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PTAB Practice Tips: Comparing Appealable and Petitionable Matters

By James A. Worth*

Practitioners considering an appeal to the Board should differentiate petitionable matters from appealable matters as early as possible to ensure that their arguments go to the right decision maker, and because petitionable matters have their own time clock for limitations. In an appeal, the Board is only permitted to consider the merits of an Examiner's rejection. The Board is not permitted to review an Examiner's other, procedural actions because the process of examination is within the exclusive purview of the Director, and is delegated by the Director to the Examiner. Thus, an applicant's petition is reviewed by the Director, rather than the Board.

This article addresses the history of the distinction between appealable and petitionable matters, explains the modern codification of the law, and discusses examples of petitionable matters and other petitions.

I. *The history of the distinction between appealable and petitionable matters*

The distinction between appealable and petitionable matters goes back approximately 150 years to the early post-Civil War Board of Appeals. An early Patent Office decision, *Ex parte Krake*, explains that Examiners and the Commissioner[1] perform some acts that are considered ministerial and other acts that require discretion in their performance.[2] For example, receiving a fee is considered

*James A. Worth is an Administrative Patent Judge at the Patent Trial and Appeal Board (PTAB) of the USPTO. This article is part of a series of articles sponsored by the PTAB to provide updates and practice tips to the public. The author would like to acknowledge the contribution of Alex Sofocleous, editor of the JPTOS, during the planning and development of this article, including his idea to discuss the *Haas* case in this context. *See infra*.

[1]The Commissioner at that time was the head of the Patent Office; these responsibilities of the Commissioner are currently vested in the Director of the USPTO in the first instance. *See infra*, Section II.

[2]*Ex parte Krake*, 1869 Dec. Comm'r Pat. 100, 101 (1869).

a ministerial act, whereas determining the completeness of the description is considered an executive act requiring the exercise of discretion.[3] Based on this distinction, *Krake* explains that the members of the Board[4] sit in an appeal to review "what may be called the merits, the questions of patentability, of novelty and utility" and "questions of like character" decided by the Examiner, but they are not vested with the ability to review the other decisions of the Examiner unless explicitly delegated that authority by the Commissioner.[5] In other words, the Board lacks the legal authority to review the procedural decisions made by the Examiner during prosecution.

This distinction between appealable matters and petitionable matters has been codified.[6] The distinction has also been recognized by the U.S. Court of Appeals for the Federal Circuit and its predecessor court, the Court of Customs and Patent Appeals.[7, 8]

II. *The modern codification of law*

The Manual of Patent Examining Procedure 9th ed. (Rev. 08.2017, Jan. 2018) (MPEP) indicates that Section 2 of 35 U.S.C. confers upon the Office the authority to establish regulations to govern the conduct of proceedings in the Office and to facilitate and expedite the processing of patent applications.[9] In turn, the Office has promulgated regulations which authorize petitions to the Director for non-appealable matters and authorizes the Director to delegate the determination of petitions to others.[10] The delegations are listed in MPEP Chapter 1000. This is the modern codification of petitionable matters.

The Board has jurisdiction to decide the merits of an appeal from a twice-rejected application in the first instance, pursuant to 35 U.S.C. § 6 and 37 C.F.R. § 41.31,[11] but the Director (or the Director's delegate) retains the authority to

[3] *Id.*

[4] *Krake* is here referring to the examiners-in-chief of the board. In 1999, Congress changed the name of examiners-in-chief to administrative patent judges (APJs). Section 4717 of S. 1948 of 106th Cong., 113 Stat. 1501A-580, enacted by Pub. L. 106–113 § 1000(a)(9), 113 Stat 1536 (Nov. 29, 1999).

[5] *See id.*

[6] As a historical matter, former Patent Office Rule 145 provided for a special petition to the Commissioner for review of an Examiner's actions apart from the merits of a twice-rejected application. *E.g.*, Rules of Practice in the United States Patent Office (rev. Apr. 1, 1892); 62(4) Official Gazette of the United States Patent Office 1 (Jan. 24, 1893) (Amended Rules of Practice). As discussed in the following sections, this rule has since been re-codified with refinements in timing and procedure.

[7] *See, e.g.*, *In re Berger*, 279 F.3d 975, 984–85 (Fed. Cir. 2002) ("The PTO argues that this issue may be the subject of a petition to the Commissioner, but may not be reviewed by the Board in connection with a rejection of claims. The PTO is correct.") (citing 37 C.F.R. § 1.127, 1.181; *In re Hengehold*, 440 F.2d 1395 (CCPA 1971); *In re Mindick*, 371 F.2d 892, 894 (CCPA 1967)); *see also Application of Marriott-Hot Shoppes, Inc.*, 411 F.2d 1025, 1028 (CCPA 1969) (Rich, J.) (acknowledging the Solicitor's argument regarding the "classic" distinction between appealable matters and petitionable matters that applies in both the context of patent and trademark examination).

[8] In one case, the Court of Customs and Patent Appeals clarified that it possessed inherent jurisdiction to review actions of the Board and deemed an Examiner's withdrawal of claims from consideration as a rejection rather than merely a requirement, e.g., of restriction. *In re Haas*, 486 F.2d 1053, 1056 (CCPA 1973). In other words, the court took a functional approach to determining whether a matter was substantive and appealable rather than procedural and petitionable.

[9] *See* MPEP § 1001; 35 U.S.C. § 2(b)(2)(A), (C).

[10] *See* MPEP § 1001; 37 C.F.R. § 1.181(a), (g).

[11] *See* MPEP §§ 1202, 1204.

determine petitionable matters relating to the examination process pursuant to 35 U.S.C. § 2.[12]

III. *Timing and relevance of the distinction between appealable matters and petitionable matters*

As a general rule, there is a two-month, non-extendable time limit to file a petition when a petitionable matter arises.[13] Practitioners must therefore identify challenges to examination procedure in a timely fashion to preserve the issues and ensure that the challenges go to the proper decision maker.

As a practical matter, if an applicant appeals the merits of a rejection to the Board (e.g., after a second rejection), begins to brief that appeal to the Board, and includes in its briefs to the Board a challenge to the examination process, an applicant would run afoul of the rules for a challenge to the examination process. In such an appeal, the Board would generally be without jurisdiction to consider the challenge to the examination process itself. The Board, nevertheless, will generally proceed to the merits of the appeal. For example, the Board will review arguments with respect to the existing record and existing claims.

IV. *Examples of petitionable matters arising from prosecution*

The Director has delegated the disposition of petitions in certain instances to various Office officials, such as the Deputy Commissioner for Patent Examination Policy, the Technology Center (TC) Director, or the Supervisory Patent Examiner.[14] Because this article is written from the perspective of an appeal to the Board, it is beyond the scope of this article to opine on examination procedure itself. Practitioners should refer to the Office rules and the MPEP itself for these issues, and to read the directions therein, e.g., on when and how to address correspondence for petitions. This section provides certain non-limiting examples merely to illustrate the types of matters that are beyond the jurisdiction of the Board on appeal because they have been delegated by the Director to other persons.

The Office of the Deputy Commissioner for Patent Examination Policy is the decision maker for certain petitions for waiver or suspension of rules not otherwise provided for, petitions to invoke the supervisory authority of the Director of the USPTO, petitions to review a decision of TC Director or Central Reexamination Unit Director, and petitions relating to reviving abandoned applications and restoring priority.[15] A TC Director may decide certain petitions from

[12] *See* MPEP § 1000.

[13] *See* 37 C.F.R. § 1.181(f); *cf. id.* § 1.183 (suspension of rules).

[14] MPEP §§ 1002.02(b)–(d).

[15] *See* MPEP § 1002.02(b) (items 1–3, 5–8, 17). Other petitions decided by the Deputy Commissioner for Patent

an Examiner's decision requiring restriction in patent applications, petitions from an Examiner's decision regarding the formal sufficiency and propriety of affidavits, certain petitions from an Examiner's refusal to enter an amendment, and petitions from an Examiner's refusal to designate a rejection in an answer as a new ground of rejection.[16] Other petitions may be decided by a Supervisory Patent Examiner, such as petitions to accept photographs or color drawings.[17]

By way of illustration, an applicant may not ask the Board to second-guess an Examiner's decision on whether to enter an amendment during an appeal. This type of issue is best resolved prior to an appeal by petition to the relevant decision maker. During an appeal, the Board will be constrained to decide the appeal based on the current set of claims.[18, 19]

As another example, a petitionable matter may arise in the run up to consideration of an appeal by the Board when an Examiner files an answer to an appeal brief. If an appellant believes that the Examiner's answer introduces new evidence (beyond that contained in the final office action being appealed), the appellant may petition the Director to designate the answer as containing a new ground of rejection within two months of the answer's entry.[20, 21] The TC Director may grant the petition, which would provide an opportunity to reopen prosecution.[22] As relevant to the distinction between petitionable matters and appealable matters, if an appellant has not timely and successfully petitioned on the issue, then the appeal is maintained and the Board will not set aside an Examiner's answer as containing a new ground.[23] In other words, a reply brief is not an effective place for an appellant to challenge the scope of an Examiner's

Examination Policy include petitions to accept certain late payments and papers, certain petitions to expunge papers, petitions to make special and for prioritized examination, applications and petitions relating to Hatch-Waxman term extensions, and petitions to accept an oath or declaration without a joint inventor's signature. *See id.* (items 6, 16, 20, 24, 35, 37–39, 44)

[16] *See* MPEP § 1002.02(c) (items 2–3, 6). Other petitions decided by a TC Director include petitions to reopen prosecution after a Board decision, petitions regarding prematureness of a final rejection, petitions to reset the period of reply by reason of delayed mailing, petitions relating to objections or requirements made by Examiners, and requests for a suspension of action. *See id.* (items 1, 3, 4, 20).

[17] *See* MPEP § 1002.02(d) (item 9). Other petitions decided by a Supervisory Patent Examiner include entry of amendments which embody more than a formal correction without changing the scope of the claims, approval of reopening prosecution after the filing of an appeal brief, requests for deferred examination, and in certain circumstances, a request for a certificate of correction. *See id.* (items 1, 3–5, 11).

[18] *See, e.g.*, *Ex parte Oates*, 2015 WL 4035960, Appeal No. 2013-006966 (PTAB June 29, 2015) (non-precedential) (citing, e.g., *In re Berger*, 279 F.3d at 984).

[19] There are certain circumstances where the Board may remand a proceeding to the Examiner, e.g., to consider an applicant's request to cancel claims after filing a brief, where such cancellation does not affect the scope of any other pending claim in the proceeding, or to rewrite dependent claims into independent form. *See* MPEP § 1211.02.

[20] *See* 37 C.F.R. § 41.40(a) (citing 37 C.F.R. § 1.181). As above, the Director has delegated to the TC Director the decision on petitions to designate a new ground of rejection. *See* MPEP § 1002.02(c) (item 6).

[21] An examiner may also include and designate a new ground of rejection in an answer *sua sponte* if he or she obtains the Director's permission. *See* 37 C.F.R. § 41.39(a)(2). This permission may be granted by a TC Director. *See* MPEP § 1207.03, subsection I.

[22] "A decision granting a petition under § 1.181 to designate a new ground of rejection in an examiner's answer will provide a two-month time period in which appellant must file a reply under § 1.111 . . . to reopen the prosecution before the primary examiner." 37 C.F.R. § 41.40(b).

[23] *See id.* § 41.40(a)–(c); *see, e.g.*, *Ex parte Martin*, Appeal No. 2017-003000 (PTAB June 7, 2017) (non-precedential).

answer.[24] Therefore, if an appellant files a reply brief, the best practice would be for the reply brief to substantively address all of an Examiner's points made in an answer in arguing for patentability of the claims.

Another example of a petitionable matter that is beyond the scope of an appeal is an objection by the Examiner.[25] The Board can decide appeals from rejections by an Examiner but does not reach issues pertaining to any objections by the Examiner.[26]

V. *Other types of petitions*

There are other types of petitions that parties may file during practice before the Office (not to be confused with the petitionable matters arising from actions of Examiners discussed above). Some of these petitions relate to practice before the Board and may actually be decided by the Board, or by the Chief Administrative Patent Judge of the Board.[27] The Board may rule on certain motions pertaining to an appeal, and the Chief Administrative Patent Judge has been delegated by the Director certain decisions relating to "superintending the functions of the Patent Trial and Appeal Board."[28, 29]

As an example, the Chief Administrative Patent Judge may grant an extension of time for an appellant to file a request for rehearing in an ex parte appeal.[30] An appellant, in a request for rehearing from a Board panel's decision, may seek to designate a panel decision as containing a new ground.[31] Thus, as a technical matter, the Board does consider certain petitions. Nevertheless, these petitions are decided separately from a Board panel's consideration of an appeal.

