGICAL PERSPECTIVES 53 (Nancy Kimberly Dess, Jeanne Marecek & Leslie C. Bell, eds., 2018). Due to the currently available algorithmic resources regarding gender identification by name, the methods to perform empirical identification of gender rely on an algorithm based

argue the presence of systemic biases in attribution – have lamented a lack of empirical measurement of the gendered attribution phenomenon.[17] This article works to fill this void.

I chose to concentrate my study in intellectual property law because patent documents provide a unique source of quantifiable attorney attribution data within law.[18] By using over 200,000 patent records from 2016-2020, which require authorship identified both by name and sequentially-issued registration number, I have been able to identify several aspects of the gender credit disparity within patent law, while controlling both for experience level and category of work product.[19] These include growth of gender credit disparity over length of practice, a gender credit gap in highly-credited patent practitioners, and differing gender gaps by patent-specific subject matter.[20]

The data and analytics presented in this paper demonstrate that women are named authors on fewer patent applications and office action responses than their male peers, even when accounting for their practice area and years of experience.[21] For example, although 15% of all patent practitioners actively practicing in computer architecture software and information security were female, only 11% of all patent applications in that subject matter were written by women, representing a 31% difference in attribution and presence.

Moreover, the credit gap is larger for more experienced attorneys than for junior associates, suggesting small differences in early-stage attribution

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on the gender binary. I welcome critique and resources to create a more inclusive study for future publications.

[17] Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 87 (2006) ("An absence of empirical studies of credit in these fields makes it difficult to assess how well the systems operate.").

[18] In addition to requiring patent practitioners to identify themselves with a unique and sequentially-issued registration number, organizing all patent documents by subject matter, and identifying each case with a unique publication, application, and issuance number, all published patent documents are publicly available at a centralized location. *See Patent Technology Centers Management*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/patents/contact-patents/patent-technology-centers-management (last visited Jan. 4, 2022).

[19] Experiments herein use patent bar registration number as an estimate of years of experience in patent law. Type of work is defined as an office action response or patent application. Experiments control for subject matter of such work through a division of technology centers. *Patent Technology Centers Management*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/patents/contact-patents/patent-technology-centers-management (last visited Jan. 4, 2022).

[20] *See* Sections IV and V, *infra*.

[21] As detailed further in Section IV, during the patent examination process, an examiner will reject a patent application in a document known as an "office action" and a patent practitioner will respond with an "office action response." Bhaven N. Sampat & Mark A. Lemley, *Examining Patent Examination*, 2010 STAN. TECH. L. REV. 2 (2010).

and work opportunities may lead to disparately accumulating credit snowballs. For example, female practitioners with fewer than five years of patent practice experience had a per-capita average attribution rate of 9.7 responses to the United States Patent and Trademark Office (USPTO), whereas their male counterparts had a per-capita average attribution rate of 14.2 responses. This is even greater among more senior patent practitioners, with female practitioners with twenty years of patent practice experience having a per-capita average attribution rate of 17.7 responses to the USPTO and their male counterparts having a per-capita average attribution rate of 35.1 responses. Finally, my work shows that male practitioners are far more likely to over-credit themselves than female practitioners. For example, in 2017, 100% of practitioners who were credited as authors of over 300 office action responses were male.[22]

I also conducted follow-on interviews with fifteen of the most credited patent attorneys in the last five years, adding a qualitative perspective to the data analysis and demonstrating how attribution on office action responses and patent applications is intertwined with power, client relationships, and responsibilities over arguments in the patent prosecution process.[23]

Herein, I propose regulatory and cultural policy changes, informed by this combination of qualitative and quantitative research, to create prompt, meaningful, and equitable changes to the observed gender attribution disparity. For example, general amendments to the Model Rules of Professional Conduct could help to promote accurate attribution of work product and ensure attorneys equitably attribute all supervised attorneys consistent with the rules of the tribunal under which they shall appear. Patent law holds the key to attribution, in that it is already structured to require attribution for both inventors and USPTO examiners. Regulations ensuring equitable attribution of attorneys could be framed in parallel to the existing attribution requirements. Furthermore, private ordering mechanisms, including law firm reform and increasing client demand for equitable attribution, could also play a part in reducing the gender equity gap.

My article progresses as follows. Section II discusses the universal importance of attribution, and circumstances in which intellectual property law, contract law, and social norms in science, technology, and the arts protect rightful credit for work. Section III demonstrates how the law firms

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[22] As detailed in my studies below and in Appendix 1, from 2016-2020, an average of 93% of attorneys who were credited as authors of over 300 office action responses in a year were men and 6% were female. As explained further in Section IV, I used the benchmark of 300 office action responses as a proxy for a number of office action responses that would be difficult or impossible to accomplish without assistance in a calendar year.

[23] *See* Section IV, *infra*.

fail to promote rightful attribution within their own community, resulting in discrimination. It further shows how disparate attribution impacts a lawyer's career, influencing prestige, wealth, and inclusiveness in the workplace. It further demonstrates that, even if credit were only allocated evenly among partners, such a policy would negatively and disparately impact female practitioners. Sections IV and V discuss my methodology and research findings, demonstrating that female patent practitioners are not equitably credited for their work. Section VI introduces regulatory action remedies and cultural remedies to reduce the gender gap in recognition.

II. THE IMPORTANCE OF BEING NAMED

As recognized by Roberta Rosenthal Kwall, "[P]eople typically desire recognition for their accomplishments" in every industry.[24] Proper attribution for work is a crucial feature of US law and educational norms.[25] Authorship is a currency; authorship credit for completed work is fundamentally intertwined with values of honesty, ethics, and integrity.[26] Recognition for work may lead to rank advancement or tenure, funding in experiments, future job prospects, and a reputation linked to the contents of the work.[27]

Catherine Fisk highlights that "[if] professional reputation were property, it would be the most valuable property that people own."[28] From Hollywood screen credits to the recognition of authorship and inventorship, "attributions of creativity and competence" play a core role in many "high velocity labor markets."[29] She adds that attribution serves four functions: 1) "a reward and an incentive for future creativity", 2) "discipline that punishes unacceptable work", 3) a means for "consumers to assess quality and sellers

[24] Roberta Rosenthal Kwall, *The Attribution Right in the United States: Caught in the Crossfire Between Copyright and Section 43(A)*, 77 WASH. L. REV. 985, 985 (2002).
[25] Claire Johnson, *Questioning the Importance of Authorship*, 28 J. MANIPULATIVE & PHYSIOLOGICAL THERAPEUTICS 149 (2005).
[26] Evan D. Kharasch, Michael J. Avram, Brian T. Bateman, J. David Clark, Deborah J. Culley, Andrew J. Davidson, Timothy T. Houle, Yandong Jiang, Jerrold H. Levy, Martin J. London, Jamie W. Sleigh & Laszlo Vutskits, *Authorship and Publication Matters: Credit and Credibility*, 135 ANAESTHESIOLOGY 1 (2021); Claire Johnson, *Questioning the Importance of Authorship*, 28 J. MANIPULATIVE & PHYSIOLOGICAL THERAPEUTICS 149 (2005).
[27] Claire Johnson, *Questioning the Importance of Authorship*, 28 J. MANIPULATIVE & PHYSIOLOGICAL THERAPEUTICS 149 (2005).
[28] Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 87 (2006).
[29] *Id*. (crediting Alan Hyde, *Working in Silicon Valley: Economic and Legal Analysis of a High-Velocity Labor Market*, at xi-xii (2013) for the term).

to create a brand" and 4) "a humanizing function, linking the products of work to the reality of human endeavor."[30]

These functions ebb and flow throughout almost every industry and aspect of life. From marital fights regarding housework recognition to bridge names to authorship, humans require attribution to function, feel accepted, and trust others.[31] Law recognizes this need, providing several parallel frameworks for asserting and assessing proper attribution.[32]

Although certainly imperfect, US intellectual property laws, contract enforcement, and social norms form a credit-trifecta of means to enforce attribution and support the adage of "credit where credit is due." Moreover, though practical hindrances of power dynamics and financial imbalances create the system of misattribution ubiquitous in modern society, the symbolism of this trifecta demonstrates – at a minimum – an attempt at fair attribution.[33]

A. Credit in Intellectual Property Law

United States intellectual property law compels patent inventorship and examiner attribution.[34] As discussed by many scholars including Jane Ginsburg, John Cross, Christopher Sprigman, Chris Buccafusco, and Zachary Burns, laws in patents and copyright afford some attribution rights to creators, especially for visual artists and inventors – though certain laws are of limited scope compared to their European counterparts.[35] For example,

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[30] *Id*.

[31] Erica Buist, *'She Doesn't Notice What I've Done': Five Couples on How They Split the Housework*, GUARDIAN (Feb. 17, 2018, 05:00 EST), https://www.theguardian.com/inequality/2018/feb/17/doesnt-notice-five-couples-how-split-housework; Jon Campbell, *Tappan Zee Bridge Gets New Name: The Governor Mario M. Cuomo Bridge*, IOHUD (June 29, 2017, 3:22 PM ET), https://www.lohud.com/story/news/politics/politics-on-the-hudson/2017/06/29/tappan-zee-bridge-mario-cuomo/103289920/.

[32] *See* JESSICA SILBEY, THE EUREKA MYTH: CREATORS, INNOVATORS, AND EVERYDAY INTELLECTUAL PROPERTY (2015) (noting specifically that "the legal regulation of reputation is challenging, inconsistent, controversial, and complex.").

[33] This, as shown in Section III, is not present in the traditional law firm structure.

[34] Jane C. Ginsburg, *The Right to Claim Authorship in U.S. Copyright and Trademark Law*, 41 HOUS. L. REV. 263 (2004) (explaining that the United States attribution rights are not as strong as European rights because there are no moral rights in U.S. copyright law); Sandip H. Patel, *Graduate Students' Ownership and Attribution Rights in Intellectual Property*, 71 IND. L. J. 481 (1996); Daniel E. Martin, *Culture and Unethical Conduct: Understanding the Impact of Individualism and Collectivism on Actual Plagiarism*, 43 MGMT. LEARNING, 261 (2011).

[35] Jane C. Ginsburg, *Have Moral Rights Come of (Digital) Age in the United States*?, 19 CARDOZO ARTS & ENT. L.J. 9 (2001); John T. Cross, *An Attribution Right for Patented Inventions*, 37 U. DAYTON L. REV. 139 (2011); Christopher Jon Sprigman, Christopher Buccafusco & Zachary Burns, *What's a Name Worth?: Experimental Tests of the Value of Attribution in Intellectual Property*, 93 B.U. L. REV. 1389 (2013) (although intellectual

patent law requires proper attribution of inventors; if those who deserve credit are not properly afforded their right of attribution, there can be devastating consequences for those who maliciously and improperly credited – or failed to credit – a contributor.[36]

Patent law incorporates an attribution right, focused on protecting an inventor's identity.[37] The process of obtaining a patent, in its most common form, has three main actors: the patent practitioner, the inventor, and the examiner at the USPTO. The inventor is responsible for conceiving of the invention and disclosing the invention to the patent practitioner.[38] The patent practitioner is then responsible for drafting a patent application and submitting it to the USPTO.[39] Once submitted, the examiner will review the document and potentially engage in a series of office actions and responses with the patent practitioner until allowing or rejecting the patent application.[40] Patent law and USPTO internal regulations currently protect the attribution of two of these actors: the inventor and the examiner.

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property law gives "only very limited protection to a creator's interest in attribution," and generally does not protect the rights of an author or inventor to monetize the product, marketing credit, and efforts to reduce to practice, it does require credit for certain individuals, such as inventors on patent applications.).

[36] *35 U.S.C. §256 Actions in District Court for Correction of Inventorship of Patents*, J.D. PORTER LLC (2016), https://www.jdporterlaw.com/intellectual-property-law/990-2/ (last visited Jan. 4, 2022). Mark Malek, *The Effect of Listing an Improper Inventor on a Patent Application*, WIDERMAN MALEK (June 10, 2013), https://www.legalteamusa.net/improper-inventor-on-a-patent-application/ (showing that, because an inventor must sign a declaration at the time of filing, charges of fraudulent inclusion are relatively easy to prove in many cases); *In re* VerHoef, No. 2017-1976 (Fed. Cir. May 3, 2018) ("did not himself solely invent the subject matter sought to be patented.").

[37] As opposed to the attribution right protected in copyright law, which focuses on protecting those who reduce an idea to practice in their artistic expression. *The Artificial Inventor Behind this Project*, ARTIFICIAL INVENTORS, https://artificialinventor.com/dabus/ (last visited Jan. 4, 2022); Jordana Goodman, *Homography of Inventorship: DABUS and Valuing Inventors*, 20 DUKE L. & TECH. J. 1 (2022) (showing that inventorship recognition for non-human inventors, such as the Device for the Autonomous Bootstrapping of Unified Sentience is still up for debate).

[38] U.S. PAT. & TRADEMARK OFF., MPEP §2109 (9th ed. 2020). I note that the patent practitioners in this study are most likely patent attorneys unless otherwise stated.

[39] Tabrez Y. Ebrahim, *Automation & Predictive Analytics in Patent Prosecution: USPTO Implications & Policy*, 35 GA. ST. U. L. REV. 1185 (2019).

[40] *Become a Patent Examiner*, U.S. PAT & TRADEMARK OFF. (Nov. 4, 2021, 6:20 EDT), https://www.uspto.gov/jobs/become-patent-examiner. An examiner will reject a patent application in an office action, a patent practitioner will respond with an office action response, and the cycle of rejection and response can continue until the application is either allowed (and likely issues as a patent) or is abandoned. Bhaven N. Sampat & Mark A. Lemley, *Examining Patent Examination*, 2010 STAN. TECH. L. REV. 2 (2010).

Patent law requires that all inventors of an invention be named on the application.[41] Inventors must declare that they "believe that [they are] the original inventor or an original joint inventor of a claimed invention in the application," with any willful false statement punishable "by fine or imprisonment of not more than five (5) years or both."[42] Failure to "set forth the correct inventorship" can result in rejection of the application or invalidation of the patent.[43] Furthermore, before the America Invents Act was passed in 2012, if someone was maliciously not included as an inventor, they had the right to sue and invalidate the patent because there was no right to correct inventorship if the error had been made purposefully.[44]

Examiners also identify themselves on every response they write. In their early careers, examiners are considered junior or assistant examiners and their applications are co-signed by a primary or senior examiner.[45] Examiners become primary examiners through a "rigorous internal review process."[46] They will exclusively sign their names on an office action response only if they were the sole examiner writing the response.[47] If a junior

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[41] U.S. PAT. & TRADEMARK OFF., MPEP §2109 (9th ed. 2020).

[42] *Declaration (37 CFR 1.63) for Utility or Design Application Using an Application Data Sheet (37 CFR 1.76)*, U.S. PAT & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0001.pdf.

[43] U.S. PAT. & TRADEMARK OFF., MPEP §2109 (9th ed. 2020); William Honaker, *Getting a Patent: The Devastating Consequences of Note Naming All Inventors*, IP WATCHDOG (Oct. 21, 2020), https://www.ipwatchdog.com/2020/10/21/getting-patent-devastating-consequences-not-naming-inventors/id=126534/#:~:text=If%20inventors%20have%20been%20improperly,USPTO)%20or%20by%20court%20order.

[44] U.S. PAT. & TRADEMARK OFF., MPEP §2109 (9th ed. 2020); William Honaker, *Getting a Patent: The Devastating Consequences of Note Naming All Inventors*, IP WATCHDOG (Oct. 21, 2020), https://www.ipwatchdog.com/2020/10/21/getting-patent-devastating-consequences-not-naming- inventors/. Daniel M. Cislo, *What Should You do if an Inventor Refuses to Sign a Declaration for Your Patent Application?*, CISLO & THOMAS LLP: IP BLOG (June 26, 2018), https://cisloandthomas.com/what-should-you-do-if-an-inventor-refuses-to-sign-a-declaration-for-your-patent-application/ (noting that, if an inventor refuses to sign a declaration, they must still be attributed on the application as an inventor and someone must file a substitute statement.); https://www.finnegan.com/en/insights/articles/correcting-inventorship-during-litigation-when-why-how.html.

[45] Dennis J. Parad, *One vs. Two Examiners and Why it Matters*, MORSE: FIRM NEWS (Aug. 16, 2021), https://www.morse.law/news/one-vs-two-examiners-and-why-it-matters/.

[46] David S. Kim & Glenn M. Kubota, *Behind the Scenes at the USPTO: Accounting for the Supervisory Patent Examiner*, LEXOLOGY (July 14, 2011), https://www.lexology.com/library/detail.aspx?g=ef96f684-f70e-4860-8bbd-84300761e3a6.