Conclusion

There is a distinction between appealable matters and petitionable matters that is approximately 150 years old. Although the Board may consider the merits of an appeal, so-called petitionable matters are typically beyond the jurisdiction of

[24] *Id.* § 41.40(d).

[25] *See* MPEP § 1002.02(c) (item 4).

[26] *Ex parte Frye*, 94 U.S.P.Q.2d 1072, Appeal No. 2009-006013, slip op. at 16–18 (PTAB Feb. 26, 2010) (precedential); *Ex parte Verschuren*, 2017 WL 542604, Appeal No. 2015-003897, Decision on Request for Reh'g (PTAB Feb. 9, 2017) (non-precedential).

[27] *See* MPEP §§ 1002.02(f), (g), (j).

[28] MPEP §§ 1002.02(f) (item 6), (j); *see also* 37 C.F.R. § 41.3(a),(b).

[29] Another type of matter that bears mention is a request for Precedential Opinion Panel review. *See generally* PTAB Standard Operating Procedure 2 (Rev. 10) ("SOP2"), available at https://www.uspto.gov/sites/default/files/documents/SOP2%20R10%20FINAL.pdf. Parties requesting rehearing before the Board may "recommend Precedential Opinion Panel review of a particular Board decision in that proceeding." *Id.* § II.C.1. Where appropriate, the Director may "convene a Precedential Opinion Panel to decide whether to grant rehearing, and if rehearing is granted, to render a decision on rehearing in the case." *Id.* § II.D. "The Precedential Opinion Panel members are selected by the Director, and by default shall consist of the Director, the Commissioner for Patents, and the Chief Judge." *Id.* § II.B. Parties are encouraged to refer to SOP2 for more information on filing this type of request.

[30] *See id.* § 1002.02(f)(item 6f).

[31] *See id.* § 1002.02(j)(item 3).

the Board on appeal because they are decided by the Director or the Director's delegate. Parties will want to identify petitionable matters to ensure that the petition is submitted to the proper persons for decision, and in a timely fashion.

The Inherency Doctrine: A Performance Review

Ryan Pool*

Contents

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Introduction

The doctrine of inherency is relatively straight forward and there is very little subjectivity in the proper analysis. Nevertheless, both Patent Examiners at the USPTO and many Applicants struggle to conduct a proper analysis under this doctrine.

The USPTO takes the position that "the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable."[1] Whether a property is inherent or not is a question of fact,[2] the fact in question being, does the claimed property inherently occur in the prior art. With regard to defining inherency in the context of patent law, the Federal Circuit held in *In re Robertson* that, "It is well-settled that inherency cannot be established by mere probabilities or possibilities."[3] As recent as 2016, the Federal Circuit citing *Robertson* offered the further definition that, "Inevitability is at the heart of inherency; 'that a certain thing may result from a given set of circumstances is not sufficient.'"[4]

In the prosecution of a patent application at the USPTO, use of the Inherency Doctrine has essentially two phases:

1. Construction of a Prima Facie case of anticipation or obviousness using the doctrine;

2. Evaluating rebuttal evidence by the applicant under the doctrine.

In the first phase, the Examiner may use inherency to supply a missing claim limitation but bears the burden of providing, for example, "some evidence or scientific reasoning to establish the reasonableness of the Examiner's belief that the functional limitation is an inherent characteristic of the prior art."[5] In the second phase, the burden shifts to Applicants to provide proof that the claimed functional limitation is not, in fact, inherent to the claimed structure or composition.[6] Rebuttal evidence has been described by the Federal Circuit as "merely a showing of facts supporting the opposite conclusion."[7]

Generally the Inherency Doctrine is properly used during prosecution of a patent where the Examiner cannot find disclosure or a teaching in the prior art of a claimed property but can otherwise reasonably assert that claimed structure or composition exists in the prior art.

For example, consider a claim directed to a composition having components A, B, and C, wherein the composition possesses property X. In this hypothetical case, the Examiner cites to prior art teaching the combination of components A,

[1] MPEP § 2112(I) (citing *In re* Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977)).

[2] MPEP § 2112 (citing *In re* Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995)) ("The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.").

[3] *In re* Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999).

[4] Howmedica Osteonics Corp. v. Zimmer, Inc., 640 Fed. Appx. 951, 957 (Fed. Cir. 2016).

[5] *See Ex parte* Skinner, 2 USPQ2d 1788, 1789 (BPAI 1986); *See also* Par Pharm., Inc. v. TWI Pharm. Inc., 773 F.3d 1186, 1194-1195 (Fed. Cir. 2014).

[6] *See In re* Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

[7] *In re* Piasecki, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

B, and C in a composition but is unable to locate any teachings that such a composition possesses property X. In such circumstances, the Inherency Doctrine allows the Examiner to construct a prima facie case of anticipation or obviousness under the assumption that a composition having the same components would inherently have the same properties, including the one being claimed by Applicants but not taught by the prior art.[8] The above is a reasonable logical leap further justified considering that, "the Patent Office is not equipped to manufacture productsand make physical comparisons therewith."[9]

The procedural function of the Examiner making a prima facie case based on the Inherency Doctrine is to shift the burden to Applicants to prove that the claimed property is not in fact inherent.[10]

Satisfying this rebuttal burden is most directly achieved by providing an example which is strictly within the claimed structure/composition but lacks the claimed property.[11] In the example composition above, Applicants would be required to show that a composition which has components A, B, and C does not inherently possess property X. Providing even one such example is sufficient to overcome a prima facie case based on the Inherency Doctrine because even a single example proves that the claimed property is not inevitably or inherently tied to the claimed structure/composition.[12]

Another way to think about this issue is that by proving that the claimed property does not necessarily occur in a claimed structure or composition, Applicants are showing that by including this property in the claim, they are actually reducing the scope of the claim. That is, a composition having components A, B, and C is broader in scope than a composition having components A, B, and C and possessing property X. This would not be true if, in fact, property X was inherent to a composition having components A, B, and C. Therefore, claims directed to components A, B, and C and possessing property X are distinguished from the prior art teaching components A, B, and C but not property X.

Upon a showing that the claimed property is not inherent the rejection must be withdrawn. The Examiner has the option of providing additional teachings from the prior art directly showing the presence of the claimed property in a standard prima facie case of anticipation or obviousness, but may no longer rely upon inherency.

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[8] *See In re* Schreiber, 128 F.3d 1473, 44 USPQ2d 1429 (Fed. Cir. 1997); *See also* MPEP § 2112 (V).

[9] MPEP § 2113(III) (regarding evaluating product by process claims with similar logic).

[10] *Best*, 562 F.2d 1252, 1255 (CCPA 1977) (stating, "[w]here . . . the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product.").

[11] *See Ex parte* Watanabe, No. 2016-5113, 2017 BL 311735 (P.T.A.B. August 25, 2017) .

[12] *Id.*

I. Measuring how Applicants and Examiners are handling the Inherency Doctrine

In order to properly evaluate how the Examiners and Applicants are handling the Inherency Doctrine there is a need for a method for objectively measuring this single argument type. The method used herein, relies on decisions by the Patent Trial and Appeal Board (PTAB) as a proxy for determining whether an Examiner was correct or not when rejecting a particular claim under the Inherency Doctrine. The method compares Examiner affirmance and reversal rates in rejections which relied on the Inherency Doctrine to general affirmance and reversal rates of the same type, i.e., anticipation or obviousness.

The data below was acquired by reviewing every PTAB decision from December 1, 2016 to December 1, 2018 which included the word "Inherency." Each decision was reviewed to determine whether the Inherency Doctrine was actually at issue. In the cases were the Inherency Doctrine was at issue, the decision of the case was recorded.

The data is separated by Technology Center and by whether the rejection was made in the context of anticipation or obviousness. This data is then compared to the general rates of reversal/affirmance of anticipation and obviousness rejection types.[13]

II. Inherency Rejection Data

Tech Center	102 Affirmed	102 Reversed	103 Affirmed	103 Reversed
1600	53%	47%	64%	36%
1700	22%	78%	47%	53%
2100	26%	74%	35%	65%
2400	0%	100%	29%	71%
2600	13%	87%	50%	50%
2800	15%	85%	24%	76%
3600	30%	70%	39%	61%
3700	17%	83%	20%	80%

Table 1: PTAB's Reversal/Affirmance Rate of *ex parte* Appeals having Inherency Issues

For comparison, the general rates of reversal/affirmance of anticipation (35 U.S.C. § 102) and obviousness rejection (35 U.S.C. § 103) types are as follows:[14]

[13] Ryan Pool, *Should You Appeal? A Look at Success Rates Before the PTAB on an Individual Rejection Basis*, 100 J. Pat. & Trademark Off. Soc'y 320 (2018).

[14] *Id.*

35 U.S.C. § 102:	Affirmed 40.5%	Reversed: 50.5%	Affirmed-in-Part: 9.0%
35 U.S.C. § 103:	Affirmed 49.7%	Reversed: 40.5%	Affirmed-in-Part: 9.7%

To account for Affirmed-in-Part percentage and allow for a more direct comparison to the data above the above data is converted to a general rate calculated by assuming the same affirmance to reversal ratio is maintained in the Affirmed-in-Part decisions.

35 U.S.C. § 102:	General Affirmance Rate: 44.5% - Average Reversal Rate: 55.5%
35 U.S.C. § 103:	General Affirmance Rate: 55.1% - Average Reversal Rate: 44.9%

Applicants have a small advantage when appealing anticipation rejections while Examiners have a similar advantage with obviousness rejection appeals. While the comparison to these general decision rates for rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103 is not exactly a perfect comparison, it useful of viewing the data in a relevant context.

For ease of comparison the above data is compiled in the graph below. The graph shows the reversal rates for rejections based on inherency. The data is organized by Technology Center and the last data group is composed of the general rates of reversals for both rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103.

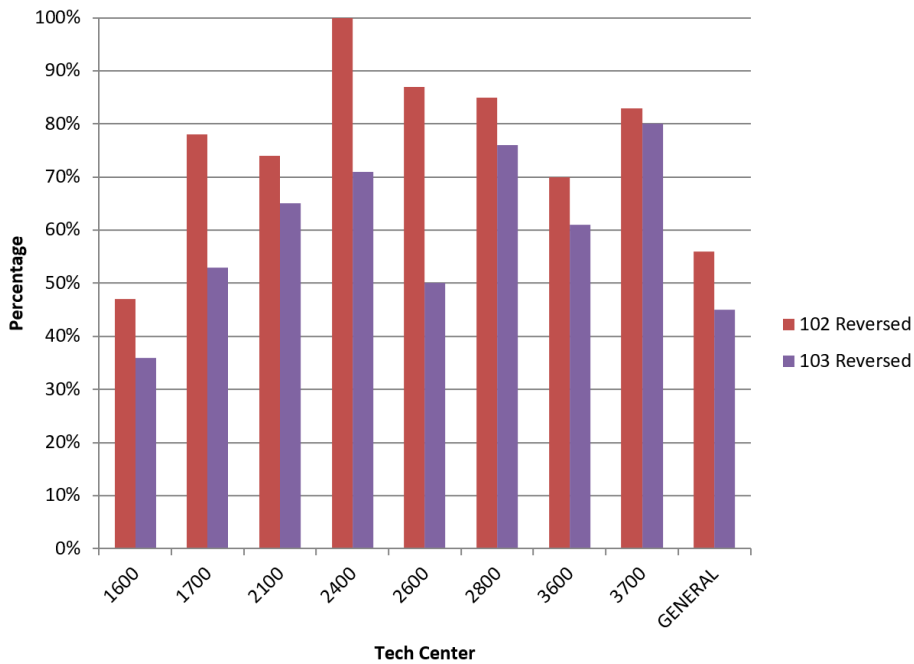

Figure 1: Rates of Reversals for 35 U.S.C. §§ 102 and 103 Rejections Organized by USPTO's Technology Centers and Overall

III. Sample Sizes

Not shown above is the rate at which each rejection is appealed to the Board for each Technology Center. The total number of decisions reviewed over the two year period of the study is as follows:

Tech Center	102	103
1600	49	124
1700	32	139
2100	19	17
2400	9	17
2600	15	18
2800	34	38
3600	40	62
3700	66	118

Table 2: Total Decisions involving Inherency Doctrine over Two Year Period

Accounting for the fact that there is some overlap in the cases above, the PTAB hears about 300-350 cases a year involving the Inherency Doctrine.