[47] *Id*.

or assistant examiner worked on the response, their name will be written on the document alongside the reviewing primary examiner.[48]

Attorneys do not have the same attribution requirements, but patent law does regulate their attribution to a limited extent. The regulations specify that "a patent practitioner of record" must be named on legal documents sent to the USPTO.[49] Forms associated with applications and responses to the USPTO further simultaneously require and restrict attorney attribution, with one signature line at the bottom of many USPTO form documents.[50]

Copyright law incorporates attribution rights as well, albeit to a far lesser extent than patent law. The term of copyright is contingent upon authorship, with works made for hire and anonymous works have a duration of copyright that differs for work attributed to the author. That is, the copyright term for an anonymous work is the shorter of 95 years from first publication or 120 years from creation.[51] However, for works created after January 1, 1978, "copyright protection lasts for the life of the author plus an additional 70 years."[52] Copyright also protects the rights of certain visual artists, not only to claim authorship of their work, but also to "prevent the use of his or her name as the author of any work of visual art which he or she did not create."[53] Finally, the creative commons license – a copyright license tied to millions of digital objects accessible over the internet – permits royalty-free uses of licensed copyright work contingent upon following "directions concerning attribution."[54] This further supports Catherine Fisk's assertion

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[48] *See id*. ("You can tell if a PE [Primary Examiner] is handling your application if the Office Action only has the PE's name signed on it, along with the title of the Primary Examiner.").

[49] *See* 37 C.F.R. § 1.33 (2013) (currently, most forms and papers filed in conjunction with the patent application must be signed by "(1) A patent practitioner of record; (2) A patent practitioner not of record who acts in a representative capacity under the provisions of § 1.34; or (3) The Applicant…").

[50] *See id*.; *See also Application Data Sheet*, U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0014.pdf (noting that there is only one registered attorney or agent who can sign the application data sheet).

[51] *How Long Does Copyright Protection Last?*, U.S. COPYRIGHT OFF., https://www.copyright.gov/help/faq/faq-duration.html (last visited Jan. 4, 2022) (showing that works made for hire and anonymous works hold copyright protection with a length of 95 years from first publication or 120 years from creation (whichever is shorter), whereas works created after January 1, 1978 that attribute the author have copyright protection that "lasts for the life of the author plus an additional 70 years.").

[52] *See id*.

[53] Christopher Jon Sprigman, Christopher Buccafusco & Zachary Burns, *What's a Name Worth?: Experimental Tests of the Value of Attribution in Intellectual Property*, 93 B.U. L. REV. 1389 (2013); 17 U.S.C. § 106A.

[54] Michael W. Carroll, *W(h)ither the Middleman: The Role and Future of Intermediaries in the Information Age: Creative Commons and the New Intermediaries*, 2006 Mich. St. L. Rev. 45, 47 (2006).

that many creators prioritize their right to claim name rights over the right to control the work itself, only requiring proper authorship credit as a last barrier to use of the work.[55]

B. Credit in Contract Law

One of the easiest ways to ensure an entity receives recognition for their work is to contractually obligate the recognition. From film to academia, workers have up-front discussions about authorship and research plans to mitigate later disputes.[56] These discussions are memorialized in a contract, obligating each signatory to follow through with their promises. Furthermore, members will join organizations and, as part of that membership, the organizations will advocate for members' attribution rights.[57]

For example, the Writers Guild of America (WGA) and film unions have created their own mechanisms to decide who receives credit for artistic productions.[58] "The collective bargaining agreement between the WGA and the Alliance of Motion Picture & Television Producers states that 'credits for screen authorship shall be given only pursuant to the terms of and in the manner prescribed in' the Theatrical Schedule A, a thirty page addendum to the Basic Agreement."[59] Disputes are also resolved through interpretation of

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[55] Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, (2006).

[56] Tim Albert & Elizabeth Wager, *How to Handle Authorship Disputes: A Guide for New Researchers*, *in* COMM. PUB. ETHICS 2003 ANNUAL REPORT (Caroline White, ed., 2004), https://publicationethics.org/files/2003pdf12_0.pdf (showing that requiring that all authors agree on the order and division of their names and that the contributions of each author be outlined specifically, authors will be discouraged from misconduct); Jonathan M. Levitt & Mike Thelwall, *Alphabetization and the Skewing of First Authorship Towards Last Names Early in the Alphabet*, 7 J. INFORMETRICS 575 (2013); Justin Solomon, *Programmers, Professors, and Parasites: Credit and Co-Authorship in Computer Science*, 15 SCI. & ENG'G ETHICS 467 (2009); Catherine L. Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 80 (2006) ("As compared to some other credit systems, the Hollywood guild-negotiated credit system rates fairly high in terms of transparency, participation, equality, and due process.").

[57] *Code of Conduct: Introduction*, WRITERS GUILD OF AM. E. (Feb. 21, 2019), https://www.wgaeast.org/negotiations/amba/code-of-conduct-introduction/. Mekado Murphy, *Waiting for the Credits to End? Movies are Naming More Names*, N.Y. TIMES, May 26, 2017, https://www.nytimes.com/2017/05/26/movies/why-end-credits-in-movies-are-so-long.html.

[58] *Screen Credits Referendum* (2021), https://www.wga.org/uploadedfiles/the-guild/elections/screen_credits_explainer.pdf; James Adrian Mikael Crawford, Film Credit (Aug. 2013) (Ph.D. dissertation, University of Southern California), ProQuest Dissertations Publishing, *available at* https://www.proquest.com/docview/1458631125?pq-origsite=gscholar&fromopenview=true.

[59] Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 80 (2006).

a manual.[60] Overall, the Hollywood system relies on proactive measures like contract law, union regulations, and public press, rather than intellectual property law, as bases for outlining and enforcing attribution.[61]

Contracts can go beyond requiring credit, allowing workers to not only have a right of attribution[62], but rights of dissemination and ownership. With the exception of the Visual Artists Rights Act, intellectual property law generally does not allow the inventor or author to control the dissemination of a work.[63] The control of dissemination often falls to the intellectual property owner and is enforced through contract law.[64]

C. Credit in Social Norms

Ethical attribution forms the basis for work and academic integrity policies in the United States.[65] Constant calls for universally accepted guidelines for paper authorship credentials and movie credits belie the assertion that there is no moral code in academia or film.[66] "Writers, musicians, visual artists, filmmakers, and others" stress "the importance of the moral rights of integrity and attribution."[67] In addition to monetary incentives, attribution contributes to honor and pride, and "[t]o be recognized for one's work is a basic human desire."[68] Though policies regarding plagiarism may differ across industries and consequences may not be legally

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[60] *See id*.

[61] *See id*. ("As compared to some other credit systems, the Hollywood guild-negotiated credit system rates fairly high in terms of transparency, participation, equality, and due process. Transparency is relatively high because the rules are written down and disputes over credit are covered in the press.").

[62] Laura A. Heymann, *A Name I Call Myself: Creativity and Naming*, 2 U.C. IRVINE L. REV. 585 (2012) ("When an author seeks attribution for her work, after all, she is seeking a public acknowledgment that the work belongs to her in some sense.").

[63] Greg Lastowka, *Digital Attribution: Copyright and the Right to Credit*, 87 B.U. L. REV. 41, (2007) ("A significant right of authorial attribution exists at only one place in the copyright law: the Visual Artist Rights Act of 1990 (VARA)."); Pub. L. 101–650 title VI, 17 U.S.C. § 106A.

[64] Greg Lastowka, *Digital Attribution: Copyright and the Right to Credit*, 87 B.U. L. REV. 41, (2007) ("Of course, authors contracting with publishers might exchange their proprietary rights for express attribution protections.")

[65] Rachel Anne Kornhaber, Loyola M. McLean & Rodney J. Baber, *Ongoing Ethical Issues Concerning Authorship in Biomedical Journals: an Integrative Review*, 10 INT. J. NANOMEDICINE 4837 (2015).

[66] *See id*.; *see also How Many Movies Credits Go Uncredited?*, STEPHEN FELLOWS (Oct. 24, 2016), https://stephenfollows.com/uncredited-movie-credits/.

[67] U.S. COPYRIGHT OFF., AUTHORS, ATTRIBUTION, AND INTEGRITY: EXAMINING MORAL RIGHTS IN THE UNITED STATES 34 (2019), https://www.copyright.gov/policy/moralrights/full-report.pdf.

[68] *See id*.

enforceable, many industries enforce penalties of improper attribution, such as expulsion, firing, or license revocation.[69]

This is the power of the social norms aspect of private ordering, helping to remedy the deficiencies of intellectual property law and contract law.[70] "Private ordering mechanisms rely upon contractual or technical means to enforce owners' rights but also to inflate their rights so as to cover uses that have been held legally non-infringing."[71] Herein, I highlight recent scholarship showing how academics, comedians, film workers, and even clowns have created socially normative mechanisms designed to preserve their desire for – and right to – credit for their contribution.

Scientific authorship is imperative for "advancement in clinical and academic careers."[72] However, power dynamics between a graduate student and their faculty advisor can create tense situations, which are "frequent source[s] of student stress and anxiety," and can prevent students from fighting for their contractually obligated right to attribution. [73] Noting not only that students lack the power to fight for rightful credit, but also that power dynamic differences can lead to pervasive underrepresentation of female academic authorship, organizations like the NIH have established internal proceedings for authorship dispute resolution. [74] For example, to mitigate power dynamic and individual struggles, a mediator can help find a resolution through a confidential mediation process, a peer panel can determine a resolution, or a director can render a binding decision.[75] Furthermore, "[i]n 2014, the first formal taxonomy was developed for scientific research—CRediT, the Contributor Role Taxonomy?", where

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[69] *See id*.

[70] Niva Elkin-Koren, *Intellectual Property and Public Values: What Contracts Cannot Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 FORDHAM L. REV. 375 (2005) ("Private ordering - self-regulation voluntarily undertaken by private parties - turns out to be an attractive option.").

[71] Severine Dusollier, *Sharing Access to Intellectual Property Through Private Ordering*, 82 CHI.-KENT L. REV. 1391 (2007).

[72] Andras Pinter, *Changing Trends in Authorship Patterns in the JPS: Publish or Perish*, 48 J. PEDIATRIC SURGERY 412, 412 (2013); *see also* Jordana R. Goodman, *Sy-STEM-ic Bias: An Exploration of Gender and Race Representation on University Patents* BROOKLYN L. REV. (2022) (explaining the importance of patent gaps).

[73] COMM. ON REVITALIZING GRAD. STEM EDUC. FOR THE 21ST CENTURY, NAT'L ACADS. OF SCI., ENG'G, & MED., GRADUATE STEM EDUCATION FOR THE 21ST CENTURY 83 (Alan I. Leshner & Layne Scherer, eds., 2018).

[74] Matthew B. Ross, Britta Glennon, Raviv Murciano-Goroff, Enrico Berkes, Bruce A. Weinberg, Julia Lane, *Rosalind Franklin at Scale: Credit and Women in Science*, NATURE (forthcoming 2022).

[75] NAT'L INSTITUTES HEALTH, PROCESSES FOR AUTHORSHIP DISPUTE RESOLUTION, https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training/processes-authorship-dispute-resolution (last updated Dec. 11, 2015, 5:11 PM).

journals require not only the names of each author, but the specific "documentation of the [type of] contribution of individual researchers."[76] Although imperfect, these resources can help reduce the length and frequency of authorship disputes by providing neutral guidance and clear labeling of roles.[77]

The importance of attribution – and socially normative enforcement of attribution – extends to law academia and politics. Citing Professor David Hoffman, Jonathan Adler notes the Bluebook's default use of "*et al*." unfairly omits authors of co-authored works "who are not listed first and no not get credit for their work."[78] Some law reviews, including *Columbia Law Review* and *Case Western Reserve Law Review*, "adopt[] an alternative default rule of listing all co-authors" and emphasize the importance of naming every contributor.[79]

Women in the White House under President Obama "adopted a meeting strategy they called 'amplification': When a woman made a key point, other women would repeat it, giving credit to its author."[80] Women ensured each other's voices were not ignored by forcing "the men in the room to recognize the contribution – and den[y] them the chance to claim the idea as their own."[81] This fight resulted in women gaining "parity with men in Obama's inner circle" during his second term.[82]

There also exists a hierarchy of fighting for attribution in the arts. Guilds and unions in Hollywood fight to protect attribution rights for those working in movies and film.[83] Dotan Oliar and Chris Sprigman explain that

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[76] Alex O. Holcombe, Marton Kovas, Frederik Aust, Balazs Aczel, *Documenting contributions to scholarly articles using CRediT and Tenzing*, 15 PLOS ONE 1, 2 (2020).
[77] COMM. ON REVITALIZING GRAD. STEM EDUC. FOR THE 21ST CENTURY, NAT'L ACADS. OF SCI., ENG'G, & MED., GRADUATE STEM EDUCATION FOR THE 21ST CENTURY 83 (Alan I. Leshner & Layne Scherer, eds., 2018).
[78] Jonathan H. Adler, *Law Review Editors: List Their Names (In Citations)*, THE VOLOKH CONSPIRACY (2020), https://reason.com/volokh/2020/07/24/law-review-editors-list-their-names-in-citations/.
[79] *See id*.
[80] Emily Crockett, *The Amazing Tool that Women in the White House Used to Fight Gender Bias*, Vox (Sept. 14, 2016, 1:10PM EDT), https://www.vox.com/2016/9/14/12914370/white-house-obama-women-gender-bias-amplification.
[81] *See id*.
[82] *See id*.
[83] *How to Order Movie Credits: Guide to Opening and End Credits*, MASTERCLASS: ARTS & ENT. (May 13, 2021), https://www.masterclass.com/articles/how-to-order-movie-credits#basic-order-for-closing-creditsl; *but see* - Mekado Murphy, *Waiting for the Credits to End? Movies are Naming More Names*, N.Y. TIMES (May 26, 2017), https://www.nytimes.com/2017/05/26/movies/why-end-credits-in-movies-are-so-long.html; Catherine Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 80 (2006) ("Because the system costs significant time and effort, the credit system seems to

"in stand-up comedy, social norms substitute for intellectual property law" and are "enforced with sanctions that start with simple badmouthing and may escalate from refusals to work with an offending comedian up to threats of, and even actual, physical violence."[84] David Fagundes and Aaron Perzanowski explore the "Clown Egg Register and its surrounding practices from the perspective of law and social norms," explaining the anti-appropriation norm of "by unwritten agreement, clowns never copy each other's make-up."[85]

Together, these norms do not achieve perfect attribution of creators, but instead demonstrate the importance of credit and the ongoing fight to properly credit contributions.

III. LAW FIRMS: STRUCTURE AND POLICIES

The fight for equitable creative attribution is incredibly imbalanced in law firms. I hypothesize that this imbalance – and the resulting disparate attribution – is one of the reasons why "law is among the least diverse of professions."[86] This section discusses law firm structure and how attribution for work within this structure can be both an indicator and product of law firm biases. Through a law firm hierarchy that fails to empower junior associates, a promotion system inextricably tied to both internal and external recognition, and neutral policies of attribution impregnated with both bias and a mathematical certainty of disparate impact, scholars and practitioners can no longer ignore the workplace inequalities manifesting in disparate authorship representation in law.

A. The Dynamics of Law Firm Structure

work only for those contributors (directors, producers, writers, and actors) for whom the financial value of credit is large enough to make it economically sensible to invoke the whole cumbersome process."); Jan Svelch, *Developer Credit: Para-Industrial Hierarchies of In-Game Credit Attribution in the Video Game Industry*, 0 GAMES & CULTURE 1 (2021) (discussing video gamers not receiving credit attribution).

[84] Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787 (2008).

[85] David Fagundes & Aaron Perzanowski, *Clown Eggs*, 94 NOTRE DAME L. REV. 1313 (2019).

[86] Elyn R. Saks, *The Least Diverse Profession: Comment on Blanck, Hyseni, and Altunkol Wise's National Study of Diversity and Inclusion in the Legal Profession*, 47 AM. J. L. & MED. 88 (2021).

On the whole, Paul Cravath's law firm model represents the structure of most large law firms in the United States today.[87] The traditional legal trajectory of firm promotion is as follows: (1) a summer associate is hired from a pool of applicants during their second year of law school (2) the summer associate is evaluated during their summer internship and the summer associate is hired to work at the firm after they finish their third year of law school (3) the now-law school graduate joins the law firm as a junior associate and (4) the junior associate receives regular, yearly promotions until they become a senior associate and then a partner at the law firm.[88]

Along this path, not all are promoted or compensated equitably. "Women still lag far behind their male colleagues in their promotion to equity partnership and senior leadership roles, as well as in the amount of compensation they are paid."[89] Women made up only 19% of equity partners, 32.4% of law school deans, and 26.4% of general counsel at Fortune 500 companies in 2018, despite ABA accredited law schools currently enrolling more female students than male students.[90] The National Association of Women Lawyers Challenge of 2006 – to "increase the number of women equity partners, women chief legal officers, and women tenured law

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[87] Fern S. Sussman, *The Large Law Firm Structure—An Historic Opportunity*, 57 FORDHAM L. REV. 969 (1989) (large law firms are usually firms with over 350 attorneys); Jennifer Haupt, *Does Law Firm Size Matter?*, SUPER LAWYERS (Aug. 7, 2019, updated Mar. 8, 2021), https://www.superlawyers.com/new-york/article/does-law-firm-size-matter/548e82c9-8160-4ff5-96ea-3cb06b4243d5.html.