IV. Analysis of Data

As can be seen from the data above, proper application of the Inherency Doctrine appears to be a problem area for most Examiners. Rejections both under 35 U.S.C. §§ 102 and 103 see a substantial increase in their reversal rates when the rejection is based on inherency. All but one Technology Center has a reversal rate which is higher when an inherency is required to support a rejection as compared to a generic rejection under 35 U.S.C. §§ 102 or 103. Also, the best performing Technology Center (1600) is only slightly better than a generic rejection while the worst performing Technology Center (3700) has a reversal rate almost double the average when asserting inherency in a 35 U.S.C. § 103 rejection.

The reversal rates do not appear to be related to the number of inherency rejections appealed by a particular Technology Center. That is, whether a Technology Center makes fewer or more rejections relying upon inherency does not appear to determine their performance before the Board. For example, the reversal rates for the 3 largest samples (1600, 1700, and 3700) fall on the relative low end, middle, and high end of the data set, respectively.

While properly applying the Inherency Doctrine appears to be a general problem for most Examiners, the relative degree to which this is a problem appears to be Technology Center dependent. It is difficult to determine exactly why reversal rates among Technology Centers have such a high variance. It may simply be a training issue. However, an alternative possible explanation

(or contributing factor) might be found in the nature of the inventions each Technology Center examines.

Technology Centers 2800 and 3700 have the highest reversal rates for inherency rejections. These Technology Centers tend to examine tangible articles of manufacture where the claims are defined by physical structures. Specially, 2800 relates to "Semiconductors, Electrical and Optical Systems and Components," while 3700 relates to "Mechanical Engineering, Manufacturing and Products."[15]

Technology Centers 1600 and 2600 have the lowest reversal rates for inherency rejections. These Technology Centers tend to examine claims which are not defined by physical structures but instead chemical formulas and systems. Specially, 1600 relates to "Biotechnology and Organic fields," while 2600 relates to "Communications."[16]

Common mistakes made by Examiners with regard to the inherency analysis are discussed below. These common mistakes tend to be more applicable to inventions defined by physical structures. However, this evidence is only correlative. An actual cause for the relative differences between Technology Centers' reversal rates or the overall struggle Examiners seem to have with the Inherency Doctrine is not apparent from the data.

A. Common Mistakes Made by Examiners Leading to Reversal on Appeal

A common mistake made by Examiners is to dismiss a functional limitation or claimed property as inherent without citing any evidence or technical reasoning to support the determination. For example, in *Ex parte Camille Schreiber* Applicants claimed a cosmetic product made of various components but also a spatula portion which was "configured to bend."[17] The Examiner alleged that it would be obvious to combine the cited prior art to form the claimed product and that the product would inherently be confirmed to bend. The Board revered the rejection on the basis that the Examiner failed to cite any evidence supporting the inherency finding.[18]

Another common mistake made by Examiners is to argue that a particular structural feature of a claim is inherently present. For example, in *Ex parte Duppert* the claims required a drive shaft having a locating feature for a counterweight.[19] The Examiner alleged that this feature was inherent because the prior art taught a drive shaft which must include the claimed locating feature of a counterweight for balance reasons.[20] The Board reversed the rejection on

[15] *See* USPTO Technology Center definitions https://www.uspto.gov/patent/contact-patents/patent-technology-centers-management (last visited February 11, 2019).

[16] *Id.*

[17] *Ex parte* Camille Schreiber, Appeal No. 2018-000676, 2018 BL 337357 (P.T.A.B. August 31, 2018).

[18] *Id.* (stating, "The Examiner does not provide sufficient evidence or technical reasoning to establish that the use of these materials in Schefer or Ornoski must necessarily produce objects that are 'configured to bend.' *See In re* Spada, 911 F.2d 705, 708 (Fed. Cir. 1990). Accordingly, the rejections cannot be sustained on the basis of inherency as set forth by the Examiner.").

[19] *Ex parte* Duppert, No. 2015-8120, 2017 Pat. App. BL 275613 (P.T.A.B. August 4, 2017).

[20] *Id.* ("The Examiner further finds that the drive shaft inherently has a locating feature in that the balance

the basis that there were other possible ways to secure a counterweight.[21]

It will almost never be the case that a structural feature of a claim is inherent. Just like *Ex parte Duppert*, it will most likely be the case that some other possibility for the claimed structural feature exists. This possibility alone is sufficient to defeat an inherency allegation.[22] This mistake is made more frequently in art areas where the inventions are mechanical. As noted above, this issue may at least partially explain why, for example, Technology Center 3700 which provides examination for patent applications including Mechanical Engineering, Manufacturing and Products has the most appeals including inherency rejections and the highest rate of reversal of those inherency rejections.

Lastly, but perhaps the most common issue shared across all Technology Centers, is failure to properly consider evidence presented to refute a prima facie case of evidence.[23] Examiners often apply the wrong standard for evaluating Applicants' presented evidence. Specifically, Examiners regularly confuse the standard for traversing a rejection based on inherency with the standard for showing unexpected results. Notably, in some cases this mistake may be correctable by petition.[24]

The burden for proving unexpected results is rightfully higher than refuting an inherency rejection. An unexpected results analysis has some degree of subjectivity. It requires consideration of Graham factors and making an obviousness determination based on the consideration of the evidence presented and the teachings of the cited prior art.[25] Inherency is a question of fact and requires inevitability.[26] A prima facie case of inherency can be defeated by a single example showing that the assumed fact is not necessary true.[27] Notably, MPEP § 2112 which address the Inherency Doctrine, makes clear that once a prima facie case of obviousness is established, the burden shifts to applicants to show that the claimed property is not inherent. However, the MPEP fails to clearly articulate how applicants can satisfy this burden. This may be the cause for the general confusion of Examiners on this issue. Updating the MPEP to address this issue may be sufficient to resolve this issue.

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weight of Ignatiev "must be fixing [sic] attached to the shaft in order to balance the eccentric motion of the orbit scroll.").

[21] *Id.* ("As the Appellant points out, that the flat portion of Ignatiev to which the Examiner refers as the locating feature may be used to affix the counterweight (see Final Act. 4; Ans. 4) is not sufficient to establish the inherency of a locating feature, because there may be other possible ways to secure a counterweight.").

[22] Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1269 (Fed. Cir. 1991) ("Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.").

[23] *See Watanabe*, Appeal 2016-5113, 2017 BL 311735.

[24] *See* the Decision on Petition in US 14/758,050 issued July 19, 2018.

[25] *See* Graham v. John Deere Co., 383 U.S. 1 (1966); *see also* KSR Int'l Co. v. Teleflex Inc., 550 U.S. at 406-07, 82 USPQ2d at 1391 (2007).

[26] Howmedica Osteonics Corp. v. Zimmer, Inc., 640 Fed. Appx. 951, 957 (Fed. Cir. 2016); *see also* MPEP § 2112 (citing *In re* Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995)); *See also* Par Pharma., Inc. v. TWI Pharms., Inc., 773 F.3d 1186 (Fed. Cir. 2014).

[27] *See Watanabe*, No. 2016-5113, 2017 BL 311735.

B. Common Mistakes Made by Applicants Leading to Affirmance

The most common argument made by Applicants in losing appeals to the PTAB is that the Inherency Doctrine is only applicable to anticipation rejections, not to obviousness rejections. This argument has a 100% loss rate and simply does not accurately reflect the current state of the caselaw.[28]

Applicants also lost many of their appeals based on their failure to properly identify when the Examiner has met their burden of establishing a prima facie case under the Inherency Doctrine. In these cases, Applicants did not provide any rebuttal evidence and merely argued that the Examiner did not provide sufficient proof that the property or functional limitation was inherent. This argument regularly fails where the claims and prior art composition or structure are identical or substantially identical. Under these circumstances the characteristics of this claimed product are assumed to be present in the prior art as well.[29] That is, to form a prima facie case under the Inherency Doctrine the Examiner need not prove that a claimed property is present if the prior art teaches an identical or substantially identical structure/composition to the claims.

Applicants also commonly failed to correctly identify when Examiners are relying upon inherency to support their prima facie case. In cases where the support for the prima facie case is unclear, Applicants should request clarification on the record before proceeding to appeal.[30]

Finally, while this is not a mistake per se, Applicants are missing opportunities to use the relatively favorable framework of the Inherency Doctrine to aid in the prosecution of cases where they have met substantial resistance using arguments under the more traditional obviousness framework. Two such instances are discussed in depth below.

C. Inherency Doctrine Framework Useful Where a Meaningful Process Step Exists

Where an Applicant's invention includes a particular process step which imparts some desired property to the finished product, the Inherency Doctrine framework can be very useful. This is because Applicants can distinguish the prior art which does not teach the relevant process step without the necessity of claiming the process step.

Consider the example of this in *Ex parte Watanabe*.[31] In this case, Applicants claimed a toner including:

> a releasing agent having a melting point of 60 C° to 75 C°; and
> a crystalline polyester resin having a melting point of 60 C° to 80 C°, and

[28] MPEP § 2112 (citing *In re* Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) ("The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness."); *See also* Par Pharma., Inc. v. TWI Pharms., Inc., 773 F.3d 1186 (Fed. Cir. 2014).

[29] *Best*, 562 F.2d at 1255.

[30] *KSR*, 550 U.S. 398, at 1741 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) for "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

[31] *Watanabe*, No. 2016-5113, 2017 BL 311735.

> *wherein the toner satisfies Formulae (1), (2), and (3):*
> *40C <X< 55C Formula (1),*
> *85C<Y<92C Formula (2), and*
> *35C <Y-X< 50C Formula (3)*

Applicants provided data in the form of two data points showing that even if the toner had the claimed releasing agent and claimed crystalline polyester resin, the toner would not satisfy Formulae (1), (2), and (3) unless the toner particles underwent an annealing step after pulverization.[32] Specifically, applicant's specification showed two otherwise identical compositions where one had undergone an annealing step after pulverization and one had not. The composition which had not undergone the annealing step after pulverization did not satisfy the claimed Formulae (1), (2), and (3).[33]

The annealing step after pulverization was not part of the claims. This did not matter. Instead the relevant showing to overcome a prima facie case based on inherency is only that the claimed composition does not necessary possess the claimed property. Therefore, the Board held, "Because Appellants have produced rebuttal evidence, they have met their burden of production." The Board also emphasized that the necessary showing to overcome a prima facie case under the Inherency Doctrine is minimal, holding, "The only actual data on record–scant though it may be–supports Appellants' theory that an annealing step is necessary before the prior art toner compositions will met claim 1's formulae."[34]

The Examiner in this case also made the common mistake referred to above of applying the unexpected results standard to a showing to the evidence of non-inherency. The Board specifically rejected this allegation that Appellants' evidence was "too narrow" and "not reasonably found to be commensurate in scope with broadly claimed embodiments" holding:

> In this situation, this is an improper reason for discounting Appellants' evidence. Whether or not the proffered evidence is commensurate in scope with the claims is a proper consideration in accessing the sufficiency of evidence of unexpected results, where Appellants have the burden of establishing that the *claimed invention* provides unexpected results relative to the closest prior art. It, however, is not a proper consideration whereas here Appellants have the burden of rebutting a presumption that a *prior art composition* necessarily possesses or renders obvious the particular properties set forth in the claims. The scope of the claimed invention is not relevant to Appellants' burden regarding the latter question.

In view of the above, if applicant's invention involves a process step which imparts some desired property to the final product, an option for pursuit of patentability is to claim that property rather than the process step. A rejection

[32] *Id.*
[33] *Id.*
[34] *Id.*

relying on inherency can be overcome by a minimal showing that the claimed product without the process step does not possess the claimed property.

D. When Unexpected Results Fail, Consider using the Inherency Doctrine Framework

The Inherency Doctrine framework can also be useful in cases where the Examiner has rejected data presented by Applicants to establish unexpected results as being insufficient for some reason. For example, imagine the following scenario:

A prima facie case of obviousness is presented based on a prior art range which partially overlaps the claimed range. Applicants have attempted to rebut the prima facie case of obviousness by pointing to data in their specification showing that certain points in the claimed range have a particular property X while some points outside the claimed range do not have that particular property X. The Examiner has considered the data and alleged that the showing is not sufficient to establish unexpected results for some reason, for example, the data is not commensurate in scope with the claims.