[88] Legally Blonde and Broke, *Everything You Need to Know About OCI: On-Campus Interviewing*, A.B.A. STUDENT LAWYER BLOG (July 1, 2018), https://abaforlawstudents.com/2018/07/01/everything-you-need-to-know-about-oci-on-campus-interviewing/; *Summer Associate Program*, HOLLAND & KNIGHT, https://www.hklaw.com/en/careers/law-students/summer-associate-program (last visited Jan. 4, 2022); Melanie Lasoff Levs, *The Partnership Track: Everything You Didn't Learn in Law School*, MINORITY CORP. COUNSEL ASS'N. (2005), https://www.mcca.com/mcca-article/the-partnership-track/. Roles including part-time counsel, of counsel, and temporary attorneys will not be addressed in this article.

[89] Lauren Stiller Rikleen, *Women Lawyers Continue to Lag Behind Male Colleagues*, 100 WLJ 25, 26 (2015).

[90] Ian Pisarcik, *Women Outnumber Men in Law School Classrooms for Third Year in a Row, but Statistics Don't Tell the Full Story*, JURIST (Mar. 5, 2019, 10:10:58 AM), https://www.jurist.org/commentary/2019/03/pisarcik-women-outnumber-men-in-law-school/; *see also* Peter Blanck, Fitore Hyseni & Fatma Altunkol Wise, Diversity and Inclusion in the American Legal Profession: Discrimination and Bias Reported by Lawyers with Disabilities and Lawyers who Identify as LGBTQ+, 47 AM. J. L. & MED. 9 (2021) ("Specific diversity-oriented studies from 2015 to 2020 have acknowledged that the legal profession remains among the least diverse professions in the United States, and particularly at senior and leadership levels.").

professors to at least 30 percent by 2015" – has become a story of "institutional failure."[91]

Law firms operate in a ranked system, with attorneys holding two main positions: associates and partners.[92] Associates are at-will employees who are "relatively young and inexperienced in the practice of law as compared to partners."[93] Partners are responsible for the firm – for bringing work in, hiring attorneys, promotions, mentorship, pay bonuses, and more.[94] To become a partner, an associate must participate in a tournament-style promotion process, where the associate works for six to ten years before being promoted. [95]

This promotion pipeline should be thought of as a leaky funnel, rather than an equally accessible ladder of opportunity. Currently, law firm associates outnumber their partners 2.5 to 1.[96] There is no pipeline that would allow all the current law firm associates to become partners, so partners must make difficult "cuts" along this pipeline, determining that certain individuals just are not partner material.[97] With other structural barriers, like tenure and the establishment of two tiers of partnership (equity and non-equity), it is becoming increasingly difficult for minoritized individuals to achieve the "partner" title.[98] This is a competitive pipeline and, to succeed, an associate must impress partners with their work.[99]

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[91] Ian Pisarcik, *Women Outnumber Men in Law School Classrooms for Third Year in a Row, but Statistics Don't Tell the Full Story*, JURIST (March 5, 2019, 10:10:58 AM), https://www.jurist.org/commentary/2019/03/pisarcik-women-outnumber-men-in-law-school/.

[92] Douglas R. Richmond, *Professional Responsibilities of Law Firm Associates*, 45 BRANDEIS L.J. 199 (2007).

[93] *See id*.

[94] On Balance Search Consultants & Shari Davidson, *Not All Partners Are Created Equal: A Look at Partner Compensation*, JD SUPRA (May 14, 2021), https://www.jdsupra.com/legalnews/not-all-partners-are-created-equal-a-7136140/.

[95] Mitu Gulati & David B. Wilkins, *Why Are There So Few Black Lawyers in Corporate Law Firms? An Institutional Analysis*, 84 CAL. L. REV. 493 (1996).

[96] NAT'L ASS'N. L. PLACEMENT, 2020 REPORT ON DIVERSITY IN U.S. LAW FIRMS (Feb. 2021), https://www.law.berkeley.edu/wp-content/uploads/2021/02/2020_NALP_Diversity_Report.pdf; Elaine Spector & LaTia Brand, *Data Analysis of Diversity in the Patent Practice by Technology Background and Region*, A.B.A. (Sept. 16, 2020), https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2020-21/september-october/diversity-patent-law-data-analysis-diversity-patent-practice-technology-background-region/.

[97] A.B.A. Comm'n on Women in the Profession, *Women of Color: Why Are They Finding the Door Instead of the Glass Ceiling*, 15 PERSPECTIVES 1 (2006).

[98] Danielle M. Evans, *Non-Equity Partnership: A Flawed Solution to the Disproportionate Advancement of Women in Private Law Firms*, 28 WOMEN'S RTS. L. REP. 93 (2007).

[99] *See id*.

Like any job, this is a subjective process. Partners will use "subjective judgments about personality and fit" when evaluating and hiring new attorneys to their firm.[100] Associates are expected to outshine others by billing more hours, acquiring more clients, and producing better-quality work product. Outstanding associates can be "trusted" by their supervising partners to work alone or with minimal supervision.

As Kevin Woodson eloquently demonstrates, there is a rich body of scholarship showing "the tendencies of individuals to favor others who share certain social backgrounds and cultural interests."[101] As highlighted in Marlene Koffi's work, women in particular can be disadvantaged by this, in that women's work is less likely to be recognized by men.[102] Junior associates whose social backgrounds and cultural interests mirror the partners are more likely to be entrusted with greater responsibility, a larger diversity of work product, and receive better mentorship opportunities and promotions.[103] Though these decisions may not "carry immediately observable career consequences," the cumulative consequences of incremental and inchoate decisions can impact an attorney's career and can constitute "a pernicious form of institutional discrimination."[104]

B. Discrimination in Law Firm Attribution

Law firm policies and customs create a stratified system wherein historically oppressed groups struggle to achieve the same employment economic value as their white and male peers.[105] The legal profession hierarchy, especially in large law firms, impacts promotion and opportunity

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[100] Mitu Gulati & David B. Wilkins, *Why Are There So Few Black Lawyers in Corporate Law Firms? An Institutional Analysis*, 84 CAL. L. REV. 493 (1996).

[101] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016).

[102] *See* Marlene Koffi, *Gendered Citations at Top Economic Journals*, 111 AEA PAPERS AND PROCEEDINGS 60 (2021).

[103] Cynthia Fuchs Epstein, Robert Saute, Bonnie Oglensky & Martha Gever, *Glass Ceilings and Open Doors: Women's Advancement in the Legal Profession*, 64 FORDHAM L. REV. 291 (1995); *see* Zoom Interview (Dec. 28, 2021) (remarking that he often felt a "lack of fit" as an Asian associate in a predominantly white firm. "Partnership is a weird scene. It's sort of like…you have to have a clique to speak for you. Culturally, if you align with someone and your interests align, it makes it a little easier to be part of the partnership.").

[104] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016).

[105] SUBHASH RAJORIA, FUNDAMENTALS OF HUMAN RESOURCE DEVELOPMENT 60 (2019) ("the aggregate stock of competencies, knowledge, social, and personal attributes embodied in the ability to create intrinsic and measurable economic value."); Jerlando F. L. Jackson, *Race Segregation Across the Academic Workforce: Exploring Factors that May Contribute to the Disparate Representation of African American Men*, 51 AM. BEHAV. SCI. 1004 (2008).

for recognition.[106] Specifically, decisions to allocate credit among partners and associates can disparately impact minoritized attorneys at the firm. Moreover, the opacity of the decision-making process and the hierarchical power dynamic struggles only serve to exacerbate this effect.

The credit snowball – where a junior associate's attribution and work opportunities can significantly increase the associate's prestige with minimal additional effort – is not evenly amassed by all associates.[107] There is a stratified recognition policy, where senior attorneys often receive credit for teamwork contributions of junior associates, under the guise of preserving the junior associate's reputation, but also to preserve the current power dynamic and client relationship.[108] Even if uniformly applied, this policy of hierarchical recognition can systemically and negatively impact female attorneys and attorneys of color.[109] However, this policy is exacerbated by gender and racial biases, and impacts the diversity gaps present in the legal field today.[110]

Gendered attribution discrimination – and overall workplace discrimination – may manifest in at least three quantifiable ways: self-investment, opportunity, and outside evaluation. Self-investment manifestation of discrimination would mean that, because of gender discrimination, a woman may choose to invest less in pursuing human capital if she will not receive the same reward as others.[111] Opportunity manifestation of discrimination would mean that, because of gender discrimination, a female attorney receives fewer opportunities to build human

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[106] Susan Saab Fortney, *Soul for Sale: an Empirical Study of Associate Satisfaction, Law Firm Culture, and the Effects of Billable Hour Requirements*, 69 UMKC L. REV. 239 (2000) (discussing guidelines and lack of communication at law firms).

[107] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016).

[108] *See* Zoom Interview (Dec. 27, 2021) ("The compensation at the traditional law firms are all based on client origination and client control and so you'll get these senior partners with sort of sharp elbows. They really don't want super dynamic people beneath them that can challenge them and maybe displace in terms of the originator of work. They'll sort of keep them in the shadows a little bit. Most law firms are like this, I would say.")

[109] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016). I note this also likely affects others, including those who identify as LGBTQ+.

[110] NAT'L ASS'N. L. PLACEMENT, 2020 REPORT ON DIVERSITY IN U.S. LAW FIRMS (Feb. 2021), https://www.law.berkeley.edu/wp-content/uploads/2021/02/2020_NALP_Diversity_Report.pdf.

[111] *See* Vickie L. Bajtelsmit & Alexandra Bernasek, *Why Do Women Invest Differently Than Men?*, 7 FINANCIAL COUNSELING AND PLANNING 1, 7 (1996) ("Ramos and Lambating (1996) suggest that discrimination can produce feedback effects which in turn affect women's choices.").

capital than her male peer.[112] Outside evaluation discrimination would mean that, because of gender discrimination, an evaluator (such as a boss or law firm partner) would produce a biased report about their workers' relative level of human capital based on their perception of their value or a perception of the recipient's response.[113] Because the evaluation criterion here explicitly control only for those who are presently practicing – and not those who leave due to discrimination – discussions regarding disparate attribution and impacts thereof will be limited to the impacts while still employed as an attorney.[114]

Authorship attribution is an indicator of discrimination within the law firm.[115] Partners have the opportunity to discriminate at two different stages of the work process: initial allocation of work product and evaluation of work product.[116] Both of these stages are inextricably intertwined with attribution. Not only could some junior associates receive better work opportunities than others (creating disparate opportunities for attribution), but the subjective evaluation of their contribution on this work product can tie directly to their authorship attribution.[117]

A person's contribution to a joint legal project lies on a spectrum. At one end of the spectrum, a person could contribute almost no legal analysis, only adding to the formatting or packaging of the work. Much like a paralegal or research assistant's work, this contribution is certainly invaluable to the final product, but does not usually merit authorship credit. On the other end of the spectrum, a person could compose almost all of the legal analysis for

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[112] Phyllis Tharenou, *Gender Differences in Advancing to the Top*, 1 Int'l. J. of Management Revs. 111, 128 (1999) ("Gender differences arise in advancement to the top because women accrue fewer resources at critical stages and transitions. Women accrue less human capital and social capital for advancement than men, more for social capital than human capital.")

[113] *See, e.g.*, Mabel Abraham, *Explaining Unequal Returns to Social Capital Among Entrepreneurs*, ACADEMY OF MANAGEMENT PROCEEDINGS (2015) ("This study suggests a new network mechanism explaining gender inequality--anticipatory third-party bias--where expectations that a client, friend, or family member has a preference for men over women leads actors to disproportionately exchange resources with male network contacts.").

[114] For a discussion regarding the impact of disparate attribution, see Section III. C.

[115] Tejvan Pettinger, *Human Capital Definition and Importance*, ECONOMICS HELP (22 Sept. 2019), https://www.economicshelp.org/blog/26076/economics/human-capital-definition-and-importance ("Human Capital is a measure of the skills, education, capacity and attributes of labour which influence their productive capacity and earning potential.").

[116] *The Allocation of Work*, THE PRACTICE: DIVERSITY NUDGES (2017), https://thepractice.law.harvard.edu/article/the-allocation-of-work/.

[117] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016).

the piece. By most standards, this amount of work would deserve sole authorship credit.[118]

The gray area of authorship lies between these two extremes: when two or more parties each contribute to a significant part of the legal analysis. In this group of circumstances, the senior-most attorney generally controls authorship of the final work product. Several contributing factors, including competence-based perception, accent bias, and perceived status differentiation, may bias this decision. As noted by Lucinda Finley, these issues are likely overlooked by partnership "[b]ecause the men of law have had the societal power not to have to worry too much about the competing terms and understandings of 'others'…[T]hey have been insulated from challenges to their language and have thus come to see it as natural, inevitable, complete, objective, and neutral."[119]

Women – and especially women of color – are generally required to provide more evidence of competence than their male peers, which means they may need to have better work product for a longer period of time to be recognized as an author on the final document.[120] Many receive remarks saying that their peers or bosses "didn't expect someone…female to be like this," indicating that women must present a pattern of behavior to break a likely negative preconceived notion and succeed in the workplace, compared to a likely neutral or positive preconceived notion of their male peer.[121] Objectification of women minimizes their competence, manifesting in "denying self-determination, agentic qualities and uniqueness of talents" and – in one study – leading "others to perceive [women] as less competent and less fully human."[122] These can lead to perceptions of a woman's work product as less unique than her male peer's, a lower likelihood that her work will be properly attributed, and a different prediction regarding her reaction to a misplaced attribution.

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[118] *But see* Cooper J. Strickland, *The Dark Side of Unattributed Copying and the Ethical Implications of Plagiarism in the Legal Profession*, 90 N.C.L. REV. 920 (2011) ("There are already documented cases in which courts are subject to criticism by non-prevailing parties for verbatim adoption of a prevailing party's statements of fact and law.").

[119] Lucinda M. Finley, *Breaking Women's Silence in Law: The Dilemma of the Gendered Nature of Legal Reasoning*, 64 NOTRE DAME L. REV. 886 (1989).

[120] Joan C. Williams, *The 5 Biases Pushing Women Out of STEM*, HARV. BUS. REV., Mar. 24, 2015, https://hbr.org/2015/03/the-5-biases-pushing-women-out-of-stem.

[121] *Id*.

[122] Nathan Heflick, Jamie L. Goldenberg, *Objectifying Sarah Palin: Evidence That Objectification Causes Women to be Perceived as Less Competent and Less Fully Human*, 45 J. EXP. SOC. PSYCH. 598 (2009).

Moreover, perceived status differentiation between group members can affect conversational dominance.[123] This means that a female associate may be less likely to receive positive comments, less likely influence the group's legal strategy, and more likely to be interrupted in group discussions than a male associate, especially when conversing with a male partner.[124] These interruptions prevent women from completing their thoughts, manifesting in fewer finished vocalized contributions from female associates. Furthermore, features of previous conversations (like relative speaker dominance) influence subsequent conversations, meaning women are less likely to be allowed to vocalize their thoughts over time and, even when they do, these comments are less likely to be viewed as influential.[125] Without comments being perceived as influential, it is unlikely that the woman's contribution will receive equitable attribution.

Finally, written and verbal differences in writing style can manifest in a type of gendered accent bias, where a male partner may more heavily edit a female associate's writing due to stylistic differences in writing "accents" than her male colleague's.[126] In general, accent bias can refer to a bias against a nonnative accent, resulting in "fewer employment opportunities, differential employee compensation…lower creditability, and discriminatory responses in the courts."[127] Gender impacts this bias, with female speakers being "more likely to receive negative assessments" including being rated as less competent.[128] If a partner views a woman's speech (and writing) as less competent, the partner may more heavily edit a woman's writing and may be less likely to recognize her material contributions within the document as competent. This may all result in less attribution for the women's contribution – all due to the gendered accent bias.