Assuming that the prior art does not teach property X, Applicants should consider amending their claims to directly claim property X. Doing so will likely illicit an inherency rejection where the Examiner will allege that property X is inherent in the claimed range taught by the cited prior art. To rebut this prima facie case, Applicants merely need to show that at least one data point within the claimed range does not have property X. Assuming the claimed range does not already include such a data point, Applicants can broaden their claimed range to include the closest counter example data point in their specification.

The combination of broadening the claimed range to encompass a data point which does not have property X while simultaneously requiring that the claims include property X should be sufficient to overcome the prior art without need to do battle in the arena of Unexpected Results.

The above strategy has practical advantages over arguing within the frame work of Unexpected Results. For example, it is likely that additional data will not need to be provided.

Also, the Unexpected Results framework has a certain degree of subjectivity that is not present in the Inherency Doctrine framework. For example, a showing of Unexpected Results requires a determination regarding whether the showing provided by Applicants is commensurate in scope with the claims. This determination is largely subjective.[35] In contrast, a single example showing some point within the claimed structure/composition does not have the claimed property is sufficient to prove that the claimed property is not inherently possessed by the claimed structure/composition. There is little to no subjectivity to this determination.[36]

[35] *In re* Lindner, 457 F.2d 506, 508 (CCPA 1972); "Commensurate in scope" means that the evidence provides a reasonable basis for concluding that the untested embodiments encompassed by the claims would behave in the same manner as the tested embodiment(s).

[36] MPEP § 2112 citing *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) ("The inherent

The Board in *Ex parte DAI-ICHI F R CO., LTD* was even kind enough to suggest the above strategy to Applicants.[37] In this case, Applicants argued that their claims possessed unexpected properties. The Board disagreed and affirmed the rejections of the Examiner. However, the Board also made an additional observation where it specifically suggested that Applicants could "further prosecute the application" by claiming the unexpected properties.[38] The Applicants in that case took the Boards advice and the application was allowed.

Conclusion

Unlike many issues brought before the PTAB, the Inherency Doctrine is a question of fact which is almost entirely objectively determined. These are not cases where reasonable minds can disagree. In other words, for the Inherency Doctrine to be brought before the Board, Applicants, the Examiner, or both must have made a clear error in their inherency analysis.

While the Inherency Doctrine only appears in about 300-350 appeals a year, these appeals could almost entirely be eliminated if Applicants and Examiners conducted a proper analysis under the doctrine. Eliminating the common mistakes discussed above would likely eliminate 90% of the appeals where the Inherency Doctrine is at issue.

The USPTO should consider additional training and/or revision of the MPEP to more thoroughly address the entire Inherency Doctrine analysis, particularly in art areas which commonly examine tangible articles of manufacture. Applicants should consider strategic use of the Inherency Doctrine in cases where favorable evidence is available and where claiming a property or functional limitation does not create a predictable difficulty in proving infringement.

Proper treatment and strategic use of the Inherency Doctrine could reduce the total number of appeals to the PTAB and increase the efficiency or patent prosecution. This benefits both the USPTO and Applicants and results in high quality patents.

teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.").

[37] *Ex parte* DAI-ICHI F R CO., LTD, No. 2013-001757 (P.T.A.B. July 25, 2013).

[38] *Id.* at 31 (holding that "[a]s noted earlier, we believe applicant has presented an impressive, albeit limited, showing of unexpected results of some embodiments within the scope of Claim 1. The results establish that the three desirable properties sought by applicant may be simultaneously achieved using limited combinations of elements within the scope of Claim 1. Applicant may wish to further prosecute the application on appeal with an amended Claim 1 limited to compositions (1) comprising the elements recited in Claim 1 and (2) having all three of the important properties identified above.").

Patenting an Invention as a Free Black Man in the Nineteenth Century

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Contents

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Introduction

During the nineteenth century, the view of property rights in patents generally fell into two camps: an inventor's inherent natural right to protect their property versus a limited-term monopoly that the government grants inventors. In the period before the Civil War, known as the antebellum period,[1] lawmakers either viewed patents in the first camp as securing rights which coincided with the natural rights philosophy, or the second camp believing patents were government grants of limited monopolies.[2] Lawmakers found textual support for the concept that patents involve regulation of economic development within the Constitution, including the Contract Clause, Patent Clause, and Commerce Clause.[3] The foundational principles of patent law were often mentioned in early Supreme Court opinions that ensconced property rights, often written by Justice Taney, and those opinions are still cited by courts to this day.

As the debates ensued over which camp of fundamental perspective of patent law should govern, free black men faced many challenges in their fight to patent their inventions.[4] One challenge came from the 1790 Patent Oath, where applicants had to swear to be both the "original" inventors of the claimed invention and citizens of the United States.[5] While black inventors could fulfill the first requirement of the Oath and swear to be an original inventor, black inventors could not fulfill the second requirement because, in the years between 1857 and the 14th Amendment, black people were not seen as citizens of the U.S. This issue of citizenship which challenged free black men in their pursuit to procure patent rights was decided by the Supreme Court in 1857 with Justice Taney's opinion in *Dred Scott v. Sandford* ("Dred Scott"). Justice Taney held that neither slaves nor their descendants were citizens entitled to Constitutional rights.[6] With the 1857 *Dred Scott* decision, free black men's status and citizenship changed, altering their natural rights and privileges to property as guaranteed by the Constitution. Thus, the Supreme Court's decision posed an immediate challenge to black inventors' patent rights because, as non-citizens, they could not sign the Patent Oath.[7]

Despite the *Dred Scott* decision and the Oath's requirement of citizenship, there is evidence of free black men who were able to obtain patents and records suggest black men obtained patents both independently and by partnering with white men.[8] Henry E. Baker, known as one the most important chroniclers of black innovation, devoted his work as an Examiner at the Patent Office

[1] For the purposes of this article, the antebellum period refers to the years from 1789, when the Constitution was adopted, to the beginning of the Civil War.

[2] Adam Mossoff, *Who Cares What Thomas Jefferson Thought about Patents? Reevaluating the Patent "Privilege" in Historical Context*, 92 Cornell L. Rev. 953, 953 (2007).

[3] *See* U.S. Const. art I, § 10, cl. 1; U.S. Const. art I, § 8, cl. 8; U.S. Const. art I, § 8, cl. 3.

[4] During this time period, people of color were called "negroes" or "colored people" and not considered American citizens. For the purposes of this Comment, the Author uses the term "black" to discuss the race of slaves and their free descendants.

[5] Brian L. Frye, *Invention of a Slave*, 68 Syracuse L. Rev. 181, 181 (2018).

[6] Scott v. Sandford, 60 U.S. 393, 405-07, [hereinafter cited as *Dred Scott*].

[7] Frye, *supra* note 5, discussing the opinion of *Dred Scott*.

[8] *Id.*

to discovering the identity of "colored inventors," which he used to directly combat arguments that black men could not contribute to society to the same degree as their white counterparts.[9]

Beyond Baker's work, there is also evidence in newspaper articles from the early nineteenth century that white men often viewed and referred to free black men as "colored citizens." This idea supports the theory that some free black men, who were viewed as citizens in certain states, submitted patent applications for their inventions to the Patent Office and still signed the Oath with its citizenship requirement. To understand the significance of these work, one must understand the role of citizenship and status as it affected inventorship in relation to the (1) Justice Story and Justice Taney dispute over the governing perspective of patent rights, (2) challenges of antebellum black inventors in patenting their inventions, and (3) political use of patents of black inventors by Henry E. Baker.

With recent patent law decisions today still citing from Justice Taney's patent opinions from the nineteenth century, it is imperative that the historical context with which these opinions were written is understood. This Comment will address each aspect to patent inventorship laid out above. First, this Comment will discuss the evolution of property and patent rights as it was later used against the abolition movement of the nineteenth century. Second, this Comment will describe: (1) the importance of the inventions of free black men, and (2) the knowledge and strength that Henry E. Baker's significant record keeping provided for the black community. Finally, this article will highlight the importance of understanding the complex historical context with which the patent laws of the United States developed because the Supreme Court continues to cite patent jurisprudence from the antebellum period without context of the intimate oppression to inventors' property and patent rights.

I. Where & How Patent Law and Citizenship Meet

A. *Evolution of Patent Law and Differing Perspectives*

The U.S. patent history has been full of political involvement and undergone much reform since its inception. The Patent Act ("Act") underwent many amendments, as did the structure of examining patents by the Patent Office. In 1790, the first United States patent statute was enacted. It required, among other things, that inventions be examined by a three-member panel including the Attorney General to determine whether the invention was "sufficiently useful and important to cause."[10] The trade-off for the sole right to exclude the use and sale of the invention for fourteen-years was disclosing the idea to the public.[11] However, the 1790 Act was unpopular and inventors claimed it was too difficult to obtain a patent, leading to the removal of the examination pro-

[9] *See* Henry E. Baker, *The Negro in the Field of Invention*, 2 J. of Negro Hist. 1, 21-36 (1917).

[10] Andrew P. Morriss & Craig Allen Nard, *Institutional Choice & Interest Groups in the Development of American Patent Law: 1790-1870*, U Ill. L & Econ. Res. Paper No. LE07-007 at 5 (2008).

[11] *See also* Steven Lubar, *The Transformation of Antebellum Patent Law*, 32 tech. & Culture 932, 935 (Oct. 1991).

ceeding.[12] The 1790 Act was repealed and replaced with the 1793 Act, which included the "Patent Oath" ("Oath") requiring applicants to swear to be the original inventor of the claimed invention and identify their country of citizenship.[13] Modifications included the codification of the examination process, patent claim, reissue proceedings, appeals, and created the Patent office.[14] In 1800 the again-modified Patent Act allowed noncitizens to obtain patents, provided they were residents in the United States for at least two years.[15] The 1836 Patent Act repealed and replaced the 1800 Act, with subsequent modifications in 1837 and 1839, and those modifications continue to govern patent law today.[16] This 1836 Patent Act was driven by the belief that monopolies cut economic growth but inventions were the exception to the monopoly.[17] Nevertheless, lawmakers who fell into the second camp of views on property rights, like Chief Justice Taney, went so far as to believe that inventions were not an exception, but rather an actual monopoly. Thus, lawmakers' views on fundamental property rights in the nineteenth century greatly influenced how the Patent Act was later interpreted.

In the midst of this continual reform of the Act, courts were interpreting the inherent rights vested by patents. Nineteenth century courts viewed patents as property rights and often discussed the American patent law perspective on property rights. In *McClurg v. Kingsland* in 1843, the Supreme Court held that, in America, a patent creates a vested property right as a matter of the Constitution and its established principles.[18] In 1871, the inventor of a patent argued that the object of a patent was to establish a right, notify people of that property right, and enjoy the benefits of one's invention.[19] Prior to the 1871 lawsuit, the Circuit Court of Massachusetts had also previously wrote in favor of a liberal construction of a patent.[20]

Unlike these early courts, some scholars viewed patent history solely through the lens shared by Thomas Jefferson. Jefferson viewed patents as monopolies and grants of privileges, not inherent property rights.[21] This perspective follows from the English patent system, from which the American system derived but later evolved from. In England, patents were seen as monopoly

[12] Morriss & Nard, *supra* note 10; *see also* Steven Lubar, *The Transformation of Antebellum patent law*, 32 TECH. & CULTURE 932, 936 (OCT. 1991). Sadly, many still argue this same rhetoric given the myriad of patent protection problems. *See e.g.,* Lauren Flick, *Inventor Alert: Patents aren't all they're built up to be*, CNBC: MAKE ME A MILLIONAIRE INVENTOR (Sept. 16, 2015), https://www.cnbc.com/2015/09/16/the-case-against-patenting-your-brilliant-invention.html.

[13] Frye, *supra* note 5, at 183.

[14] Herbert J. Hovenkamp, *The Emergence of Classical American Patent Law*, 58 Ariz. L. Rev. 263, 263 (2016); *see also* Morriss & Nard, *supra* note 10.

[15] Frye, *supra* note 5, at 184 (2018); *see also* Chauncey Smith, *A Century of Patent Law*, 5 Q.J. Econ. 5, 47 (1890).

[16] Chauncey Smith, *A Century of Patent Law*, 5 Q.J. Econ. 5, 55 (1890).

[17] *See* Hovenkamp, *supra* note 14, at 263.

[18] Brief of 27 Law Professors for the United States as Amicus Curiae Supporting Petitioner at, Oil States Energy Servs. v. Greene's Energy Grp., LLC, 138 S. Ct. 1365 (2018) (No. 16-712) [hereinafter Brief for the United States].

[19] Hawes v. Gage, 11 F.Cas. 867, 867 (N.D.N.Y. 1871).

[20] Davoll v. Brown, 7 F. Cas. 197, 199 (D. Mass. 1845). The court also distinguished the American patent system from the monopoly theory of construction, stating that "The patent laws are not now made to encourage monopolies of what before belonged to others."

[21] Adam Mossoff, *Who Cares What Thomas Jefferson Thought about Patents? Reevaluating the Patent "Privilege" in Historical Context*, 92 CORNELL L. REV. 953-54, 965 (2007).

privileges granted by the Crown to encourage development.[22]

One alternate perspective that courts held of American patent history was to view patents through a Lockean natural rights lens where "privileges" referred to absolute rights, often regarding property.[23] In this natural rights lens, compensation for taking one's "privilege" was inherent in the right of due process, evoked from an innate sense of justice.[24] In other words, if the privilege was inherent to a person, the government did not grant the privilege.

The distinction between the English and American patent systems was emphasized in two lawsuits brought before the Supreme Court. In 1829, *Pennock v. Dialogue*, Daniel Webster asked the Supreme Court to reverse what he characterized as an English decision, arguing that American patent law was made in a "fundamentally different spirit" designed to protect and benefit inventors.[25] Justice Story, while unimpressed with Webster's characterization, referred to a patent as a "privilege" to describe an exclusive right– a Lockean characterization.[26] Justice Story also believed that an inventor could waive his exclusive right to an invention by not patenting the invention.[27] In 1851, Justice Taney echoed this concept of a waiver in *Gayler v. Wilder*, explaining that a person who discovers a new improvement is vested with an inchoate right to its exclusive use if he obtains a patent.[28] These cases strongly suggest that "privilege" reflected the natural-rights and social contract perspective of the time.[29] Subsequent patent law decisions, however, display frequent clashes between Justice Taney and Justice Story on their opinions of other aspects of property rights. This clash of opinions on fundamental rights later affected issues of black citizenship and patent rights.

1. Tension of Patent Rights as Privileges, Grants, and Monopolies

Justice Story, as he explained in 1833, believed that American courts should construe patents fairly and liberally, supporting the perspective that "patents for inventions are not to be treated as mere monopolies odious in the eyes of the law."[30] Justice Story cited Article 1, Section 8, Clause 8 of the Constitution, commonly referred to as the "Patent Clause," to suggest that the use of patents further Congress's intent of promoting science and useful arts.[31] To Justice Story, the Constitution secured not only political and civil rights, but also patents as private rights and private property.[32]

[22] *Id.* at 953-54, 968.

[23] *Id.* at 953-54, 972.

[24] *Id.* at 953, 973 n.92.

[25] Pennock v. Dialogue, 27 U.S. 1, 1 (1829); *see also* Frank D. Prager, *The Changing Views of Justice Story on the Construction of Patents*, 4 Am. J. Legal Hist. 11 (1960) (explaining that the "English decision" resulted in voiding the inventor's patent because small details were not expressed in the patent).

[26] Mossoff, *supra* note 21, at 953-54, 968 (2007) (referring to Locke's natural rights perspective).

[27] *Dialogue*, 27 U.S. at 1.

[28] Gayler v. Wilder, 51 U.S. 477, 493 (1850).

[29] Mossoff, *supra* note 21, at 953-54, 972, 980.

[30] Ames v. Howard, 1 F. Cas 755, 756 (D. Mass. 1833).

[31] U.S.C.A. Const. Art. I § 8, cl. 8 (To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries).

[32] Joseph Story, Writings, *The Miscellaneous Writings of Justice Story*, Little Brown and Company (1859).

On the other hand, Justice Taney pushed for a more strenuous requirement in patentable language.[33] After the 1836 Patent Act added the structure of claim construction in patents, claims became analogous to "metes and bounds" of real property law.[34] In the famous Morse Telegraph case, Justice Taney rejected a claim in a patent for being too general and broad, although the trend of the Supreme Court at the time had been to approve broad language patents.[35] The Morse Telegraph case's emphasis on claims with narrow language reflects the transition that is continued in modern patent examination today– a process based on intense scrutiny pre-issuance.[36]

Justice Taney continued to write opinions limiting the enforcement of patent rights. In 1852, Justice Taney used a due process argument to reject granting retroactive patent extensions, thus aiming to limit the scope of a "patent monopoly."[37] This decision reflected his perspective that Congress did not have the power to reinvest property rights in the patent owner.[38] In fact, Justice Taney explicitly stated that he believed the 1836 Act addressed franchise grants so that when a buyer gets a portion of the franchise that a patent owner confers to him, the buyer "obtains a share in the monopoly, and that monopoly is derived from, and exercised under, the protection of the United States."[39]

The tension between Justice Story and Justice Taney's perspectives on property grants as either social contract rights secured by express law or government-granted monopolies culminated in the Charles River Bridge case.[40]

In the Charles River Bridge case, the Supreme Court evaluated a contract and subsequent grant of corporation rights with Justice Taney writing for the majority and Justice Story dissenting.[41] The case involved the proprietors of two competing bridges and whether the construction of a second bridge violated the chartered rights of the older bridge under the Constitution. This case arose from an act of the Massachusetts legislature where Harvard College was granted a perpetual franchise over a ferry, who later allowed proprietors to construct a bridge over the ferry and collect tolls for forty years.[42] Some years later, though, the legislature incorporated other proprietors to erect another bridge just adjacent to the original, which would not collect tolls.

Justice Taney, in delivering the opinion of the Court, construed the charter to the original bridge proprietors narrowly, ruling against an implied exclusive franchise.[43] Justice Taney argued that to rule in favor of an implied contract for the original bridge proprietors would cast uncertainty for the scope of exclu-

[33] Hovenkamp, *supra* note 14, at 263, 295-96.

[34] *Id.* at 263, 295.

[35] *Id.* at 263, 296, (quoting from O'Reilly v. Morse, 56 U.S. 62, 112 (1853)).

[36] *Id.* at 296-97; *Cf.* Matthew Moore, *In Re Bilski and the "Machine-or-Transformation" Test: Receding Boundaries for Patent-Eligible Subject Matter*, 9 Duke L. & Tech. Rev. 1-19 (2010).

[37] Hovenkamp, *supra* note 14, at 263, 290-92.

[38] *Id.*; *see also* Mossoff, *supra* note 21, at 953-54, 968 (citing Bloomer v. McQuewan, 55 US 539, 549 (1852)).

[39] Bloomer v. McQuewan, 55 US 539, 549 (1852).

[40] Proprietors of Charles River Bridge v. Proprietors of Warren Bridge, 36 U.S. 420, 420 (1837).

[41] C. Lee Mangas, *Justice Story's Doctrine of Judicial Supremacy and the Uncertain Search for a Neutral Principle in the Charles River Bridge Case*, 53 Indiana L.J. 2, 328 (1977).

[42] *Id.* at 331.

[43] *Id.* at 333.

sion privileges.[44] His opinion in this case has been described as "reflect[ing] the prevailing anti-monopoly sentiment that was one of the hallmarks of the Jacksonian period."[45] Despite this characterization of legal perspectives in the nineteenth century, other legal scholars recognize the great influence that natural rights philosophy had on American patent law doctrines during that period too.

Justice Story dissented from Justice Taney's decision, favoring a liberal interpretation of the contract and an implied exclusive franchise grant.[46] He argued that when the intention of a grant is obvious, a liberal interpretation of the terms should be enforced.[47] Justice Story concluded that a liberal rule of interpretation should be applied to grants and liberties, because a grant is a contract to be interpreted fairly and, once legislative intent is determined, it is the court's duty to give it full and liberal operation. [48]While he acknowledged that men of "different minds may well arrive at different conclusions, both as to policy and principle," he believed that perceiving grants as monopolies would stop all public improvements and alarm those involved in public enterprises.[49]

Justice Taney and Story represent differing perspective of the two camps on property rights: a government-granted monopoly versus an inherent natural right. While other lawmakers also expressed their views on property rights, Justices Taney and Story were well-known for their opinions that consistently embodied their perspectives when it came to issues of property, citizenship, and patents. Justice Taney's jurisprudence surrounding patent law continued to move away from using classic contract principles. He later decided a patent case, *Bloomer v. McQuewan*, by developing an "economic substantive due process" argument that invoked the Fifth Amendment's Due Process clause instead of the contract clause, which was involved in the Charles River Bridge case.[50] Essentially, Justice Taney believed that the government granted individuals limited property rights, allowing the use of something for a narrow term and purpose. He enforced this belief for federally created rights by invoking the Fifth Amendment's Due Process Clause, his focus on the use of paid property. Shortly after, he wielded this argument for property rights of a different kind–the right to a slave.

B. *Tension among Patents and Citizenship and Status*

In *Dred Scott*, Justice Taney invoked the due process clause again, this time to deny black people citizenship status in a federal decision. This case involved

[44]Proprietors of Charles River Bridge v. Proprietors of Warren Bridge, 36 U.S. 420, 552-53 (1837) (Taney, J.)

[45]Mossoff, *supra* note 24, at 953-54, 953 n.58, citing Deborah A. Ballam, *The Evolution of the Government-Business Relationship in the United States: Colonial Times to Present*, 31 AM. BUS. L.J. 553, 592 (1994). The Jacksonian Period refers to the time when Andrew Jackson was in president from 1824-1840.

[46]Mangas, *supra* note 41, at 333.

[47]Proprietors of Charles River Bridge v. Proprietors of Warren Bridge, 36 U.S. 420, 589 (1837).

[48]*Id.* at 592.

[49]*Id.* at 608-09.

[50]Hovenkamp, *supra* note 14, at 263, 289. *But see* David E. Bernstein, *The History of "Substantive" Due Process: It's Complicated*, 95 Texas L.R. 1 n.2 (2018), stating "[t]he phrase "substantive due process" is anachronistic when applied to the period before the 1940s." The Fifth Amendment's Due Process clause says: "[no one] be deprived of life, liberty, or property, without due process of law."

whether Dred Scott, who was residing as a free black man in Illinois and later taken by his wife's master back to Mississippi, could sue his slave master. Dred Scott argued that since he resided in a free territory before he and his family were re-captured, his status was a free man.[51]

Slavery, until this case in 1857, had previously been regulated on a state-by-state basis. Justice Taney believed this state regulation was incorrect, explaining:

> If it be said to be those laws respecting slavery which existed in the particular State from which each slave last came, what an anomaly is this? Where else can we find, under the law of any civilized country, the power to introduce and permanently continue diverse systems of foreign municipal law, for holding persons in slavery?[52]

He concluded that since slaves were the property of slave owners and not citizens under the Constitution, Congress could not regulate slavery in the territories or revoke a slave owner's right to his slave in a "free" territory without transgressing the slave owner's due process right to his property.[53] This became another substantive due process case for Justice Taney.

1. Foreshadowing for *Dred Scott* from *Prigg v. Pennsylvania*

The decision in *Dred Scott* came a few years after Justice Story's opinion in *Prigg v. Pennsylvania*, where the necessary and proper clause of Congress's commerce power was used to support the holding that "the owner of a slave is clothed with entire authority, in every state in the Union, to seize and recapture his slave, whenever he can do it without any breach of the peace, or any illegal violence."[54] In *Prigg*, Justice Story delivered the majority opinion of a greatly divided court, and Justice Taney concurred, which foreshadows Justice Taney's later decision involving rights to a slave in *Dred Scott*.[55]

Prigg was imperative for expanding federal jurisdiction in a nationalistic framework, although at the cost of finding support for slavery in the Constitution and granting that power to Congress. Justice Story's opinion represents the dominant preemption doctrine of the antebellum period. The rule from *Prigg* obligated the states to assist Congress in enforcing the Fugitive Slave Act, with Justice Story finding support from the Constitution itself that preempted state regulation of fugitive slaves.[56] Essentially, by the power of the Constitution, the federal government could require the states to enforce federal slave regulation instead of their own state regulations. *Prigg* represents the complexity of competing issues during the antebellum period surrounding slavery, nationalism,

[51] *See Dred Scott*, 60 U.S. 393, 625-26 (1856).

[52] *Id.*

[53] *Id.* at 627: "Besides, if the prohibition upon all persons, citizens as well as others, to bring slaves into a Territory, and a declaration that if brought they shall be free, deprives citizens of their property without due process of law, what shall we say of the legislation of many of the slaveholding States which have enacted the same prohibition?"