Together, the competence-based perception, accent bias, and perceived status differentiation between men and women manifest in a type

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[123] Lynn Smith-Lovin & Charles Brody, *Interruptions in Group Discussions: The Effects of Gender and Group Composition*, 54 AM. SOCIO. REV. 424 (1989).
[124] *Id*.
[125] *Id*. at 427.
[126] Ze Wang, Aaron D. Arndt, Surendra N. Singh, Monica Biernat & Fan Liu, *"You Lost Me at Hello": How and When Accent-Based Biases are Expressed and Suppressed*, 30 INT. J. RESEARCH MARKETING 185 (2013), (discussing accent bias manifestations, such as women being given lower teaching evaluations if students get lower grades). Lucinda M. Finley, *Breaking Women's Silence in Law: The Dilemma of the Gendered Nature of Legal Reasoning*, 64 NOTRE DAME L. REV. 886 (1989).
[127] Rahul Chakraborty, *A Short Note on Accent-Bias, Social Identity and Ethnocentrism*, 8 ADVANCES IN LANGUAGE AND LITERACY STUDIES 57, 57 (2017).
[128] Larry R. Nelson, Jr., Margaret L. Signorella, Karin G. Botti, *Accent, Gender, and Perceived Competence*, 38 HISPANIC J. OF BEHAVIORAL SCI. 166, 166 (2016).

of Matilda effect, where women are subject to a "systematic under-recognition" for their work.[129]

Disparate authorship recognition is both an indicator and a product of these systemic, pervasive biases. The disproportionate representation of associates is likely correlated to the difference in demographic representation of the partnership. Moreover, disparate representation of partnership is a product of how these biases manifest among differently-gendered peer groups, socialized to accept a differentiated status within the group.[130] Both of these scenarios are prime examples of discrimination disproportionately impacting female attorneys.

C. Impact of Attribution as an Attorney

Recognition within the law firm can be a powerful influence in partnership decisions and retention in general, but it is not the sole factor for long-term success. Outside recognition from clients, press, and judges can impact a lawyer's career prospects at a law firm.[131] Although outside recognition is certainly not expected for a first or second year associate, missed opportunities for this recognition accumulate over time. "[R]elatively minor inequalities in access to early opportunities to develop human capital can snowball," especially in this outside credit space, to create "insurmountable deficits."[132] As recognized by the Matthew effect, where "the rich tend to get richer," a small difference in connections and opportunities in a person's early career can create a cumulative advantage, scaling as an attorney climbs the law firm employment ladder.[133]

The credit snowball begins with the traditional law firm policy of giving a senior associate or partner sole public attribution for public documents, such as briefs, press releases, and publications.[134] Partners may

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[129] Margaret W. Rossiter, *The Matthew Matilda Effect in Science*, 23 SOC. STUD. SCI. 325 (1993) (The Matilda effect was coined by Margaret Rossiter in 1993 in honor of Matilda Gage, an American writer and activist.).

[130] *See* Lynn Smith-Lovin& Charles Brody, *Interruptions in Group Discussions: The Effects of Gender and Group Composition*, 54 AM. SOCIO. REV. 424 (1989) (showing that women are interrupted more often than their male peers).

[131] Cynthia Fuchs Epstein, Robert Saute, Bonnie Oglensky & Martha Gever, *Glass Ceilings and Open Doors: Women's Advancement in the Legal Profession*, 64 FORDHAM L. REV. 291(1995).

[132] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016).

[133] Matjaz Perc, *The Matthew Effect in Empirical Data*, 11 J. ROYAL SOC'Y. INTERFACE 1 (2014).

[134] Cooper J. Strickland, *The Dark Side of Unattributed Copying and the Ethical Implications of Plagiarism in the Legal Profession*, 90 N.C.L. REV. 920 (2011) ("One variation of plagiarism in particular should cause great concern: the use of associates by

choose to credit associates who materially contributed to a project, but many law firms choose to only recognize the senior-most individuals publicly.[135]

This procedure may seem harmless, especially if the policy is pervasive across most law firms in the United States. After all, partners seen as "rain makers" may bring in more work than they can possibly fulfill and must, therefore, pass on that work to other attorneys at the firm.[136] The practice of devilling, where "one barrister obtains the assistance of another, usually…more junior, barrister to carry out work to help the first barrister discharge his instructions" is prevalent throughout the United Kingdom.[137] Paralleling Kevin Woodsen's argument, the scheme of allowing partners to take credit for junior attorney's work enables "these firms [to] operate as sites of…discrimination, creating an insurmountable opportunity credit deficit.[138] As Cooper Strickland notes, "the use of associates by firm partners to write (or co-write) law review articles or continuing legal education materials without proper attribution" is an excessively egregious practice bordering on plagiarism, and poorly defended as a "work for hire."[139]

The law firm, for example, may decide to credit a single partner on a brief submitted to a judge, even if multiple attorneys collaboratively produced the document.[140] The judge may then "incorporate a section of the

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firm partners to write (or co-write) law review articles or continuing legal education materials without proper attribution."). This policy can also be impacted by a client's request to only have certain lawyers, like partners, listed on final work product.

[135] Benjamin G. Shatz & Colin McGrath, *Beg, Borrow, Steal: Plagiarism vs. Copying in Legal Writing*, 26 CAL. LITIG.14 (2013), https://www.manatt.com/Manatt/media/Media/PDF/beg-borrow-steal-2013.pdf ("Senior attorneys often sign documents drafted primarily by junior lawyers (named or unnamed) in their employ"); *see also* Zoom Interview (Dec. 28, 2021) ("It was a client control thing…[At a previous firm, the named partner's] "argument was that 'the clients want to see me on there.' That's very typical at a lot of law firms.").

[136] Jeanne M. Picht & Andrew Elowitt, *Rainmakers: Born or Created*, 40 LAW PRAC. 36 (2014).

[137] Bar Standards Board, *Devilling* (Nov. 2014), *available at* https://www.chba.org.uk/for-members/library/professional-guidance/bar-council-note-on-devilling.

[138] Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title* VII, 38 CARDOZO L. REV. 183 (2016); *see also* Richard A. Posner, *Reflections on Judging*, HARVARD UNIVERSITY PRESS (2013) (criticizing the common practices of judges to have law clerks write their judicial opinions).

[139] Cooper J. Strickland, *The Dark Side of Unattributed Copying and the Ethical Implications of Plagiarism in the Legal Profession*, 90 N.C.L. REV. 920 (2011).

[140] Lisa G. Lerman, *Misattribution in Legal Scholarship: Plagiarism, Ghostwriting, and Authorship*, 42 S. TEX. L. REV. 467 (2001) ("The senior lawyers may decide that the judge or the client would be displeased by the appearance of so many names on the brief. Often the first name to be dropped from the list is that of the most junior lawyer.").

brief into their opinion."[141] Though, as Lisa Lerman aptly notes, the judge will likely not cite the brief or the individual authors, sections of briefs are often later cited by news articles reporting on the court decision.[142] Though the firm may benefit from this additional press and the attorney may feel an internal sense of pride, the lawyers (especially junior associates) who wrote the original brief are unlikely to originate more client work from this additional boost of publicity.[143]

The same recognition, of course, cannot trickle down to the unnamed parties unless those who receive recognition share their limelight. It is very unlikely that the junior associate will assert themselves to receive recognition if a more senior attorney does not voluntarily bestow credit.[144] Embarrassing the person making the hiring decisions at the firm would likely be injurious to the junior associate's career prospects.[145] The power imbalance is simply too large to overcome.[146]

Credit impact bleeds into expert and superlative recognition for attorneys. Many law firms create instructive newsletters and submit nationally-recognized articles, highlighting the author's expertise in a certain

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[141] *See id*.; *see also* Stephen J. Choi & G. Mitu Gulati, *Which Judges Write Their Opinions (And Should We Care)?*, 32 FL. L. REV. 1077, 1078 (2005) (noting that law firm partners are suspected of "asking junior associates to draft entire articles…and then send them out under their [the partner's] name" and though law clerks draft "the vast majority of opinions for judges" many do not believe "authorship credit should be given to the individual clerks.").

[142] Lisa G. Lerman, *Misattribution in Legal Scholarship: Plagiarism, Ghostwriting, and Authorship*, 42 S. TEX. L. REV. 467 (2001).

[143] I also note that judges may recommend attorneys for court-appointed positions, and may select their attorneys based on their recognized work product. *See e.g.,* Kathleen L. Arberg, *Appointment of James C. Duff to Director of the Administrative Office of the U.S. Courts*, Supreme Court of the United States (Nov. 4, 2014), *available at* http://sblog.s3.amazonaws.com/wp-content/uploads/2014/11/AO-press-release-11-4-14.pdf. If the attorney's work is produced by mostly ghost-writer junior associates, the appointment recommendation may be misplaced if this was not known by the judge. This article does not imply in any way that James C. Duff's work is not his own.

[144] LAUREN STILLER RIKLEEN, SURVEY OF WORKPLACE CONDUCT AND BEHAVIORS IN LAW FIRMS, WOMEN'S BAR ASS'N OF MASS. (2018), https://wbawbf.org/sites/WBAR-PR1/files/WBA%20Survey%20of%20Workplace%20Conduct%20and%20Behaviors%20in%20Law%20Firms%20FINAL.pdf.

[145] Melanie Lasoff Levs, *The Partnership Track: Everything You Didn't Learn in Law School*, MINORITY CORP. COUNSEL ASS'N. (2005), https://www.mcca.com/mcca-article/the-partnership-track/.

[146] Nancy J. Reichman & Joyce S. Sterling, *Recasting the Brass Ring: Deconstructing and Reconstructing Workplace Opportunities for Women Lawyers*, 29 CAP. U. L. REV. 923 (2001).

field.[147] Not only can potential clients reach out to the author, but recognition for these articles can often lead to speaking engagements, panel discussions, and even expert witness opportunities.[148] These will often be offered to the author without further inquiry into whether the credited author had assistance from other (likely junior) members of their firm.

Moreover, Super Lawyers and other highly-recognized "achievement" awards seek to recognize the top attorneys working in each state.[149] After a subjective nomination process, where others can nominate an attorney in the creation of a candidate pool, an "attorney-led research staff searches for lawyers who have attained certain honors, results or credentials, which indicate a high degree of peer recognition or professional competence."[150] If a junior associate has never been named on court briefs, legal arguments, or publications because their firm has a ghost-writing policy, it is less likely that this associate will be chosen for any of these accolades.[151]

Regardless of the "quality" of these rewards, this will inevitably impact client origination, in that every Super Lawyer is listed on a searchable specialty website, often used by potential clients as a search engine for needed legal work.[152] Moreover, firms often send out notifications to existing clients and other firms, letting them know which lawyers at their firm were recognized for this accolade, adding to their publicity and their reputational valuation without substantial additional effort.[153]

This leads to the final impact of the credit snowball: retention and advancement by client request. Lawyers are in the business of customer

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[147] Noreen Fishman, *10 Law Firm Email Newsletter Ideas to Try This Year*, GOOD2BSOCIAL (Jan. 28, 2021), https://good2bsocial.com/10-law-firm-email-newsletter-ideas-to-try-this-year/.

[148] *Expert Consulting and Testimony*, CHEPENIK TRUSHIN LLP, https://www.miamifloridaestateplanninglawyer.com/expert-consulting-and-testimony.html (last visited Jan. 4, 2022).

[149] *Find Super Lawyers Rated Attorneys*, SUPER LAWYERS (2022), https://attorneys.superlawyers.com/ (last visited Jan. 4, 2022); *see* Zoom Interview (Jan. 27, 2022) (noting that attorneys use Super Lawyers for marketing purposes and recognition, stating that "old school attorneys think…they can use [Super Lawyers] as marketing that can attract more [clients].")

[150] *Selection Process Detail*, SUPER LAWYERS (2022), https://www.superlawyers.com/about/selection_process_detail.html (last visited Jan. 4, 2022).

[151] *See id*.

[152] *Find Super Lawyers Rated Attorneys*, SUPER LAWYERS (2022), https://attorneys.superlawyers.com/ (last visited Jan. 4, 2022).

[153] Juris Digital, *Putting Super Lawyers on Your Website: Tactic or Tacky?*, JURISDIGITAL (Jan. 11, 2018), https://jurisdigital.com/putting-super-lawyers-website-tactic-tacky/; Susan Saab Fortney, *The Billable Hours Derby: Empirical Data on the Problems and Pressure Points*, 33 FORDHAM URB. L.J. 171 (2005).

service, where a client's request reigns supreme.[154] A client's request can extend far beyond work product. Clients can develop working relationships with attorneys and then request that those attorneys continue work on their projects. For an attorney to be liked by a client, they need to be visible to the client.[155] This includes not only Super Lawyer recognition, as detailed above, but also phone calls, lunches, and decision-making meetings with clients.[156] If a well-paying client continually requests to work with an associate, that associate is more likely to become a firm partner. This can only happen, however, with proper attribution for the associate's work and associate visibility. In other words, the client's power to recognize good work is limited by the law firm's internal and external recognition practices.

D. Glass-Ceiling Mathematics: Disparate Impact of Equally-Applied Partnership Credit

My work to explore the existence and extent of disparate credit in law began with a question: how does a person mathematically show this type of discrimination? It is difficult – but not impossible – to prove "glass ceiling discrimination," which would likely be required if a law firm were to be held liable for attribution practices that disparately impact a protected class.[157] Pippen v. Iowa, where plaintiffs sought promotion within Iowa's merit-based employment system, rejected unconscious implicit bias evidence because the evidence was insufficiently tailored to the case.[158] Ahmed v. Johnson explained that discrimination can be proven by less than "outright admissions" and caused by "stereotypes and other cognitive biases."[159]

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[154] Gary W. Hutto, *Practicing Law with Customer Service*, 24 LAW PRAC. MGMT. 46 (1998).

[155] Gayle Cinquegrani, *Attracting Clients is Like Dating: Be Visible, Be Picky*, DAILY LAB. REP. (BL) (Oct. 20, 2016, 6:29 P.M), https://news.bloomberglaw.com/daily-labor-report/attracting-clients-is-like-dating-be-visible-be-picky.

[156] BUILD IT! THE LAW FIRM ASSOCIATE'S GUIDE TO BUSINESS DEVELOPMENT, ATTORNEY AT WORK (2016), https://www.attorneyatwork.com/wp-content/uploads/2016/02/Build-It-Law-Firm-Associates-Guide-to-Business-Development-Attorney-at-Work.pdf.

[157] Zuckerman L. Whistleblower Prac. Grp., *How Can I Prove "Glass Ceiling"/Promotion Discrimination?*, NAT'L L. REV. (Apr. 14, 2017), https://www.natlawreview.com/article/how-can-i-prove-glass-ceiling-promotion-discrimination; J. MICHELE CHILDS, LLOYD B. CHINN, LINDSEY E. KRAUSE, MELISSA S. WOODS & SHEREE C. WRIGHT, IS USING IMPLICIT BIAS TO PROVE DISCRIMINATION UNDER TITLE VII AND OTHER ANTIDISCRIMINATION STATUTES A VIABLE OPTION? (2019), https://www.americanbar.org/content/dam/aba/events/labor_law/2019/annual-conference/papers/compilation-of-written-materials.pdf.

[158] Pippen v. Iowa, No. LACL 107038, slip op. (Iowa Dist. Ct. Apr. 17, 2012), aff'd, 854 N.W.2d 1 (Iowa 2014).

[159] Ahmed v. Johnson, 752 F.3D 490 (1st Cir. 2014).

Herein, I show the mathematics of glass ceiling discrimination in standard firm attribution policies. The following hypothetical demonstrates how an equally-applied partnership credit regime disparately impacts women.

Mathematically, even if every partner at every law firm in the country equally took credit for their associate's work product (which the results below will demonstrate is likely not true), minoritized attorneys would be more negatively impacted than attorneys who are well represented demographically at the partner level of a law firm.[160] This credit snowball disproportionately negatively impacts female attorneys and attorneys of color.[161]

This disparate impact is likely pervasive, not only across law firms, but across almost every disproportionately represented workspace environment worldwide. Though I simplified the numbers in Chart 1 below for the purposes of an exemplary analysis, the ratio of partners to associates and the relative gender distribution are based on the current law firm representation in the United States.[162]

	Number of Attorneys	**Percent of Female Attorneys**	**Percent of Male Attorneys**	**Percent of Non-Binary Attorneys**
Partners	1000	25%	74%	1%
Associates	2500	50%	49%	1%
Total	3500	43%	56%	1%

Chart 1. Hypothetical gender credit gap at a law firm

Fictional Big Law Firm (FBLF) has 3500 attorneys, with 1000 partners and 2500 associates. 25% of the partners at FLBF are female, 74% are male, and 1% are non-binary. Finally, just like many law firms today, the demographic representation of associates is more diverse than that of

[160] *What is Minoritized*, IGI GLOBAL, https://www.igi-global.com/dictionary/grassroots-organization-and-justice-through-social-media/82051 (last visited Jan. 4, 2022) (defining minoritized as a group "pushed to the margins…by means out of their own control.").

[161] This likely applies to every group that is better demographically represented as associates than partners at a law firm.