[54] Prigg v. Pennsylvania, 41 U.S. 539, 613, 641-42 (1842).

[55] Paul Finkelman, *Prigg v. Pennsylvania Understanding Justice Story's Proslavery Nationalism*, 22 J. Supreme Court Hist. 51-55 (2011).

[56] *Id.*

and perspectives of the fundamental principles granted by the Constitution, which continued to play a role in the lives of black people and their patent rights.

These cases show that a lawmaker's theory of what qualifies as a fundamental right, and, to some extent, how their perspective over property rights could be used in a backwards property rights argument against black citizenship. But the horrible consequences of such perspectives did not end there. This very argument was later used to deny black people property rights in their own inventions' patents. It is imperative that Justices today understand the nuances in older Justices' perspectives of civil rights and property rights during the time they wrote their opinions in the nineteenth century. It had long-lasting and complex implications on other issues such as citizenship and status during the time period and made the struggle harder for black inventors to overcome.

2. Confederate Patent Act

The *Dred Scott* and *Prigg* decisions were some of many issues causing the sectional divide between the North and the South that culminated in the Confederacy's secession and Civil War.[57] Once separated, the Confederate States of America created a patent system based off of the Patent Act, with one addition: slave owners could patent their slaves' inventions.[58] The Confederate Patent Act, passed by the Confederate Congress in 1861, removed the Patent Oath requirement from the original Patent Act.[59] By doing so, it "resolved" the issue of who could claim the property rights of a black man's invention if that inventor was not a citizen.[60]

This issue of patent rights for a slave and his slave owner was personal to the Confederate President Jefferson Davis. In 1859, Davis tried to patent an invention of his slave, Benjamin T. Montgomery, which was an improved propeller for steamships.[61] Davis made it clear when applying for this patent that it was Montgomery's design.[62] This information was documented by the *Richmond Daily Dispatch* in 1859 under the heading "Invention of a Negro."[63] Davis's request was denied because the Commissioner of Patents, Joseph Holt, had ruled that slave inventions couldn't be patented in 1857.[64]

Interestingly, Davis was following in the footsteps of another: Oscar J.E. Stuart, who a few years earlier had already attempted to patent the invention of

[57] Alix Oswald, *The Reaction to the Dred Scott Decision*, 3 Voces Novae: Chapman University Hist. Rev. 190 (2012).

[58] Frye, *supra* note 5, at 226.

[59] H. Jackson Knight, *Patents and the Confederacy*, 5 J. Fed. Cir. Hist. Soc'y 81, 84-86 (2011).

[60] *Id.* at 81, 83. The issue was not morally resolved because the original inventor was still not entitled to the fruits of his own labor if he was a black man.

[61] Frye, *supra* note 5, at 217.

[62] *Id.*

[63] *Id.* at 181.

[64] Ron, *Slaves and the US Patent Office*, US Slave Blogspot (Feb. 9, 2013), https://us-slave.blogspot.com/search?q=patent+office (citing in part Sean Vanata, *How the Patent Office Helped to End Slavery*, Bloomberg (Feb. 8, 2013), https://www.bloomberg.com/view/articles/2013-02-08/how-the-patent-office-helped-to-end-slavery).

his slave, Ned, of a double cotton scraper.[65] Stuart, in his letter to the Secretary of the Interior asking for this patent, stated: "P.S. Our planters who have seen the model are highly pleased with it, as a great labor saving machine."[66] When the Secretary of Interior asked why he was being asked the abstract question of the right to take out a patent for an invention of one's slave, Stuart replied that the Commissioner of Patents, Holt, had sent a letter denying his request, stating, "it is impossible for the negro slave "Ned" to bring *his* application before the Office, in such form as would entitle it to examination."[67] Stuart asked the Secretary of Interior to rule on the patent rights of a slave and his slave owner because the Commissioner of Patents had already rejected his proposal. Senator David Reid of North Carolina used Stuart's letter as momentum to introduce a bill on January 31, 1859 to amend the Patent Act and permit slave owners to patent their slave's inventions.[68] This bill and Stuart's petition was ignored.[69]

Inventions by black inventors, and the issue of who owned the property rights to them, was important enough to warrant a new law in the Confederate States of America. These inventions made great contributions to society and brought much profit to their owners, as Oscar J.E. Stuart stated in his petition. In other words, these inventions were innovative and worth legally protecting. Unlike the Confederacy, which legally stopped existing when the Civil War ended, the tension over fundamental property rights existed before, during, and after the war.

C. *The Narrative Despite the Odds*

1. Changing Understandings of Citizenship and Patent Rights

This paper has highlighted various obstacles posed to black inventors in their efforts to obtain patent protection for their inventions. The most obvious obstacle was that black people were not considered citizens and could not sign the Patent Oath in the mid-nineteenth century. However, this paper also emphasizes that despite these obstacles, patents were obtained for black inventors. One such theory for how patents were obtained for black inventors was that the meaning and understanding of citizenship changed over time. Justice Taney's *Dred Scott* opinion declaring that black people were not U.S. citizens did not occur until 1857. Before 1857, states had the power to determine entitlement to a patent or the scope of patent property right.[70] In fact, state regulation of slavery was recognized by the Justices of the Supreme Court before being preempted in *Prigg*. Similarly, the Patent Clause of the Constitution indicates that while Congress secures the right to patent, its management as a property right originally fell to the states.

[65] John Boyle, *Patents and Civil Rights in 1857-58*, 42 J. Pat. Off. Soc'y 789, 790 (1960).
[66] *Id.*
[67] *Id.* at 789-92.
[68] Brian L. Frye, *Invention of a Slave*, 68 Syracuse L. Rev. 206 (2018).
[69] *Id.* at 207. There were still instances of discrimination in the North.
[70] Hovenkamp, *supra* note 14, at 297-98.

Knowing that states originally managed patent rights and slavery, there is historical evidence that freed black persons at the end of the eighteenth century and early nineteenth century moved north to cities like Boston, Philadelphia, and New York to create and find communities of economic opportunities and forge new realities.[71] Therefore, when black people moved to northern states, or any state that recognized a free black person as a citizen, the obstacle of not being able to sign the Patent Oath as a citizen no longer applied. There is much evidence that northern states believed free black men to be citizens, which is supported by consistent references of black people in newspaper clippings as "colored citizens."[72] Without the citizenship barrier to patent rights, it is probable that state civil rights, state management of patent rights, and black people's citizenship could have aligned to allow free black men to patent their inventions in the early nineteenth century.

Since a free black person was a "colored citizen" in states that recognized their citizenship, a free black inventor was a "colored inventor" and logically able to obtain patent rights for their invention. Just as there is consistent evidence that black men were referred to as "colored citizens," there are many examples where black inventors were referred to as "colored inventors." One example where a free black man was referred to as a "colored inventor" involves the infamous Henry Blair. An 1836 newspaper, after describing Blair and his invention, asked: "Ought not this colored inventor to be recognized as a reward for his ingenuity?"[73] Additionally, *Belfast News* referred to Blair as "a free man of color" and explained that his corn-planter invention was exhibited in the capital of Washington.[74]

Twenty years after recognizing Blair's invention, newspapers continued to capture the ingenuity of free black men. James M'Henry praised the almanac calculated by Benjamin Banneker of Maryland in the *Independent Gazetteer*: "I consider this Negro as a fresh proof that the powers of the mind are disconnected with the color of the skin, or, in other words, a striking contradiction to Mr. Hume's doctrine"[75] Therefore, it is highly probable that black inventors were supported by their resident state's conception of their status and citizenship to apply for patent protection, because in some states in the early nineteenth century, free black men were citizens. There is also evidence that black inventors partnered with white men to obtain patents.[76] Partnerships were also

[71] Michael Edward Groth, *Forging Freedom in the mid-Hudson Valley: The End of Slavery and the Formation of a Free African-American community in Dutchess County, New York, 1770-1850*, 205 (1994) (published Ph.D. dissertation, Binghamton University). There were still challenges faced by freed slaves in rural parts of the same states.

[72] *Meeting of Colored Citizens*, The Liberator, Feb. 7, 1845, at 3; *see also* William C. Nell, *Remarks of William C. Nell Before the Comm. on Fed. Relations*, Apr. 2, 1859, at 3 ("Gentlemen, the colored citizens of Massachusetts have little to complain of, so far as her statutes are concerned. Here we stand equal before the law…"); H. C. Wright, *Doings in New-York*, The Liberator, Mar. 18, 1837, at 3 ("Whatever interests our colored citizens, will interest you.")

[73] Editorial, *Invention by a Negro*, The Liberator, May 14, 1836, at 3.; *see also Important Inventors*, Belfast News-Letter, Aug. 2, 1836 at 2.; *see also* U.S. Patent No. X8447 (issued Oct. 14, 1834).

[74] Editorial, *Important Inventors*, Belfast News-Letter, at 2 (Aug. 2, 1836).

[75] Goddard & Angell, *Benjamin Banneker*, The Independent Gazetteer, at 2 (Nov. 26, 1791); *see also* Henry E. Baker, The Colored Inventor: A Record of Fifty Years, 3,6 (1859), https://digitalcollections.nypl.org/items/510d47df-a96e-a3d9-e040-e00a18064a99, for more information about Banneker's inventions.

[76] *Henry Boyd - Former Slave and Cincinnati Entrepreneur*, Digging Cincinnati History: Historical Consultants

common for slave inventors, where slaves partnered with their owners to patent their inventions.[77]

During this period, there was a great debate over whether the states had to recognize the status of black citizens or slaves as they traveled, which involved the Privileges and Immunities Clause of the Fourteenth Amendment, but this author does not discuss this status issue in that Constitutional context. In summary, a black inventor, whether his status was a free man or slave, had many challenges to overcome in owning and profiting from the invention(s) he created. By working around the citizenship issue posed by the Patent Oath in various ways, there is evidence that black men were able to patent their inventions. Had patent laws, property rights, and black citizenship converged in a way favorable to true and original inventors, other struggles would have been easier to overcome because inventors would have had revenue and the chance to buy freedom.

2. Henry Baker – The Man Who Wrote It All Down

Henry Baker was the "first chronicler" of black inventors and he dedicated his life's work to uncovering and publicizing these contributions.[78] He assembled a list of patents obtained by "colored inventors," soliciting information from Patent Office examiners and individuals through newspaper solicitations. He dedicated his work to documenting black innovation, and devoted himself to the betterment of the condition of his race.[79]

Henry Baker was born on September 1, 1857 in Mississippi.[80] He passed an entrance exam and was admitted to the Naval Academy as a cadet midshipman in 1875, the third African American to enter the academy.[81] Although he entered the Naval Academy, he ultimately withdrew before graduating because of the severity of the racial insults and violence he faced from both staff and students.[82] He attended the Ben-Hyde Benton School of Technology from 1877 to 1879 and went to Howard University's law school right after.[83] In 1877, he was appointed to the United States Patent Office and was promoted to Second Assistant Examiner in 1902.[84]

At the Patent Office, Baker wanted to raise awareness about black inventors. To do so, he sent out over 8,000 letters to over 12,000 registered patent at-

(Feb. 6, 2014), http://www.diggingcincinnati.com/search?q=Henry+boyd. In 1833, Boyd partnered with a white man, George Porter, to patent his bedstead invention, and he eventually used his business success to purchase his and his siblings' freedom.

[77] Frye, *supra* note 68, at 181, 217.

[78] Meserette Kentake, *Henry E Baker: The First Chronicler of African American Inventors*, Kentake Page: A Love Affair with Black History (Sept. 1, 2015), http://kentakepage.com/henry-e-baker-the-first-chronicler-of-african-american-inventors.

[79] *Henry E. Baker*, Twentieth Century Negro Literature Or, A Cyclopedia of Thought on the Vital Topics Relating to the American Negro, Negro as an inventor, 399 (1902).

[80] Kentake, *supra* note 78.

[81] Tina L. Ligon, *Rediscovering Black History - Wanted: Colored Inventors*, National Archives (Nov. 5, 2013), https://rediscovering-black-history.blogs.archives.gov/2013/11/05/wanted-colored-inventors.