[162] NAT'L ASS'N. L. PLACEMENT, 2020 REPORT ON DIVERSITY IN U.S. LAW FIRMS (Feb. 2021), https://www.law.berkeley.edu/wp-content/uploads/2021/02/2020_NALP_Diversity_Report.pdf. Although there is no currently available public data regarding the presence of non-binary individuals in law, I added the non-binary category in this hypothetical. Because of the lack of data, I could not include such presence in my data analysis.

partners, with 50% female associates, 49% male associates, and 1% non-binary associates at FBLF. This means that, overall, FBLF has slightly more male attorneys than female attorneys, with a total of 56% male attorneys and 43% female attorneys.

If only partners receive credit for all work done in the firm, the produced documents will appear to be authored by female attorneys 25% of the time, by male attorneys 74% of the time, and by non-binary attorneys 1% of the time. This does not match the representative attorney population of the firm. This represents an over-represented male author population and an under-represented female author population.

Looking around at peers and superiors, junior male associates will see attorneys of their gender well-represented on authored works. Male associates can one day reach a position to be credited as an author like so many have done before. In fact, they see themselves over credited in the authorship so frequently that it becomes commonplace to feel welcome, included, and on the ladder to a long-term successful career.[163]

Female junior associates, however, will see exactly the opposite. Though female attorneys comprise almost half of the firm's represented attorneys (43%), the authorship does not represent their presence (at only 25% authorship). All attorneys, likely, receive subliminal messaging to include young, male attorneys in projects because they are likely to be long-term contributors to the firm. Female attorneys, however, may not be perceived as worth the investment. After all, they make up almost half of the workforce, but do not seem to rise to the level where their work deserves attribution.[164]

What is more disturbing is that, as demonstrated below, partners are not equally claiming credit for their junior associate's work. The research below suggests that there is a gender bias in this model: male partners claim more credit for the work of others than female partners, with male attorneys representing 90% of highly credited attorneys in patent prosecution from 2016-2020. Women's erasure through systemic authorship practices in law, compounded with systemic authorship and credit exclusion in other areas of academia, contributes to an environment where women are not viewed as

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[163] *Where is the Diversity in Publishing? The 2019 Diversity Baseline Survey Results*, LEE & LOW BOOKS: THE OPEN BOOK BLOG (Jan. 28, 2020), https://blog.leeandlow.com/2020/01/28/2019diversitybaselinesurvey/. This is not to say that every male attorney has the same welcoming experience, but rather that it is more likely that their gender does not hinder their ability to be welcomed into the law firm.

[164] This, as discussed above, is likely exacerbated by Lucinda Finley's argument that legal language and reasoning is male gendered. Lucinda M. Finley, *Breaking Women's Silence in Law: The Dilemma of the Gendered Nature of Legal Reasoning*, 64 NOTRE DAME L. REV. 886 (1989).

equally capable or long-term contributors.[165] This structure of allowing partners to receive more than their share of named credit is an untenable, exclusive model. This must be rectified if law firms are truly committed to equitable representation. Further, this attribution structure violates Model Rules of Professional Conduct Rule 8.4(g), in that partners are engaging in behavior of misattribution, where their harmful attribution decisions manifest in bias against women.[166]

IV. METHODOLOGY

Working with Harrity Patent Analytics, I designed studies herein to quantify under-attribution of female attorneys when compared to their male colleagues.[167] I also designed studies to determine if the under-representation was uniform across both partners and associates. Finally, I conducted fifteen interviews with highly attributed individual attorneys in the sample about the over-attribution and under-attribution of attorneys at their respective law firms and companies.[168] An under-attribution in this study means that the percentage of female-attributed documents (such as articles, briefs, or applications) is lower than the percentage of female attorneys in the given sample.[169] Under-attribution cannot be determined for an individual in the sample set.

I chose to focus on patent documents, specifically office action responses and applications, to quantify the potential disparate representation by gender. As explained in Section II, to successfully obtain a patent, an attorney or agent prepares and submits a patent application to the USPTO.[170] An examiner at the USPTO will review the content of the application and, if

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[165] Silvia Knobloch-Westerwick, Carroll J. Glynn & Michael Huge, *The Matilda Effect in Science Communication: An Experiment on Gender Bias in Publication Quality Perceptions and Collaboration Interest*, 35 SCI. COMMC'N 603 (2013).

[166] MODEL RULES OF PRO. CONDUCT r. 8.4 cmt. (AM. BAR ASS'N 2020) ("Such discrimination includes harmful verbal or physical conduct that manifests bias or prejudice towards others.").

[167] And lack thereof. *Data*, HARRITY LLP, https://harrityllp.com/tag/data/ (last visited Jan. 15, 2022). Rocky Berndsen, the head of the patent analytics group at Harrity & Harrity LLP, led data analysis for this study. *Biography: Rocky Berndsen*, HARRITY LLP, https://harrityllp.com/team/rocky-berndsen/ (last visited Jan. 15, 2022).

[168] I defined a highly attributed patent practitioner as a practitioner with 300 or more office action response attributions in one year.

[169] Chaoqun Ni, Elise Smith, Haimiao Yuan, Vincent Lariviere & Cassidy R. Sugimoto, *The Gendered Nature of Authorship*, 7 SCI. ADVANCES, *available at* https://www.science.org/doi/full/10.1126/sciadv.abe4639 (2021).

[170] Kate S. Gaudry, *The Lone Inventor: Low Success Rates and Common Errors Associated with Pro-Se Patent Applications*, 7 PLOS ONE, at e33141 (2012). *Pro se* applications will not be addressed in this Article.

they determine that the described invention is not patentable, they will send back a rejection, known as an office action.[171] The prosecuting patent attorney or agent will then review the rejection and prepare a response, known as an office action response.[172] This cycle of rejection and response will continue until the USPTO determines the application is allowable (in which case, it generally issues as a patent), or until the application is abandoned.[173]

Per USPTO regulations, the office action responses and the patent application must be signed by a certified patent attorney or agent.[174] To be certified, an attorney or agent must pass the patent bar and, once they pass the bar, they will receive a registration number that is consecutively assigned to those that pass the bar. I used these consecutive numbers as a proxy of experience and rank, where an older, lower number meant that the individual had more experience and was a higher-ranked attorney than those with more recent, higher numbers.[175] Moreover, per both regulations and firm culture, these documents are only usually signed by one representative.[176] In my study herein, there were no detected mixed-gender applications or office action responses, which made statistical significance of an underrepresented gender a much simpler calculation.

For this study, I examined the set of patent applications and office action responses at the USPTO from 2016-2020 and I removed all patent applications that were continuations of other parent applications, applications

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[171] Bhaven N. Sampat & Mark A. Lemley, *Examining Patent Examination*, 2010 STAN. TECH. L. REV. 2 (2010).

[172] *See id*.

[173] Stuart J.H. Graham, Alan C. Marco & Richard Miller, *The USPTO Patent Examination Research Dataset: A Window on Patent Processing*, 27 J. ECON. & MGMT STRATEgy 554 (2018).

[174] U.S. PAT. & TRADEMARK OFF., MPEP §402 (9th ed. 2020). *Pro se* inventors may also sign their office action responses and patent applications, regardless of whether they have passed the patent bar.

[175] Consecutive numbers are often, but not always, direct proxies of experience and rank. There is no way for my data to distinguish between an individual who passed the patent bar in 1995 and who chose not to practice patent law until 2005 and someone who passed in 1995 and immediately began continuous practice. Conversely, my data cannot distinguish between an individual who took the patent bar in 2005 with no prior patent experience and someone who worked in a law firm for ten years before deciding to take the patent bar. However, due to the specialized nature of patent law and the time and resources needed to study for and pass the patent bar, my use of patent bar registration numbers can be used in aggregate as a proxy for experience level.

[176] Some of the office action responses are signed by more than one practitioner, but the practice is rare. *See* Zoom Interview (Jan. 12, 2022). Application Data Sheets and Cover Sheets cannot be signed by one practitioner. *See, e.g, Application Data Sheet*, U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0014.pdf (only allowing one space for signature).

for which the origin was not US-based, and design patent applications.[177] This left a set of 218,784 patent applications and their corresponding office action responses. Then I used a name-matching algorithm to determine the gender of the drafting practitioner, the prosecuting practitioner, and the examiner for each patent application.[178] Finally, I examined these applications by their respective technology centers.[179]

First, I gathered data to determine whether a practitioner's gender is relevant to the outcome at the USPTO both as a function of number of office action responses before allowance and as a function of time from patent application submission to allowance. I identified the gender of the drafting practitioner, the prosecuting practitioner, and the examiner and then compared outcomes at the USPTO to determine if gender impacted results.[180] I segregated the results by technology center[181] to avoid comparing technologies which may have longer patent prosecution periods than others.[182]

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[177] This avoids foreign applications and duplicative responses, which can take less time than a traditional office action response. The practitioner name data set was obtained by downloading the bulk image file wrappers from the USPTO, using optical character recognition to analyze the application data sheet and office action response documents, and parsing the registration number listed on the document. The parsed registration numbers were then matched to the patent practitioner name listed using the USPTO practitioner roster. *Attorney Roster*, U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/attorney-roster/attorney.zip. Patent examiner names were obtained from the USPTO's PEDS database. *Patent Examination Data System*, U.S. PAT. & TRADEMARK OFF., https://ped.uspto.gov/peds (last visited Jan. 15, 2022). I selected the years 2016-2020 because clear data that could be identified using optical character recognition was available, and it represents a very recent period of time to analyze modern attribution practices. In my analysis of patent issue fee data for 1,268,839 issued patents from 2005-2022, I was unable to remove continuations from the sample set.

[178] Gender was determined by matching the practitioner and examiner names to WIPO's WGND 1.0 worldwide gender-name dictionary obtained from the Harvard University Dataverse (https://dataverse.harvard.edu/dataverse/WGND).

[179] *Patent Technology Centers Management*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/patents/contact-patents/patent-technology-centers-management (last visited Jan. 4, 2022).

[180] Depending on a law firm structure and progress of the patent case, the same practitioner or group of practitioners may work on both patent application drafting and office action responses, or the work may be split between different individuals. For example, patent prosecutors may specialize in patent application drafting or responding to office actions. In other cases, clients may switch firms after filing the patent application, and a new firm may complete the office action-office action response process.

[181] The examining units of the USPTO are organized into subject-matter specific technology centers (TCs), so that examiners review patent applications in alignment with their specific scientific and technical domain expertise.

[182] *See id*.

Then, I determined the number of unique patent practitioners in the sample by identifying unique names and patent bar registration numbers. I used this as a proxy to determine how many patent practitioners were actively practicing from 2016-2020.[183] I then compared the relative percentage of unique patent practitioners of a certain gender present in the sample to the relative percentage of office action responses and patent applications authored by a practitioner of a certain gender. This comparison formed the basis to determine under- or over-attribution of practitioners of a certain gender, relative to their presence in the sample.

Next, I conducted two quantitative tests to determine whether any gender disparity in attribution was due only to partners uniformly attributing the entirety of a firm's work to the partnership. I first determined the attorneys who authored over 300 office action responses in a given year and determined the relative gender representation of these authors. I used the 300 office action response benchmark as a proxy for a number of office action responses that would be difficult or impossible to accomplish without assistance in a calendar year because office action responses take approximately 4-8 hours of billable time to accomplish, attorneys and especially partners are responsible for working non-billable hours in addition to their billable work, and many patent attorneys are responsible for other tasks besides composing office action responses, including drafting patent applications.[184] I contacted each of these attorneys for additional comment.[185]

I also determined whether any detected gender disparity was applied uniformly across practitioner rank. I associated each patent practitioner in my data set with the number of office action responses they authored and sorted the set by patent bar registration number. I then divided practitioners by brackets, such that the practitioners with older patent bar registration numbers were in a different bracket than the practitioners with newer patent bar

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[183] This set does not include associates, agents, and other writers who were not named representatives on a single office action response from 2016-2020. Although this likely removes many patent practitioners from the data set, it also ensures every individual included in the data set was an actively practicing patent prosecutor from 2016-2020. Thus, this reduces the possibility that disparate attribution of women quantified herein is caused by leave, non-participation, or resignation. More data should be acquired to better account for patent prosecutors who were never credited.

[184] *The Truth About the Billable Hour*, YALE L. SCH. CAREER DEV. OFF., https://law.yale.edu/sites/default/files/area/department/cdo/document/billable_hour.pdf.

[185] For highly credited practitioners in 2016-2019, I contacted all attorneys who were named on over 300 office action responses. For highly credited practitioners in 2020, I contacted the 38 attorneys who were named on over 600 office action responses. 2020 had 216 attorneys who were named on over 300 office action responses, which was almost a 400% increase over previous years.

registration numbers.[186] I used the patent bar registration numbers as a proxy for firm rank.

I then calculated the average number of office action responses signed per practitioner per bracket by dividing the total number of office action responses authored by the practitioners in the bracket by the number of unique practitioners in the bracket. I also conducted the same test, but divided the practitioners by gender to compare the average number of office action responses completed by each gender in the bracket to determine the gender attribution gap based on practitioner seniority.

To determine whether the experimental results suggested an increase in female patent practitioner equity or a growing disparity trend, I calculated yearly attribution differences for female and male patent practitioners from 2016–2019 by dividing the yearly per capita office action responses signed by male patent practitioners by the yearly per capita office action responses signed by female patent practitioners. I then grouped the results by experience level.

Finally, to evaluate a potential suggested solution to the gender gaps discussed herein, I collected a second sample, comprising patent issue fee data for 1,268,839 issued patents from 2005-2022. From this set, I calculated the gendered representation of the 1,643,843 patent practitioners attributed on the issue fee transmittal sheet.[187] Specifically, I determined the fractional representation – the relative representation of female and male practitioners – for issue fee sheets attributing one, two, and three practitioners.[188]

The methods herein have limitations. First, gender analysis was conducted using algorithmic assignment based on first-name analysis, rather than through first-person identification. Though this is a practice standard in the field, it does not allow for non-binary identification and does not present

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[186] I used bracket sizes of 5,000 registration numbers because this equated to, approximately, five year intervals of patent practice. Because associates take an average of almost "nine years to make partner at the firms where they began their careers," this interval can be used as a proxy to differentiate between junior associate, senior associate, and partnership cohorts. Xiumei Dong, *The Path to Law Firm Partnership Just Keeps Getting Longer*, Reuters (Jan. 31, 2022), *available at* https://www.reuters.com/legal/legalindustry/path-law-firm-partnership-just-keeps-getting-longer-2022-01-31/.

[187] *See* USPTO Bulk Data Bases, *available at* https://bulkdata.uspto.gov; USPTO practitioner roster, *available at* https://www.uspto.gov/attorney-roster/attorney.zip property by gender; Issue Fee Transmittal Form, *available at* https://www.uspto.gov/sites/default/files/documents/ptol85b.pdf. There were 1,643,863 attorney names out of which 1,613,606 were present in the WGND (98.1%).

[188] Issue fee transmittal forms may only attribute a maximum of three practitioners. Issue Fee Transmittal Form, *available at* https://www.uspto.gov/sites/default/files/documents/ptol85b.pdf.

findings according to a person's affirmed gender.[189] Second, because this data set ranges from 2016-2020, the analysis does not provide assessment as to the progress of female attribution representation before 2016, nor does it provide predictions regarding eventual parity of female and male attribution on patent records. Third, the results herein are only based on public records capable of being identified through optical character recognition. Fourth, though these studies do suggest misattribution, in that they quantify a lower attribution rate for female patent practitioners than male practitioners of equivalent experience level, the data herein cannot identify how to correct the record and properly attribute those not included in the data set. Fifth, the methods herein do not distinguish between patent agents and patent attorneys, which may impact the credit distribution given in law firms.[190] Sixth, this set only includes data for those individuals who were attributed at least once between 2016 and 2020. The methodology herein cannot account for practitioners who never received attribution credit. The methodology also does not account for practitioners who were attributed while working part-time, as in-house counsel, or in other jobs where less of the overall workday is dedicated to patent application and office action response writing than full-time jobs in law firms. Overall, this study does not show causation, only correlation between gender and attribution rate of patent practitioners.

V. RESEARCH FINDINGS

The findings herein suggest, first and foremost, that women are systemically under-attributed on both patent applications and office action responses relative to their representation as patent attorneys and agents. Second, the data show that this systemic under-attribution cannot be attributed only to a traditional partner-associate power dynamic difference. I also note that the gender of the patent practitioners and patent examiner rarely impacted the allowability or length of prosecution of the patent application, showing that any firm or client strategy of naming a male practitioner to achieve a better outcome at the USPTO is based in an unfounded bias.[191] Finally, the data suggest a correlation between utilization

[189] *See* Glossary of LGBTQ+ and Gender Terms, *available at* https://www.portlandoregon.gov/article/730061 (defining affirmed gender as "The gender by which one wishes to be known.").

[190] I plan to control for this distinction in future work.