[82] *Id.*

[83] *Id.*

[84] *Id.*

torneys and newspapers to calculate the statistics.[85] His investigation yielded over 1,200 African American inventors, 800 of whom actually gave Baker their permission to reveal their identities.[86] He wrote a book that listed many examples of black inventors and their respective inventions.[87] He also shared this information with the newspapers. In 1889, Henry Baker published a piece called: "Colored Inventors–What the Race is Doing" in the *Washington Bee* and explained the depth of his research:

> Sir: in reply to your letter of some weeks ago asking me to furnish you a list of such patents as have been granted to colored inventors, I have to say that the records of this office do not distinguish between inventors as to race-but only to nationality It not unfrequently happens, however, that applicants come personally before the examiners in the patent officeso that in this way, and in this way only, their racial identity is often disclosed. The only means [. . .] is to inquire among the examiners in the office, and the attorneys practicing before the office, who have come personally in contact with such inventors.[88]

This extensive search conducted by Henry Baker solicited information from other patent examiners and black inventors in his quest to gather quantitative data of "colored inventors" to better inform the country of the innovation of black men. Black men contributed to society by creating and sharing their inventions, as reflected in their patents, and that information was a political rallying tool for the community.

3. Famous Free Black Men Inventors

Baker believed that the lack of racial information in patent applications served a distinct disadvantage to the black community.[89] Baker noted that in any other country, it would be a relatively quick process to determine racial quantitative information about patent applicants.[90] Despite this hurdle to his search, Baker was committed to determining the statistics on black inventors and sharing that information with the community. In reaching out to the black inventor community, Baker acknowledged that many "colored inventors" refused to claim their inventions, fearing an impact on the commercial value of their products.[91] Given this concession, it is highly probable that there are several patents that were granted to black inventors without an indication of race in the application or communications outside of secret partnerships, and history may never know about them.

[85] Kentake, *supra* note 78.

[86] *Id.*

[87] Henry E. Baker, The Colored Inventor: A Record of Fifty Years, 3 (1859), https://babel.hathitrust.org/cgi/pt?id=emu.010000667530;view=1up;seq=1.

[88] Henry E. Baker, *Colored Inventors. Henry E. Baker Furnishes the Bee a List—What the Race is Doing*, The Washington Bee, Apr. 27, 1889, at 3.

[89] Baker, *supra* note 87, at 3-4.

[90] *Id.*

[91] *Id.* at 3.

Thomas Jennings, the first known black inventor, patented dry scouring for dry cleaning in 1821.[92] He started as a tailor and eventually opened his own dry-cleaning business which became one of the largest stores in the city.[93] Jennings was also an abolitionist who donated his money and time, becoming an assistant secretary for the First Annual Convention of the People of Color.[94] Another free black inventor was Robert Benjamin Lewis, recognized for patenting a few inventions between the 1820s and 1840s, such as machine for picking flax and hemp, and a whitewashing brush.[95] Henry Blair patented seed and cotton planters in 1834 and 1836, respectively.[96] Baker commented on Blair's two patents as one of the first recorded instances where patents were granted to a "colored man."[97]

But Baker goes beyond acknowledging the patents of black inventors despite their patent ineligibility as non-citizens. He dedicates an entire section in his book to acknowledging the inventions by black men who never even recorded a patent, such as Benjamin Banneker.[98] There are other important inventors in the antebellum period that are consistently recognized throughout history for their ingenuity.[99] Henry E. Baker shared these stories about how black inventors overcame struggles despite the many hurdles in education, opportunity, citizenship, and status, with the community as proof that "colored inventors," "colored citizens," existed and shared innovative contributions to society.

4. Proclamation to the Community

The identified black inventors, although only a fraction of the entire population of black inventors because many did not come forward, demonstrated their inventions at the Paris Exposition of 1900. While this was the first showcase of the patent contributions of the black community, it was not the last. Years later, the Pennsylvania Emancipation Exposition of 1913, featuring famous leaders in the community like W.E.B. Du Bois, Charles Sumner, and Frederick Douglas, continued the commemoration of black innovation and inventions.[100]

For years, black men could not legally patent items due to the citizenship problems included in the Patent Oath, furthered by Justice Taney's due-process

[92] *Thomas Jennings: African American Inventor*, Black History, http://www.myblackhistory.net/Thomas_Jennings.htm; U.S. Patent No. 3306X (issued Mar. 3, 1821).

[93] *Id.*

[94] *Id.*

[95] Frye, *supra* note 68, at 185.

[96] *Henry Blair: African American Inventor*, Black History, http://www.myblackhistory.net/Henry_Blair.htm; U.S. Patent No. 8447X (issued Oct. 14, 1834).

[97] Baker, *supra* note 87, at 7. Blair's original patent is available for viewing today, with the original drawing, unlike many other early patent applications which were destroyed in the Patent Office fire of 1836.

[98] *Miscellany*, The Independent Gazetteer & Agricultural repository, at 1 (Oct. 20, 1792).

[99] *See* Frye, *supra* note 68, at 183; Dennis Forbes, *Uncovering History's Black Women Inventors*, inventors eye: A newsletter from USPTO's independent inventor community (Feb. 2014), https://www.uspto.gov/learning-and-resources/newsletter/inventors-eye/uncovering-history-s-black-women-inventors; Kara W. Swanson, *Intellectual Property and Gender: Reflections on Accomplishments and Methodology*, School of Law Faculty Pubs. 3 (Jan. 1, 2016); Michael C. Christopher, *Granville T. Woods the Plight of a Black Inventor*, 11 J. Black Studies 269, 271 (Mar. 1981).

[100] Charlene Mires, *Race, Place, and the Pennsylvania Emancipation Exposition of 1913*, 128 Pa. Mag. of Hist. and Biography 3, 257-278, 266 (2004); *see also supra* note 30.

and anti-monopoly focused Supreme Court opinions. Because of these legal interpretations, black men had to find other ways to preserve the right to their inventions. Regardless of the path they took, they finally got a chance to show their valuable contributions through these shows.

Baker's work compiled 400 patents in American history and the collections presented at the Paris Exposition combatted the dearth of knowledge on black inventors.[101] Henry Baker was told by many of his fellow patent examiners that there would never be a day when a black person could patent an invention.[102] A patent lawyer, B. J. Nolan, wrote that he never knew a "Negro to even suggest a new idea" and when he asked other lawyers for such data, "they take it as a joke."[103] It is therefore easy to understand why Baker emphasized in his survey of black inventors that inventors should come forward "*so far as they may deem safe and proper*" in order to help him "collect proofs of colored talent and ingenuity" and to aid other black inventors in obtaining patents.[104]

Inventors are entitled to patents because of their contribution to society, and, as history tells us, black inventors made successful contributions. Therefore, black inventors were entitled to equal patent rights. This conclusion is logically supported from the first camp's perspective on property rights, although some lawmakers supported property rights as fundamental to the inventor with the caveat that the inventor was white. As inventors fought to protect their inventions, Baker fought to protect, share, and celebrate the race of black inventors during a time in legal history where people claimed such inventions did not, could not, exist.

II. Understanding the Spirit of Innovation; Promoting the Pogress of Innovation; Using Accurate Precedent to Promote Progess

The American legal system is one that values stare decisis, or the principle that legal issues should be determined based on precedent. Political institutions today rely on precedent when making their decisions, but it is important that these institutions understand the foundation and evolution of property rights.[105] In order to best apply property rights today, one must understand the

[101] *Id.* at 550-51.

[102] *Blog by Under Secretary of Commerce for Intellectual Property and Director of the USPTO David Kappos,* In Celebration of Black History, Director's Forum: A Blog from USPTO's Leadership (Feb. 12, 2012), https://www.uspto.gov/blog/director/entry/in_celebration_of_black_history.

[103] Michael C. Christopher, *Granville T. Woods the Plight of a Black Inventor*, 11 J. Black Studies 269, 269 (Mar. 1981).

[104] Notice, *Colored Inventors*, The Liberator, Nov. 8, 1834, at 4 (emphasis added). *See also* Bishop H. M. Turner, *Topic II: Will It Be Possible for the Negro to Attain, in this Country, unto the American Type of Civilization?*, Twentieth Century Negro Literature Or, A Cyclopedia of Thought on the Vital Topics Relating to the American Negro, 42 (1902), who argued for civility, stating: "Civility comprehends harmony, system, method, complacency, urbanity, refinement, politeness, courtesy, justice, culture, general enlightenment and protection of life and person to any man, regardless of his color or nationality."

[105] *The Library of Congress: Researching Judicial Decisions* (last updated September 9, 2015), http://www.loc.gov/law/help/judicial-decisions.php.

historical record in context. The historical development of property rights in the nineteenth century was influenced by legislators and the civil rights movement. The lack of appreciation for the historical context has led to recent decisions perpetuating a misunderstanding of "privileges," property rights vested in patents, and the important implications on patent law and inventors.

Patent law decisions by the Supreme Court still cite Chief Justice Taney's opinions from the mid-nineteenth century. The Supreme Court should consider applying other patent theories that were integral to nineteenth century rulings and may have application today. In 2006, the Supreme Court cited *Bloomer v. McQuewan* and perpetuated the idea of limiting the monopoly with Justice Taney's nineteenth century perspective in mind.[106] In 2017, the Supreme Court said that the Patent Act's guarantee was limited by the patent owner's sale, as cited in *Bloomer,* where a sale moves the right from a monopoly to individual private property.[107] *Bloomer* was the very decision where Justice Taney used due process to limit the scope of a "patent monopoly," opining that Congress could not reinvest in the patent owner property rights.[108] This story of patent law's evolution continues to dominate historical scholarship, and was recently demonstrated in 2017, and is still cited to today.[109] To misunderstand the historical record is to perpetuate out-of-context analysis into a new decade.

Not only do current cases citing Justice Taney's opinions in the 1850s misplace the foundational theory of property rights, but they remove the context of citizenship and status, which were integral civil rights issues when patent law evolved. Justice Taney's opinion in *Dred Scott* is based on his perspective of property rights as applied to the rights of people, as interpreted from the Constitution.[110] Justice Taney again limits the power of Congress in this opinion as he did in *Bloomer*, arguing that any Act by Congress which deprives a person of their Fifth Amendment right to life, liberty, and property, ignores their due process right.[111] However, Justice Taney used this rationale to involve the status and citizenship of black men during the nineteenth century in order to deny black men citizenship to the United States under the majority's reading of the Constitution.[112] The legal logic that perpetuated the myth that people are property should not also be the foundation of modern patent cases, as that logic is clearly flawed.

The ability to patent is critical and the spirit of invention has always existed in America.[113] The principle that one's property is a vested right that should

[106] Quanta Computer, Inc. v. LG Electronics, 553 U.S. 617, 625-28 (2006).

[107] Impression Products, Inc. v. Lexmark Intern., Inc., 137 S. Ct. 1523, 1526 (2017).

[108] Bloomer v. McQuewan, 55 US 539, 549 (1852).

[109] *Id.* at 953-54, 967.

[110] *Dred Scott*, 60 U.S. 393, 450 (1856): "Thus the rights of property are united with the rights of person, and placed on the same ground by the fifth amendment to the Constitution, which provides that no person shall be deprived of life, liberty, and property, without due process of law."

[111] *Id.*: "And an act of Congress which deprives a citizen of the United States of his liberty or property, merely because he came himself or brought his property into a particular Territory of the United States, and who had committed no offence against the laws, could hardly be dignified with the name of due process of law."

[112] *Id.* at 393, 453-54.

[113] United States Patent and Trademark Office, *US Patent Activity Calendar Years 1790 to the Present*: *Table of Annual U.S. Patent Activity Since 1790* (Nov. 19, 2018), https://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm.

be enforced by law was simultaneously supported and contested during the formative years of U.S. patent law. The experiences that Baker documents with free black men and their continued inventiveness despite the myriad of obstacles they faced for protecting their inventions demonstrates this spirit. The ability to patent must continue to be protected by the strongest foundations. Current Supreme Court opinions which cite to Justice Taney's opinions, without appreciating the historical context of the period, perpetuates an incomplete understanding of property rights that affect patent rights today. As for patent rights and innovation in 2018, the United States fell to twelfth place in the Global IP Index for International Patent System Strength, and out of the Top 10 in Bloomberg's Innovation Index due to the "uncertainty for innovators" caused by problematic patent protection.[114] Now is a time for the Supreme Court to understand and recognize the complete history of innovation of this country, and the great lengths that inventors like those in the black community went to in order to protect their inventions, so that patent laws can better protect and stabilize the property rights of today's inventors.