[191] The office action per patent application statistic and allowance rate statistic were examined for each technology center (TC), factoring in 1) the examiner gender, 2) the examiner and drafting practitioner gender, and 3) the examiner and prosecuting practitioner gender. In 28 out of 32 scenarios, there was no statistically significant difference in the office action per patent or allowance rate statistics when gender of the examiner, drafting practitioner, and prosecuting practitioner was considered. In 5 out of 32 scenarios, there

of increased credit opportunities and an increased representation of female patent practitioners.

All applicable tests herein were ANOVA tested using single factor and two-factor testing, with a significance level of .05, population sample size confidence level of 95%, and margin of error of 5%.[192]

Chart 2 below shows that the percentage of unique patent practitioners in the data set is significantly greater than the percentage of patent applications and office action responses with a female author for every technology center at the USPTO.[193]

Technology Center	Technology Center/Subject Matter	Unique Female Practitioners (%)	Female Patent Application Attribution (%)	Female Office Action Response Attribution (%)
1600	Biotechnology & Organics	31%	30%	30%
1700	Chemical & Materials Engineering	20%	16%	17%
2100	Computer Architecture Software & Information Security	15%	11%	11%

was a significant difference between the genders. In TC 1600, female examiners issue more office actions per patent application. In TC 3700, female examiners issue more office actions per patent application. In TC 2100, female examiners issue more office actions to female prosecuting practitioners, and male examiners issue more office actions to male prosecuting practitioners. In TC 2100, female practitioners have a higher allowance rate, and, in TC 3700, male practitioners have a higher allowance rate. This establishes that gender of the patent practitioners and examiners rarely impact the prosecution of the patent application.

[192] Stephanie Glen, *ANOVA Test: Definition, Types, Examples, SPSS*, STATISTICS HOW TO, https://www.statisticshowto.com/probability-and-statistics/hypothesis-testing/anova/ (last visited Jan. 21, 2022). Sample sizes of 195,464 or larger, as taken herein, are significant enough to yield a confidence level of 99.999% that the real value is within 0.5% of the measured value. Sample Size Calculator, CALCULATOR.NET, https://www.calculator.net/sample-size-calculator.html (last visited July 31, 2022).

[193] *Patent Technology Centers Management*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/patents/contact-patents/patent-technology-centers-management (last visited Jan. 4, 2022).

2400	Computer Networks, Multiplex, Cable & Cryptography/Security	14%	10%	10%
2600	Communications	15%	11%	10%
2800	Semiconductors & Electrical and Optical Systems and Components	15%	10%	10%
3600	Transportation, E-commerce, Construction, Agriculture, Licensing and Review	15%	10%	11%
3700	Mechanical Engineering & Manufacturing and Products	16%	11%	13%

Chart 2

The findings suggest that, in aggregate, female practitioners are suffering from a gender gap in the attribution of authorship credit. I note also that this only accounts for practitioners who were credited at least once for 2016-2020 on an office action response, leaving off those who were never attributed for their work.

The Biotechnology & Organics center highlights an important outlier. All other technology centers except the Biotechnology & Organics center have a significant under-attribution of female practitioners relative to their detected presence in the data set. The Biotechnology & Organics center has – by far – the greatest relative representation of female practitioners of the technology centers. Over 30% of all practitioners authoring at least one office action response in the Biotechnology & Organics center are women, but many other technology centers have representation of 15% or less.

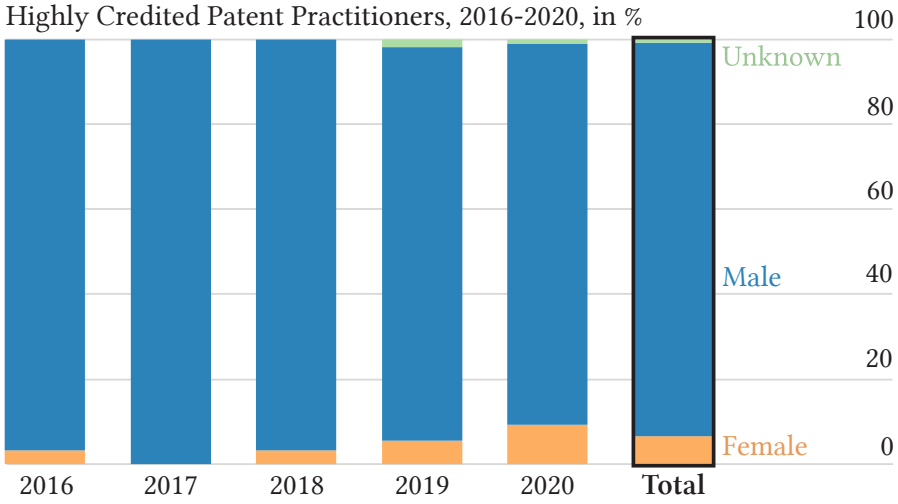
Rosabeth Kanter identified four group types of representation: uniform groups (comprising only one group, known as a typological ratio of 100:0), skewed groups (having a ratio of "up to…perhaps 85:15"), tilted groups (with a ratio of around 65:35), and balanced groups (typological ratios of 60:40-50:50).[194] Kanter notes that the skewed group is the relevant starting point for the examination of the effects of proportion, noting that smaller

[194] Rosabeth Moss Kanter, *Some Effects of Proportions on Group Life: Skewed Sex Ratios and Reponses to Token Women*, 82 AM. J. SOC. 2 (1977).

groups by their very nature must tokenize the minoritized group.[195] In evaluating this further, Centola found that, when a minority group reaches about 25% of the group, "the opinion of the majority could be tipped to that of the minority."[196] In other words, there may be a lack of observed difference in authorship and representation in the Biotechnology & Organics center because the center has a high enough representation of the minority group (women).

FIG. 1 below shows that, of the highly-credited patent practitioners identified from 2016-2020, over 90% were male.[197]

Figure 1



In total, of the 402 instances where a practitioner was a credited author on over 300 office action responses in the years 2016-2020, only 26 were identified as female. In 2016, only two of the 60 practitioners named on over 300 office action responses were female. In 2017, all practitioners named on over 300 office action responses were male. 2020 had the largest relative representation of female highly credited practitioners, with 20 female practitioners credited out of the group of 216 practitioners.

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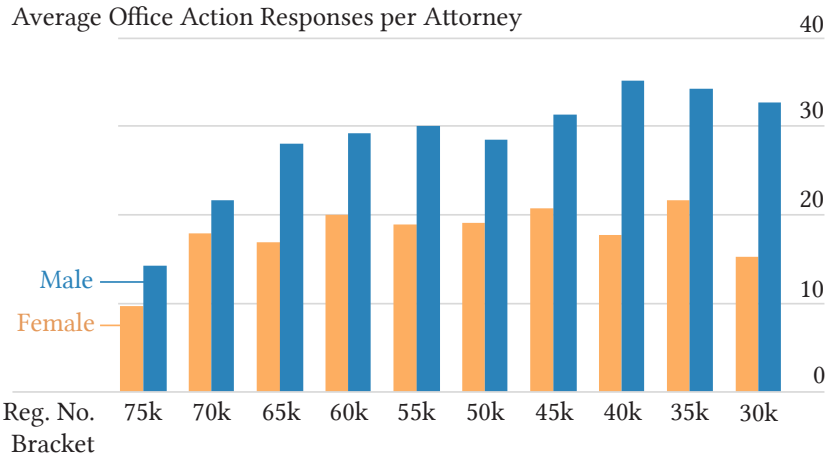
[195] *See id*.

[196] Damon Centola, Joshua Becker, Devon Brackbill, Andrea Baronchelli, *Experimental Evidence for Tipping Points in Social Convention*, 360 SCIENCE 1116, 1116 (2018), https://www.science.org/doi/full/10.1126/science.aas8827.

[197] "Highly-credited" refers to attorneys or agents named on over 300 office action responses in a single calendar year from 2016-2020. Appendix 1 provides the underlying data set for FIG. 1.

FIG. 2 below shows that, even when the identified practitioners were grouped by registration number, a statistically significant difference between male and female attribution remained in every division bracket.[198]

Figure 2



The more junior brackets – with registration numbers above 75,000 and between 70,000 and 74,999 – had relatively smaller differences between male and female attribution than more senior brackets, suggesting the credit snowball. Specifically, the female practitioners in the 75,000+ bracket averaged an attribution rate of 9.7 office action response attributions between 2016-2020. The male practitioners in the same bracket averaged an attribution rate of 14.2 office action response attributions in the same time period. The female practitioners in the 70,000-74,999+ bracket averaged an attribution rate of 17.9 office action response attributions between 2016-2020. The male practitioners in the same bracket averaged an attribution rate of 21.6 office action response attributions in the same time period.

This is larger in the more senior brackets, with male practitioners being attributed 1.5-2.2 times more than their female practitioner equivalents. When computing the median of each bracket sample, as shown in Appendix 3, there is still a significant difference in the number of office action responses attributed to men and women within the data set, with the median number of office action responses more than doubling for practitioners with registration numbers between 40,000 and 49,999. Moreover, the maximum office action responses attributed to men and women are also significantly different.

[198] Appendix 2 provides the underlying data set for FIG. 2.

These attribution differentials suggest that either women do less work in patent prosecution than men throughout every stage of their careers, or that their work goes uncredited more often than men's.[199]

Gaps at the junior associate level – with registration numbers over 75,000 – indicate that female junior associates either do less work than their male counterparts or that they are not afforded similar credit opportunities when they reach the same prominence level as their peers.[200] Overall though, this suggests that the credit disadvantage is not absorbed equally by all junior associates.

Gaps at partnership levels – having registration numbers under 65,000 – indicate either that male partners do more work than female partners, that male partners are less likely to name junior associates as primary practitioners on work they supervise, or male partners have more opportunities to receive named credit.[201]

My studies did not gather data regarding salary or hours worked by gender of patent practitioner. However, the American Intellectual Property Law Association (AIPLA)'s 2017 Report of the Economic Survey suggests that gendered work imbalance is far less of a factor than recognition for that work.[202] For example, both female solo practitioners and female private firm partners billed more hours than their male counterparts in 2017, but had a

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[199] There is no information in my current data set to suggest whether women work more part time or do not have as heavy a concentration practice of office action work as their male counterparts.

[200] Both of these are an issue, but the latter hypothesis (that female junior practitioners are not afforded similar credit opportunities) is much likely to be a greater contributing factor than female junior associates doing less work, given that most associates graduating from law school begin working full-time jobs, rather than part-time jobs. *Employment Outcomes as of April 2021 (Class of 2020 Graduates)*, ABA SECTION OF LEGAL EDUCATION AND ADMISSIONS TO THE BAR, at 1, https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/statistics/class-of-2020-employment-summary-release.pdf (showing approximately 1% of all law school graduates are employed in a part-time attorney job as their first employment requiring the graduate to pass a bar exam or be authorized to practice law, compared to 69.9% of law school graduates entering the job market with a full-time job).

[201] Male partners may have more opportunities to receive named credit for their work because they may receive more work from foreign associates than their female counterparts due to a larger referral network. Male partners may also supervise more work from supervisees who do not have patent bar registration numbers, so they would be unable to receive attribution under the current rules of the USPTO. My studies provide no data suggesting that either of these hypotheses cause the current disparities in the data.

[202] *See 2017 Report of the Economic Survey*, American Intellectual Property Law Association, August 2017, *available at* https://www.aipla.org/detail/journal-issue/economic-survey-2017 (using individual data found in indices).

lower average gross annual income.[203] Furthermore, though male private firm associates billed more than their female counterparts, the percent difference in billable hours worked was less than the difference in gross annual income earned.[204] The percent difference between billable hours worked for male and female associates was approximately 9% (with a 12% difference in median billable hours worked), which is significantly less than the gendered difference in attribution, even among the most junior of associates.[205]

FIG. 3 below suggests that the results of FIG. 2 are not a static demonstration of the younger generation of patent practitioners having a more gender equitable division of credit than more experienced patent practitioners. First, I calculated the average office action response attribution rate for male and female practitioners for registration numbers in junior and senior brackets. I used brackets spanning 10,000 patent bar registration numbers instead of 5,000 to ensure the sample size produced statistically significant results. Then, I divided the average recognition rate for male practitioners writing office action responses by the average rate for female practitioners in a given year in the patent bar registration number bracket. If a practitioner did not author an office action response in that year, they were not included in the data set. As shown below, the gender gap in attribution differences increased from 2016–2019 for patent practitioners with patent bar registration numbers above 50,000 and remained relatively unchanged for

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[203] *See id*. (showing that, in 2017, female solo practitioners worked an average of 854 billable hours and male solo practitioners worked an average of 782 billable hours. However, the average female solo practitioner earned an average gross income of $224,530 and their male counterparts earned an average of $229,757. Similarly, in 2017, female private firm partners worked an average of 1530 billable hours and male private firm partners worked an average of 1465 billable hours. However, the average female private firm partners earned an average gross income of $436,837 and their male counterparts earned an average of $535,100.).

[204] *See id*. (showing that, in 2017, female private firm associates worked an average of 1482 billable hours and male private firm associates worked an average of 1677 billable hours, an 8.96% difference. However, the average female private firm associates earned an average gross income of $190,916 and their male counterparts earned an average of $222,211, an 18.3% difference).

[205] *See id*. (showing that, in 2017, female private firm associates worked a median of 1600 billable hours and male private firm associates worked a median of 1750 billable hours, a 12.3% difference. However, female private firm associates earned a median gross income of $166,500 and their male counterparts earned a median gross income of $200,096, a 15.1% difference). In the most junior patent practitioner bracket in my study, the female practitioners averaged an attribution rate of 9.7 office action response attributions between 2016-2020 and the male practitioners in the same bracket averaged an attribution rate of 14.2 office action response attributions in the same time period, a 200% difference. Publicly available AIPLA data is not associated with an individual's patent registration number, and I cannot ascertain how many of the individual respondents who responded to the AIPLA survey are patent practitioners.

those with patent bar registration numbers below 49,999.[206] It further suggests that the attribution gap between male and female practitioners is smaller in the more junior practitioner group with a registration number above 70,000 than in those with more senior registration numbers, paralleling the trend shown in FIG. 2.

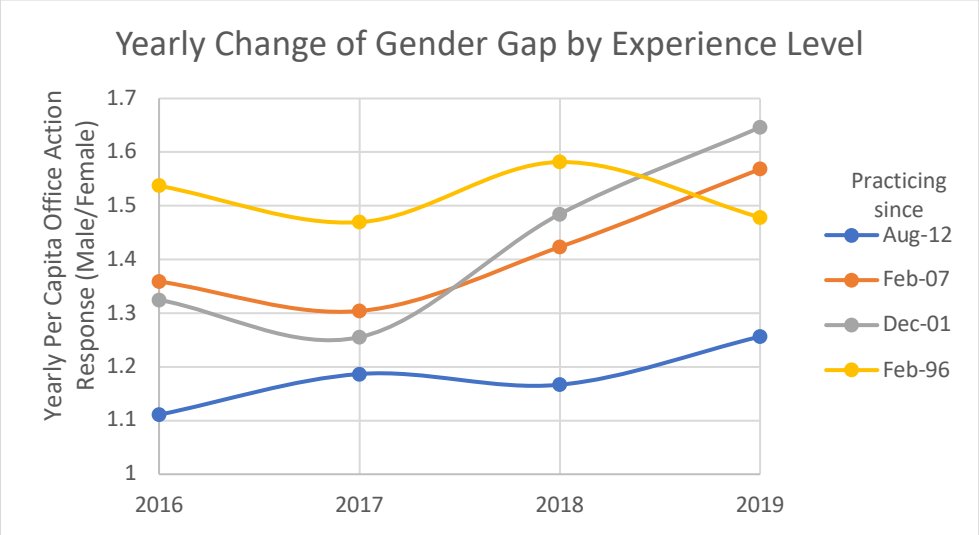

FIG. 3

This shows that attribution differences on office action responses for female and male practitioners increased from 2016–2019 for the average practicing patent practitioner with approximately 20 years of experience or less.

FIG. 4 was compiled with a different data set than the data set used in FIGS. 1–3. The data set underlying FIG. 4 comprises 1,268,839 patents and 1,643,843 corresponding patent practitioners from 2005-2022 and evaluating issue fee transaction sheets, rather than office action responses and application data sheets. Gender identification of patent practitioners was conducted identically to the methods described within this paper. FIG. 4 suggests that increasing practitioner team attribution from one attributed practitioner to two attributed practitioners increases the fractional representation of female practitioners on the team. As discussed above, issue fee transmittal sheets may attribute up to three patent practitioners, but application data sheets may only attribute one.[207]

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[206] Because the data set used patent applications filed between 2016-2020, there were not a statistically-significant number of office action responses in 2020 to perform a disparate attribution analysis at this detailed level.

[207] Issue Fee Transmittal Form, *available at* https://www.uspto.gov/sites/default/files/documents/ptol85b.pdf; Application Data Sheet,

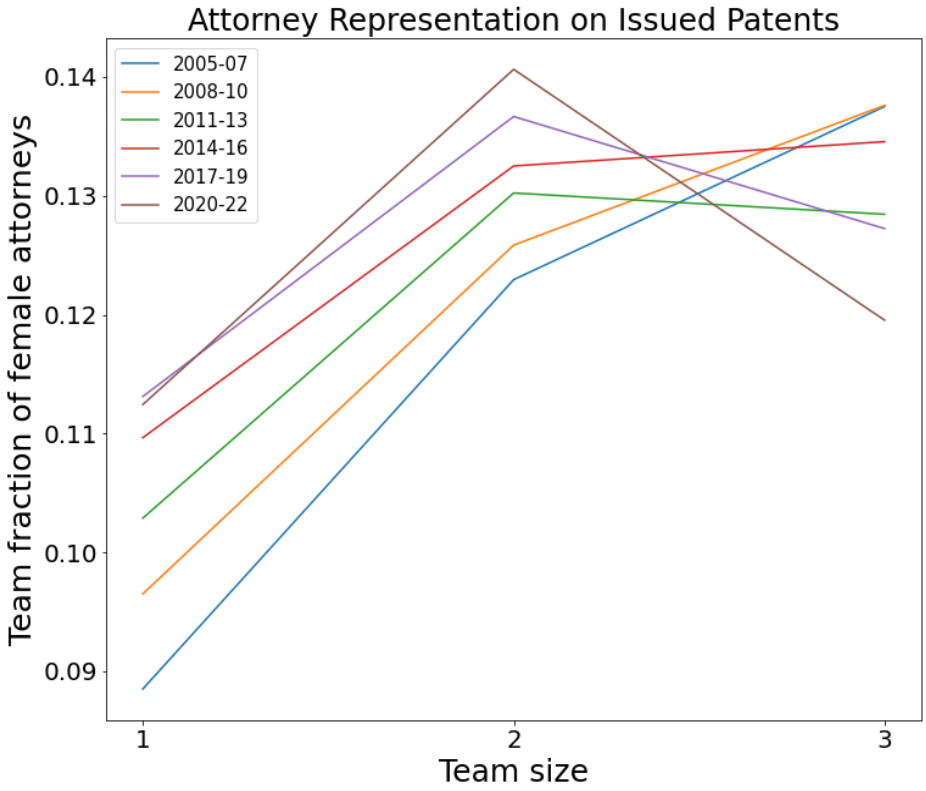

FIG. 4

Of the patents that were analyzed, 960,294 had one practitioner listed, 242,066 patents had two practitioners listed, and the remaining 66,479 patents had three practitioners listed. The fractional representation of female practitioners increased in almost every three year interval from 2005 – 2022. Furthermore, within each year, when more than one practitioner was listed on the issue fee transmittal sheet, the fractional representation of female practitioners also increased.

VI. THERE'S A CREDIT GAP, NOW WHAT? PROPOSALS TO REDUCE THE NAMED CREDIT DISPARITY

The studies above suggest that, at least in some aspects of law, women are not receiving equitable credit for their work when compared to their male peers. Further studies must be conducted to demonstrate that women are, in fact, completing work at equivalent rates to their male peers to conclusively demonstrate that women are underrepresented in their work product

U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0014.pdf

credits.[208] Nonetheless, because this study parallels work done in other fields to demonstrate the systemic under-acknowledgement of women's contributions to the workplace and the scientific community, prudent scholars and practitioners should consider cultural and regulatory alternatives to the current legal credit method to address its inequitable effects.[209]

Many of the proposed methods herein are broadly applicable to every U.S. law firm and others are explicitly tied to the gender gap in patent law. The unique requirements of patent practitioners, including passing an additional registration examination and requiring at least an undergraduate education in a certified science or engineering program, exacerbate gender representation in patent prosecution and may exacerbate disparate attribution of associates.[210] In future works, I hope to empirically analyze a broader data set to determine how the misattribution quantified herein extends beyond patent law.

Based on the results, I propose three remedies to reduce the gender gap in attribution. First, a new regulatory scheme should enforce a uniform and fair accreditation methodology across all attorneys.[211] This includes a regulatory amendment for patent practitioners, as well as an ethical standard for all attorneys. Second, law firms should change their attribution culture and the transparency of their attribution practices to combat the disparate impacts of hierarchical authorship.[212] Finally, clients requesting not just for a diverse team, but also for diverse authorship credit in the final work product,

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[208] As recognized in Section IV, *supra*, my methodologies cannot account for the differences in those who choose to work part-time and those who split their work between patent prosecution, litigation, and other areas of legal practice. I am exploring gender disparities at the Patent Trademark and Appeal Board in future papers, and Paul Gugliuzza and Rachel Rebouche have explored and shown similar gender credit disparities in litigation. *See also* Paul R. Gugliuzza and Rachel Rebouche, *Gender Inequality in Patent Litigation*, N.C. L. REV. (2022) (forthcoming) (showing gender inequality in patent ligation paralleling the findings herein).

[209] University of Delaware, *Women Get Less Credit than Men in the Workplace*, SCIENCEDAILY: SCIENCE NEWS (13 Dec. 2017), https://www.sciencedaily.com/releases/2017/12/171213130252.htm; Nicole Torres, *Proof That Women Get Less Credit for Teamwork*, HARV. BUS. REV., Feb. 9, 2016, https://hbr.org/2016/02/proof-that-women-get-less-credit-for-teamwork.

[210] Mary T. Hannon, *The Patent Bar Gender Gap: Expanding the Eligibility Requirements to Foster Inclusion and Innovation in the U.S. Patent System*, 10 IP THEORY 1 (2020).

[211] There is currently no regulatory scheme enforcing fairness when selecting a representative under 37 C.F.R. § 1.33. Instead, the only assessment is whether an attorney meets the necessary qualifications.

[212] *See* Section III C, demonstrating that the most equitable solution is to name all materially contributing attorneys and, barring this solution, the best way to equitably represent attorneys in authorship by gender is to select from the junior associates, rather than senior attorneys.

may be the next step to combat the impact of disparate authorship representation.[213]

A. Regulatory Action Remedies

One way to enforce reducing the gender accreditation gap is through regulatory amendment. The American Bar Association recognizes the goal of eliminating bias and enhancing diversity by promoting "full and equal participation the association, [the legal] profession, and the justice system by all persons" and eliminating "bias in the legal profession and the justice system."[214] Herein I propose general amendments to the Model Rules of Professional Conduct to help eliminate the disparate impact of misattribution. I also propose a regulatory amendment specific to patent law to better align its attribution regulations for all three actors: inventor, examiner, and attorney.

First, Model Rule 8.4 establishes that it is unprofessional for an attorney to engage in conduct involving dishonesty, fraud, deceit, or misrepresentation.[215] The current wording of Model Rule 8.4 is unlikely to prohibit all attorney conduct resulting in attribution bias, as demonstrated herein. I propose adding a new model rule to combat disparate attribution due to the failure of current rule 8.4 to establish an ethical requirement to negate implicit bias.[216]

David Douglass proposed Model Rule 8.5 to promote equality in the legal profession.[217] Combining CLE requirement rules, employment regulations, and a push for diversity, equity, and inclusion efforts, his proposed rule 8.5 requires that "every lawyer has a professional duty to undertake affirmative steps to remedy de facto and de jure discrimination, eliminate bias, and promote equality, diversity and inclusion in the legal profession."[218]

Adding to this proposal to promote "hiring and advancement of diverse lawyers and legal professionals," I propose explicitly requiring that all attorneys who are materially responsible for work product be

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[213] *If the Client Insists They Be Given a Chance, Minority Lawyers at Large Law Firms Do Succeed*, METRO. CORP. COUNS., Mar. 2007, at 57.
[214] Lisa G. Lerman, *Misattribution in Legal Scholarship: Plagiarism, Ghostwriting, and Authorship*, 42 S. TEX. L. REV. 467 (2001).
[215] MODEL RULES OF PRO. CONDUCT r. 8.4 (AM. BAR ASS'N 2020).
[216] Ashley Hart, *Sexism "Related to the Practice of Law": The ABA Model Rule 8.4(g) Controversy*, 51 IND. L. REV. 525 (2018).
[217] David Douglass, *The Ethics Argument for Promoting Equality in the Profession*, A.B.A J. (Nov. 1, 2019, 1:40 AM CDT), https://www.abajournal.com/magazine/article/the-ethics-argument-for-promoting-equality-in-the-profession.
[218] *See id*.

appropriately credited for that work product, consistent with all rules of the tribunal under which they shall appear.[219] This increases agency over work product, requires law firms to accurately attribute work product, and equalizes the credit snowball which has been disparately accumulating for generations. This would allow partners who are guiding work product to be named on the final product alongside their junior associates, provided the tribunal allows such appearances.

Second, I propose an amendment to Model Rule 5.1, the responsibilities of partners and supervisory attorneys, to promote equity through attribution.[220] The responsibilities outlined in 5.1 are limited in scope, only requiring supervisors to ensure the firm and other lawyers "conform to the Rules of Professional Conduct."[221] This could be expanded to require that "a lawyer having direct supervisory authority shall ensure that all supervised attorneys are given credit consistent with all rules of the tribunal under which they shall appear." This requires the supervising attorneys to conform, not just to the Model Rules, but also to any attribution policies of a tribunal.[222] This allows diversity of contribution from different tribunals to set the attribution standard within their subfield of law.

The current requirements for recognition in other areas of patent law provide an excellent template for a solution to the under-attribution issues examined in this article. For example, to remedy the attribution gap in patent law, I propose a regulatory amendment requiring attribution for all practitioners who materially contributed to a document, much like current requirements for recognition in other areas of patent law.[223] This amendment could be made directly in the Code of Federal Regulations or the Manual of Patent Examining Procedure.[224]

The current regulations regarding naming attorneys on patent applications and office action responses are not as equitable as those directed to examiner recognition and inventorship recognition. The regulations only specify that "*a* patent practitioner of record" must be named on the document, but do not provide any guidance about how to decide which attorney

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[219] *See id*.
[220] MODEL RULES OF PRO. CONDUCT r. 5.1 (AM. BAR ASS'N 2020).
[221] *See id*.
[222] This may be applied differently, but consistently, across legal fields in accordance with normative practice. For example, if it is the normative practice to not specifically attribute clerks who contribute to a judge's opinion, this norm need not change so long as it is applied equitably across all clerks and aligns with the expectation of these clerks when they accept their job. In law firms, attorneys expect to eventually receive attribution on their work, and this step should be reached equitably and independently of an attorney's gender.
[223] Namely, recognition for inventors and examiners.
[224] 37 C.F.R (2021); U.S. PAT. & TRADEMARK OFF., MPEP (9th ed. 2020).

contributing to a group work should receive this attribution.[225] The Code of Federal Regulations further explains that there cannot be double correspondence with more than one attorney or agent.[226] Forms further restrict attorney attribution, with only one signature line at the bottom of many form documents at the USPTO.[227] Even if attorneys recognized that more than one person should receive attribution credit, the currently available documents do not allow for such recognition.

The most equitable remedy would be a regulation in the Code of Federal Regulations or the Manual of Patent Examining Procedure requiring attribution for all patent practitioners of record who materially contribute to a work, similar to the above-presented Model Rules of Professional Conduct proposal.[228] Moreover, to alleviate fears of misattribution of relative work, the order of the patent practitioners could be in an order not indicative of relative contribution.[229] The USPTO could also implement a formal taxonomy, similar to the CRediT taxonomy discussed in Section II C, defining different types of material contributions and allowing formal recognition of these contributions in patent applications and office action responses.[230] Forms should be changed to accommodate the names of every materially contributing patent practitioner.[231] As shown in FIG. 4 above, when USPTO issue fee transmittal forms accommodated more than one name and law firms took advantage of the opportunity, the inclusion of female patent practitioners increased substantially.

B. Private Ordering Reform

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[225] 37 C.F.R. § 1.33. (Currently, most forms and papers filed in conjunction with the patent application must be signed by "(1) A patent practitioner of record; (2) A patent practitioner not of record who acts in a representative capacity under the provisions of § 1.34; or (3) The Applicant…").

[226] *See id*.

[227] *See id*.; *Application Data Sheet*, U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0014.pdf (noting that there is only one registered attorney or agent who can sign the application data sheet).

[228] 37 C.F.R. § 1.33 (2013).

[229] Armen Yuri Gasparyan, Lilit Ayvazyan & George D. Kitas, *Authorship Problems in Scholarly Journals: Considerations for Authors, Peer Reviewers and Editors*, 33 RHEUMATOLOGY INT'L. 277 (2013) (discussing that author order can be an issue in journal credit).

[230] Alex O. Holcombe, Marton Kovas, Frederik Aust, Balazs Aczel, *Documenting Contributions to Scholarly Articles Using CRediT and Tenzing*, 15 PLOS ONE 1, 2 (2020).

[231] *See PCT Request Form*, WORLD INTELL. PROP. ORG., *available at* https://www.wipo.int/export/sites/www/pct/en/forms/request/ed_request.pdf (showing that the currently available form allows as many inventors to be disclosed as necessary to comply with disclosure standards).

Even if regulations are implemented, firms must undergo a cultural overhaul to effectively impact the currently observed gender credit gap. Private ordering can help – not only to enforce regulations effectively – but also to fill in the inevitable gaps in those regulations.[232] As is currently evident from inventorship disputes and the measured gender disparity of inventorship, regulation without cultural change does not automatically create a gender-neutral outcome.[233] On the contrary, at times where there is regulation but the regulation is ignored by those in power, the regulation may cease to exist in practicality because those enduring injury from the slight lack the power or willpower to fight for their rights.[234] When balancing the potential backlash for fighting for authorship recognition against the potential negative effects of not graduating or being punished by their boss, many students in university settings will capitulate to the status quo.[235] The same pattern will likely hold true in the law firm setting if junior associates should be named in conjunction with or instead of the senior firm members, especially if the regulation is not coupled with the potential for patent invalidity. Therefore, private ordering must be coupled to a regulatory mandate to change attribution patterns.

As noted in an interview with a partner at a large U.S. law firm, the culture of attribution has begun to change.[236] When he began working at his first firm, the default attribution strategy was naming "the partner whose client it was" in all correspondence, office action responses, and patent applications.[237] "Then the trend changed to where the partners would allow other partners to sign off on responses and patent applications…because they were sufficiently comfortable that the client would trust [the work]."[238] Now, the process is more bespoke, with many partners – including himself – allowing junior associates "who do the bulk of the work to sign off on the document."[239]

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[232] Niva Elkin-Koren, *Intellectual Property and Public Values: What Contracts Cannot Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 FORDHAM L. REV. 375 (2005) ("Private ordering - self-regulation voluntarily undertaken by private parties - turns out to be an attractive option.").
[233] Mohammad Hosseini & Bert Gordijn, *A Review of the Literature on Ethical Issues Related to Scientific Authorship*, 27 ACCT. IN RSCH. 284 (2020).
[234] Jack Grove, *What Can be Done to Resolve Academic Authorship Disputes?*, TIMES HIGHER EDUC. (Jan. 30, 2020), https://www.timeshighereducation.com/features/what-can-be-done-resolve-academic-authorship-disputes.
[235] Barry Bozeman & Jan Youtie, *Trouble in Paradise: Problems in Academic Research Co-authoring*, SCI. & ENG'G ETHICS, 1717 (2016).
[236] Zoom Interview (Dec. 28, 2021).
[237] *See id*.
[238] *See id*.
[239] *See id*.

As the data show, there is still a wide attribution gap among junior associates. Law firms are uniquely positioned to change both the content and transparency of their attribution policies on a firm-wide, rather than bespoke, basis. This can be changed either through internal motivation or external government or client motivation. I suspect that, while regulatory reform may be the best way to legally enforce attribution rights, an external, client-motivated request to increase diversity attribution may be the quickest way to effect change.

Some may claim that policies to name the senior partner rather than the junior protects the junior associate's reputation.[240] For example, if a senior associate demanded that their "intellectual guidance" be written into the work, even after an objection from a junior associate, the act of not crediting the junior associate would avoid their name being associated with an opinion they might not have argued, but for the power dynamic disparity.[241] They may also feel that their "intellectual guidance" deserves authorship recognition more than the reduction to writing of the junior associate.[242] Junior associates often feel that they are "privileged to have the opportunity" to ghostwrite for a judge or a partner and, due to that sense of privilege, will not question the practice of not receiving named credit for their work.[243] The junior associate's knowledge base or experience may come into question as well, noting that, when they are a more senior associate, they will have the privilege of name recognition on client-facing documents.

These arguments are unsubstantiated and patronizing. It is highly unlikely that a junior associate will be publicly criticized for public work product, even if their name is associated with the document. It is more likely that they will receive praise for work done well, especially if partners are properly mentoring them and reviewing the product. Moreover, this argument implies that a junior associate is somehow unqualified to produce client work. Especially in patent prosecution, that is an unfounded assessment, potentially derived from an apprenticeship model of law firm seniority.[244]

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[240] Lisa G. Lerman, *Misattribution in Legal Scholarship: Plagiarism, Ghostwriting, and Authorship*, 42 S. TEX. L. REV. 467 (2001) (noting that authorship may imply that the junior associate's opinion was taken without the "intellectual guidance" of the partner).
[241] *See id*. ("The partner might justify his failure to list the associate as an author on the basis of the partner's intellectual guidance of the work. He might urge that the associate was just putting the partner's ideas on paper.").
[242] *See id*.
[243] *See id*.
[244] *See* Marilyn J. Berger, *A Comparative Study of British Barristers and American Legal Practice Education*, 5 NORTHWESTERN J. OF INT. L. & BUS. 540, 547 (1983) (discussing serving "a long apprenticeship, ranging from seven to 14 years.").

Junior patent prosecutors have all passed the patent registration examination and at least one state bar exam.[245] According to the USPTO, these practitioners are considered competent to write a patent application, draft an office action, and otherwise advocate for their client.[246] The current scheme of authorship recognition requires an extra, subjective level of competency, above the already recognized gender barrier of USPTO bar passage, that likely disparately impacts any group more represented as junior associates than senior associates and partners.[247] To reach equitable recognition, this practice must change to include junior associates.

Junior associates, although not as experienced as senior associates and partners, certainly represent the most diverse population at law firms, and have for at least the last ten years.[248] With the diversity of law schools increasing year over year, this trend is likely to continue for the foreseeable future.[249] Failing to credit junior associates decreases diversity of attribution. As discussed above, attribution leads to a credit snowball, where lawyers become recognized for their outstanding practice and, such recognition may lead to greater career prospects. Increased attribution may also promote an increased feeling of inclusiveness and belonging at the law firm, as well as more control and pride over work product.[250] I also suspect that crediting junior associates for their material contributions will better reflect the billable hours worked on a particular assignment.[251]

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[245] *Registration Examination*, U.S. PAT. & TRADEMARK OFF. (Dec. 28, 2021), https://www.uspto.gov/learning-and-resources/patent-and-trademark-practitioners/becoming-patent-practitioner/registration (discussing the patent bar); *Inventors 101: Patent Attorney vs Patent Agent*, AMIR ADIBI (Oct. 21, 2018), https://patentlawyer.io/patent-attorney-vs-patent-agent/ (explaining that the difference between being a patent attorney and a patent agent is passing the state bar examination).

[246] Registered patent practitioners are individuals who have passed the USPTO's registration exam and met the qualifications to represent patent applicants before the USPTO. *Patent and Trademark Practitioners*, U.S. PAT. & TRADEMARK OFF. (July 3, 2019), https://www.uspto.gov/learning-and-resources/patent-and-trademark-practitioners.

[247] Commentary regarding gender disparities on the USPTO bar passage rate will be reserved for a future work.

[248] Karen Sloan, *Law Firm Diversity Gains Mainly Confined to Junior Ranks, Survey Finds*, REUTERS, Dec. 23, 2021, https://www.reuters.com/legal/legalindustry/law-firm-diversity-gains-mainly-confined-junior-ranks-survey-finds-2021-12-23/.

[249] *See id*.; Miranda Li, Phillip Yao & Goodwin Liu, *Who's Going to Law School? Trends in Law School Enrollment Since the Great Recession*, 54 U.C. DAVIS L. REV. 613 (2020).

[250] Tsedale M. Melaku, W*hy Women and People of Color in Law Still Hear "You Don't Look Like a Lawyer,"* HARV. BUS. REV., Aug. 7, 2019, https://hbr.org/2019/08/why-women-and-people-of-color-in-law-still-hear-you-dont-look-like-a-lawyer (discussing the inclusion tax "levied in the form of time, money, and mental and emotional energy required to gain entry to and acceptance from traditionally white and male institutional spaces.").

[251] William D. Henderson, *An Empirical Study of Single-Tier Versus Two-Tier Partnerships in the AM LAW 200*, 84 N.C.L. REV. 1691, 1710 (2006) (showing that

The first policy change should be one of transparency. Transparent rules allow for more equitable enforcement and advocacy for all.[252] Firm policies should not be changed without informing all relevant parties about the shift. This can also be coupled with a notification to associates and partners entering the firm as part of their onboarding process, rather than a cultural practice learned through word of mouth.[253] For an extra level of equity insurance, firms could create a reporting space for junior associates to report inequitable actions with authorship recognition, much like the NIH has created for authorship disputes.[254] Either way, these policies should be evident in writing and available to all applicable parties at all times. Having equitable, transparent policies may be beneficial, not just to current firm employees, but also to attract top-level lateral candidates looking for more transparent and equitable policies.[255]

The second policy change should be towards a more equitable, inclusive attribution system. The most equitable strategy for inclusive credit is to name all practitioners who materially contributed to the finished product wherever possible, much like the fight for attribution for movie credits.[256] If

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associates typically work about 1850 hours a year, but partners work about 1703 hours per year). More studies should be conducted to determine whether default junior rather than default senior attorney recognition would be more representative of billable work product and workplace diversity.

[252] Jordan Rothman, *Hazing is Prevalent at Many Law Firms*, ABOVE THE LAW (Oct. 23, 2019, 12:16 PM), https://abovethelaw.com/2019/10/hazing-is-prevalent-at-many-law-firms/. After joining a firm, attorneys may become aware of the differences in name recognition practices, but junior associates may be unable to advocate for their deserved credit due to power imbalances; Kevin Woodson, *Human Capital Discrimination, Law Firm Inequality, and the Limits of Title VII*, 38 CARDOZO L. REV. 183 (2001) (showing that regulations uniformly outlining the process of selecting the attorney signatory may help reduce any underlying discrimination regarding the currently subjective credit decisions at a firm.).

[253] Katy Goshtasbi, *Increasing Law Firm Profitability by Instilling Values*, 42 LAW PRAC. 32 (2016) (addressing how to drive a profitable firm through instilling values).

[254] Martin Yate, *Why HR Doesn't Exist to Help Employees*, SHRM (Feb. 19, 2019), https://www.shrm.org/resourcesandtools/hr-topics/organizational-and-employee-development/career-advice/pages/your-career-qa-why-hr-doesn%E2%80%99t-exist-to-help-employees.aspx (This should be separate from a human resources department, which "does not exist to help employees.").

[255] Susan Saab Fortney, *Soul for Sale: an Empirical Study of Associate Satisfaction, Law Firm Culture, and the Effects of Billable Hour Requirements*, 69 UMKC L. REV. 239 (2000) (discussing guidelines and lack of communication at law firms).

[256] *See* e-mail from anonymous highly credited attorney (Dec. 29, 2021) (on file with author) (noting that this is likely more aligned with client interests. "Attorneys who say their clients want them to sign everything are probably overstating their clients' desires a bit. My impression is that clients want to know whoever did the substantive work and wouldn't be opposed at all to the standard you propose."); *see also Application Data Sheet*, U.S. PAT. & TRADEMARK OFF., *available at*

this would lead to ordering disputes similar to those in science publications, the list of names could be presented in an inclusive, non-biased manner.[257]

Assessing the materiality of a contribution may be a biased analysis. Much like how the mechanisms of intellectual property protection differ greatly across entertainment industries, the degree of materiality appropriate for attribution will differ across areas of law.[258] I therefore, will only discuss universal proposals and those specific to the observed differential in patents herein.

One universal way to potentially reduce this bias is to use billable hours as a mechanism of assessing materiality. Unlike authorship disputes in research, where quantification of active work on a project may not be explicitly tracked, most lawyers and patent practitioners track the number of hours worked on every matter.[259] This is later aggregated into a billable hour count. Firms may adopt a policy to determine an attorney's material contribution to a project by billable hour, but it should be scrutinized to ensure an attorney is not over-incentivized to bill a client.[260] Payroll, for example, can be a secondary unbiased check to determine whether an attorney has worked a significant number of hours on a project, and can also help to determine if a partner is unfairly cutting an associate's hours to

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https://www.uspto.gov/sites/default/files/documents/aia0014.pdf (only allowing one space for signature) (noting that on some documents at the USPTO, only one attorney can be attributed), *but see* U.S. Patent Appl. No. 11/256,970 Applicant Response to Pre-Exam Formalities Notice (response filed Mar. 8, 2006) (noting that more than one attorney can sign a response to the USPTO); Mekado Murphy, *Waiting for the Credits to End? Movies are Naming More Names*, N.Y. TIMES (May 26, 2017), https://www.nytimes.com/2017/05/26/movies/why-end-credits-in-movies-are-so-long.html.

[257] Stuart Henry, *On the Ethics of Collaborative Authorship: The Challenge of Authorship Order and the Risk of "Textploitation,"* 14 W. CRIMINOLOGY REV. 84 (2013). For example, one way to promote an inclusive, non-biased list is to randomize authorship order on every document. This may help an issue that arises out of authorship disputes, where at least one person must subjectively determine the relative contributions of all contributors before finalizing the document. This can exacerbate the already existent power dynamics in law firms and would not contribute to the representative inclusion goal.

[258] Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787 (2008); David Fagundes & Aaron Perzanowski, *Clown Eggs*, 94 NOTRE DAME L. REV. 1313 (2019).

[259] Susan Saab Fortney, *Soul for Sale: an Empirical Study of Associate Satisfaction, Law Firm Culture, and the Effects of Billable Hour Requirements*, 69 UMKC L. REV. 239 (2000).

[260] Lateral Link, *Law Firm Hours—the Real Story*, ABOVE THE LAW (July 24, 2012 1:30PM), https://abovethelaw.com/career-files/law-firm-hours-the-real-story/ ("This subtle subconscious pressure can cause a tendency to hoard work better done by more junior lawyers at a lower rate, to under delegate, to over work matters, or to inflate time.").

remove them from eligible credit numbers.[261] Further, this proposal should be scrutinized further to ensure this does not create an incentive to overbill a client to receive credit for work product.

Although some regulations may need to change before cultural shifts of attribution can be implemented, some cultural shifts can occur independently of regulatory changes.[262] For example, although many office action responses are often only signed by a single patent practitioner, multiple practitioners can be listed on office action responses, as long as there is only one correspondence address.[263] Moreover, paralegals may default to listing a named partner or partner assigned to managing the client as the author, rather than crediting the attorney with the most billable hours on the project. Changing the default attribution policy of a law firm could deliver a large impact in reducing attribution disparities. For example, attribution policies could default to 1) include more attorneys and, 2) if only one attorney can be credited, give credit to the attorney who billed the most time, could.

A policy shift towards inclusion can be championed internally or by clients. As noted by a patent partner at a large U.S.-based law firm, "Clients could change the landscape tomorrow if they really tried."[264] Clients have initiated programs to request an increase in diversity of legal representation.[265] However, these infrequently include requests regarding "representation on management committees, origination credits, and compensation."[266] Because many established firm attorneys "resent the diversity initiatives" and "create an environment that is not healthy or welcoming for minority lawyers" within their firm, it seems as if client advocacy can create the swiftest change in attribution representation.[267] With client advocacy, transparent policies, and regulatory reform, the attribution disparity can dissipate alongside the systemic practices that instigated the crisis.

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[261] Jordan Rothman, *Partners Shouldn't Tell Associates Not to Bill Their Time*, ABOVE THE LAW (Feb. 19, 2020 2:43 PM), https://abovethelaw.com/2020/02/partners-shouldnt-tell-associates-not-to-bill-their-time/ (discussing the practice of telling individuals to not bill their time and reducing an associate's hours at a later point).

[262] *See, e.g.*, *Application Data Sheet*, U.S. PAT. & TRADEMARK OFF., *available at* https://www.uspto.gov/sites/default/files/documents/aia0014.pdf (only allowing one space for signature).

[263] US Patent Appl. No. 11/256,970, Applicant Response to Pre-Exam Formalities Notice (response filed Mar. 8, 2006).

[264] Zoom Interview (Dec. 28, 2021).

[265] *If the Client Insists They Be Given a Chance, Minority Lawyers at Large Law Firms Do Succeed*, METRO. CORP. COUNS., Mar. 2007, at 57.

[266] Zoom Interview (Dec. 28, 2021).

[267] *If the Client Insists They Be Given a Chance, Minority Lawyers at Large Law Firms Do Succeed*, METRO. CORP. COUNS., Mar. 2007, at 57.

CONCLUSION

This paper has empirically shown evidence that women are under-attributed at every stage of their legal career. Regardless of area of practice or age, women were perpetually underrepresented on office action responses and patent applications compared to their male peers. It is time for the legal community to recognize that, to achieve equity, the traditional attribution model at firms in the United States must end.

The fight for attribution is universal. From intellectual property to contracts to social norms, industries recognize and prioritize the need for attribution. The conversation is ongoing, especially with respect to discipline for bad actors violating norms and regulations within a specific industry, but the conversation persists. Although attorneys have fought for attribution rights for their clients for centuries, they have failed to fight for equitably allocating those rights among their own community. This failure has promoted and perpetuated the legal gender gap, creating credit snowball deficits evident in all areas of law practice today.

All lawyers must be properly and equitably attributed for their contributions to scholarship, doctrine, and industry. By promoting regulatory reform alongside cultural change, the era of the gender attribution gap and the overall gender gap endemic in law may terminate.[268]

[268] AMY J. ST. EVE & JAMIE B. LUGURI, HOW UNAPPEALING: AN EMPIRICAL ANALYSIS OF THE GENDER GAP AMONG APPELLATE ATTORNEYS (A.B.A. 2021), https://www.americanbar.org/content/dam/aba/administrative/women/how-unappealing-f_1.pdf (showing that "The gender gap that existed in 2009 largely persists today.").

Appendix 1

	Total Female	Total Male	Total Unknown	Percent Female	Percent Male	Percent Unknown
2016	2	58	0	3.33%	96.67%	0%
2017	0	40	0	0%	100%	0%
2018	1	30	0	3.23%	96.77%	0%
2019	3	51	1	5.45%	92.73%	1.82%
2020	20	194	2	9.26%	89.81%	0.93%
Total	**26**	**373**	**3**	**6.47%**	**92.78%**	**0.75%**

Number of highly-credited patent practitioners, divided by year and gender. Highly-credited patent practitioners are practitioners named on over 300 office action responses in a given year.

Appendix 2

	Female			Male			Total		
Reg # Bracket	**Distinct Practitioner Count**	**Sum of OAs**	**Avg OAs per Practitioner**	**Distinct Practitioner Count**	**Sum of OAs**	**Avg OAs per Practitioner**	**Distinct Practitioner Count**	**Sum of OAs**	**Avg OAs per Practitioner**
30000	135	2047	15.2	1254	41065	32.7	1389	43112	31
35000	221	4774	21.6	1421	48603	34.2	1642	53377	32.5
40000	283	5009	17.7	1564	54905	35.1	1847	59914	32.4
45000	272	5632	20.7	1096	34349	31.3	1368	39981	29.2
50000	317	6050	19.1	1126	32121	28.5	1443	38171	26.5
55000	338	6374	18.9	1299	38927	30	1637	45301	27.7
60000	382	7626	20	1411	41181	29.2	1793	48807	27.2
65000	431	7295	16.9	1394	39090	28	1825	46385	25.4
70000	472	8463	17.9	1390	30008	21.6	1862	38471	20.7
75000	348	3366	9.7	821	11681	14.2	1169	15047	12.9
Grand Total	**3199**	**56636**	**17.7**	**12776**	**371930**	**29.1**	**15975**	**428566**	**26.8**

Average number of office action responses attributed per practitioner from 2016-2020, divided by patent bar registration brackets of 5,000. Registration numbers below 30,000 did not have a sufficient number of women to provide statistically significant data.

Appendix 3

	Female			Male			Total		
Reg # Bucket	**Median**	**Min**	**Max**	**Median**	**Min**	**Max**	**Median**	**Min**	**Max**
30000	6	1	144	11	1	1138	10	1	1138
35000	9	1	255	14	1	1488	14	1	1488
40000	7	1	313	15	1	1195	14	1	1195
45000	7	1	531	15	1	1046	13	1	1046
50000	8	1	214	11	1	646	11	1	646
55000	9	1	384	15	1	488	13	1	488
60000	10	1	339	15	1	479	14	1	479
65000	9	1	475	13	1	1745	12	1	1745
70000	8	1	296	11	1	265	10	1	296
75000	5	1	117	6	1	190	5	1	190

Median, minimum average, and maximum average number of office action responses attributed per practitioner from 2016-2020, divided by patent bar registration brackets of 5,000. Registration numbers below 30,000 did not have a sufficient number of women to provide statistically significant data.