The vigor and historical record keeping of Henry E. Baker, and his fight to add and recognize the race of inventors, was political momentum for the black community, and that recognition is still valuable today. There are real costs to citing nineteenth century cases without understanding the foundation and history of patents as property rights, as well as the struggle that black men faced in trying to obtain patent protections on their inventions amid a battle for citizenship. Misquoting these opinions without understanding their background provides ample opportunity to perpetuate misplaced, incorrect arguments into the record today. These mistakes diminish the strength of patent law since modern jurisprudence is based on inaccurate application. Patent law is critical to strong individual rights and a strong economic system, which the founders realized when they included patent protections in the Constitution itself. Therefore, it deserves robust jurisprudence stemming from strong legal thought.

Conclusion

Patent law used to require an inventor to sign a Patent Oath declaring that they were the true inventor and their citizenship in order to obtain patent protection. In 2012, the requirement that the inventor state their citizenship was removed.[115] But in 1836, when the requirement was very much known to the

[114] Biotechnology Innovation Organization, BIO Statement on U.S. Falling to 12th Ranking of International Patent System Strength (Feb. 8, 2018), https://www.bio.org/press-release/bio-statement-us-falling-12th-ranking-international-patent-system-strength; See also Michelle Jamrisko & Wei Lu, The U.S. Drops Out of the Top 10 in Innovation Ranking, Bloomberg Law (Jan. 22, 2018), https://www.bloomberg.com/news/articles/2018-01-22/south-korea-tops-global-innovation-ranking-again-as-u-s-falls;
Gene Quinn, U.S. Patent System Falls to 12th Place in Chamber Global IP Index for 2018, IP Watchdog (Feb. 8, 2018), https://www.ipwatchdog.com/2018/02/08/u-s-patent-system-falls-12th-place-chamber-global-ip-index-2018/id=93494/.

[115] *See* United States Patent and Trademark Office, *Manual of Patent Examining Procedure: Chapter 602 "Oaths and Declarations"* (Jan. 24, 2018), https://www.uspto.gov/web/offices/pac/mpep/s605.html.

inventor community, there still existed a robust record of free black men obtaining patents for their inventions, although at one point in the antebellum period, they were not legally recognized as citizens.[116] There is also a significant record from newspapers of the nineteenth century congratulating these "colored inventors" and the inventions of "colored citizens."[117] The Supreme Court opinion in *Dred Scott* that black men were not citizens of the United States, using Justice Taney's substantive due process argument previously used in patent law, caused a complex interrelationship between patent law, property rights, citizenship, and status in the United States.

The evolution of patent rights and the progression of the civil rights movement both had many developments in the nineteenth century, and the brilliance of black inventors during this period despite the many challenges they faced should be recognized and appreciated. To ignore the significant developments of either of these movements would be to perpetuate an incomplete analysis of the opinions from the 1850s. In understanding the competing theories of property rights which shaped the laws of the nineteenth century, people and lawmakers alike can appreciate how the two camps' perspectives altered the struggle of antebellum black inventors to claim their inventions. Then, lawmakers can appreciate the significance of black inventions and the work by Henry E. Baker, newspapers, political speakers and leaders to document and claim the legitimacy and success of these inventions. Baker concluded his book stating:

> We can never know the whole story. But we know enough to feel sure that if others knew the story even as we ourselves know it [. . .] may form the story of the next fifty years of our progress along these specific lines, so that some one in the distant future, looking down the rugged pathway of the years, may see this race of ours coming up, step by step, into the fullest possession of our industrial, economic and intellectual emancipation.[118]

Baker noted that he was writing another book that would dive into extensive detail of the contributions of black inventors, but he never did. However, the conversation, as he hoped, is one that should and does continue today in patent law historical scholarship. The development of patent law in the nineteenth century evolved, in great part, from the Supreme Court opinions of the time. These opinions were written as great momentum propelled the civil rights movement and tensions of citizenship were prevalent; when courts cite those opinions today, it is imperative that the entire historical context, and the progress that many inventors hoped for, be appreciated.

[116] Baker, *supra* note 87.

[117] *Meeting of Colored Citizens*, The Liberator, Feb. 7, 1845, at 3 ("A large and highly respectable meeting of colored citizens of Boston was held at the Belknap-street meeting house on Monday evening last, to take into consideration the slave laws subjecting them to imprisonment on their arrival in southern ports..."); *see also* William C. Nell, *Remarks of William C. Nell Before the Comm. on Fed. Relations*, Apr. 2, 1859, at 3 ("Gentlemen, the colored citizens of Massachusetts have little to complain of, so far as her statutes are concerned. Here we stand equal before the law..."); H. C. Wright, *Doings in New-York*, The Liberator, Mar. 18, 1837, at 3 ("Whatever interests our colored citizens, will interest you.")

[118] Baker, *supra* note 87, at 19.

Computer-Generated Inventions

Michael McLaughlin[‡]

Abstract

Technological advancements in artificial intelligence have threatened the axiom that conception, the mental part of invention, is a function exclusive to the human mind. Recently, machine learning technologies have allowed artificially intelligent computers to compose patent claims that amount to patentable subject matter. This technology is similarly used by innovators to optimize design configurations beyond the scope of human capacity. The type of patent protection to be afforded to computer-assisted and computer-generated inventions with minimal to no human intervention has yet to be determined. This article illuminates how such technological advances could wreak havoc on the patent legal system as it currently stands. It then offers a proposal for a legal standard that is supported by the philosophical justifications for property rights. The structure of this proposal is derived from the human creativity framework used to analyze the copyrightability of computer-generated works — paralleling the creativity standard to an intervention standard in the inventive process. Finally, this article provides a potential legislative and judicial framework for determining the amount of human intervention required to ensure protection against computer-assisted or computer-generated inventions.

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INTRODUCTION

Artificially intelligent technologies are currently disrupting previously sound legal and ethical conclusions. In 1970, a Japanese robotics engineer, Masahiro Mori, coined the term "Uncanny Valley." The Uncanny Valley is a term used to describe the phenomena whereby humans experience an increase in empathy toward a robot as it begins to appear more humanlike; however, as the robot's artificial human likeliness approaches the threshold of reality, humans lose this affinity toward the robot.[1] It is at this point where the robot's appearance becomes uncanny. A similar unsettling effect may also exist where computer intelligence approaches, or surpasses, the degree of intelligence once held to be a characteristic exclusive to the human mind.

A real-life "Uncanny Valley" phenomena can be experienced when viewing the artificially intelligent robot, Sophie, developed by a Hong Kong company, Hanson Robotics. In October 2017, the Kingdom of Saudi Arabia was the first country in the world to grant citizenship to this artificially intelligent humanoid.[2] This grant of citizenship is an illustrative example of an instance in which the uncanny effects of a robot's appearance merge with its superior

[1] *See* Masahiro Mori, *The Uncanny Valley*, IEEE ROBOTICS & AUTOMATION MAG., June 2012, at 98-99 (Karl F. MacDorman & Norri Kageki trans.) (explaining human's positive and negative affinity toward physical appearance of artificially intelligent robots both mathematically and graphically).

[2] *See* Hussein Abbass, *An AI professor explains: three concerns about granting citizenship to robot Sophia*, THE CONVERSATION (Oct. 29, 2017, 10:18 PM), https://theconversation.com/an-ai-professor-explains-three-concerns-about-granting-citizenship-to-robot-sophia-86479 (identifying three concerns of granting citizenship to a robot: defining identity, legal rights, and social rights).

computer intelligence. Uncanny effects on par with the idea of granting a robot human citizenship will soon be experienced in other areas of the law that are impacted by the rapid development of artificially intelligent technologies.

Technology has a tendency to develop at a rate superior to the law. As artificially intelligent technologies, particularly machine learning, continue to subsume other industrial areas, the need for legal guidance on this topic will increase exponentially.[3] One area of legal study that is particularly prone to the array of legal complexities associated with this technology is the field of intellectual property. While experts have spoken at length about the effects of computer authored work in copyright law, little conversation has taken place as to how similar technologies will disrupt patent law.[4] As developers gain the ability to create machine learning technologies capable of independently generating inventions, experts must examine the legal scope of inventorship by looking toward the text of the constitution, judicial decisions, legislative actions, and the philosophical reasoning behind such jurisprudence.[5] The time for legal analysis on this issue is approaching a critical point, as the concept of obtaining desired results merely by describing problems to a sophisticated software (as opposed to physically solving problems) can be seen throughout technology in what has been described as the "artificial invention age."[6]

This new approach to problem-solving is the cause of a number of legal and ethical issues. Today, machine learning may be used to create computer-generated patent claims; this computer-generated content has a wide variety of potential applications that could wreak havoc on the patent legal system as it currently stands. For example, machine learning may be used to let companies generate prior art to invalidate potential infringing devices or to allow de facto inventors improve their claim language beyond the scope of what the inventor was in actual possession of before utilizing a claim enhancing tech-

[3] *See* Mark Fenwick et al., *Regulation Tomorrow: What Happens When Technology is Faster than the Law*, 6 Am. Bus. L. Rev. 1 561, 567-568, nn.24-27 (2016) (describing the difficulty associated with establishing a regulatory framework in situations where disruptive technologies, such as artificial intelligence, develops at a rate superior to corresponding regulation).

[4] *Compare* Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 Stan. Tech. L. Rev. 5, 2 (2012) (referencing the first computer authored work presented to the Copyright Office prior to 1965 leading to the Register of Copyrights expressed concern "over the indeterminate legal status of works created with the aid of computers"), *with* Ben Hattenbach & Joshua Glucoft, *Patents in an Era of Infinite Monkeys and Artificial Intelligence*, 19 Stan. Tech. L. Rev. 44 (2015) (neither Congress nor the courts have explicitly ruled on the issue of whether a "computer-conceived invention" is patentable).

[5] *See* William Fisher, Theories of Intellectual Property, in New Essays in the Legal and Political Theory of Property 8 (Stephen Munzer ed. 2001) (indicating the influence of the prevailing theoretical justifications of intellectual property law are drawn from "the raw materials of intellectual property law – constitutional provisions, case reports, preambles to legislation, and so forth"); *See also* Justin Hughes, *The Philosophy of Intellectual Property*, 77 Geo. L. J. 287 (1988-1989) (signifying the jurisprudence of intellectual property must be established by building upon the fundamental property rights during the shift in attention from tangible (real property) to intangible (intellectual property)).

[6] *See* Robert Plotkin, The Genie in the Machine: How Computer-Automated Inventing is Revolutionizing Law and Business 1-3, 5 (2009) (Plotkin describes the era of the upcoming computer revolution in computer-automated inventing, where computers are capable of designing products previously requiring human ingenuity, as the "Artificial Intelligence Age." "Human inventors once responsible for every design detail of their invention" are now capable of identifying the problems they are trying to solve, and "pos[ing] those problems to artificial invention software in a language the computer can understand" and the computer will output an invention. Currently this advanced AI technology requires inventors with expertise capable of effectively describing problems to the computers, but the sophistication of this technology is rapidly developing.).

nology.[7] Artificial intelligence (AI) is similarly used to assist in the inventive process. The United States Patent and Trademark Office (USPTO) has already granted patents on inventions generated with the assistance of artificially intelligent technologies.[8] To date, there has not been a known instant of an independently computer-generated invention, but these advancements raise the question – once machines are able to compose patentable subject matter entirely independent of human intervention, should they be granted property rights by the USPTO and under what circumstances should these rights be granted?

A deeper fundamental understanding of "inventorship" will be evaluated as society delves toward the inevitable depths of this "artificial invention age,"[9] to determine whether inventions made with the assistance of AI (computer-assisted or computer-generated inventions) should result in patents. To assess this issue, two topics must be considered to produce an analytical framework predicated upon the fundamental justifications for property rights. First, a spectrum for analyzing the degree of human intervention that occurs throughout a given inventive process will be established. On one hand, machine learning could be an extremely useful tool to assist inventors. On the other hand, it could enable computers to generate inventions without any human intervention or contribution. This model will frame the dynamic inventorship issue by establishing categories to represent the various degrees of human intervention that may take place throughout the inventive process.

Next, computer-assisted and computer-generated inventions will also be examined through a philosophical lens to determine the point along the spectrum at which human intervention is so minimal that the right to a patent is relinquished. [10]A core consideration for determining where this point should lie on the spectrum of intervention is what type of burden would computer-generated inventions place on society if artificially inventing without sufficient human contribution were to remain unregulated. It is likely that the burden of competing with machines in a legal environment ignorant to such a distinction would dampen the incentive to invent.[11] To help neutralize this effect, a sufficient nexus to human intervention requirement for inventorship will be implemented to determine the position of the point mentioned above. Such a nexus requirement seeks to promote innovation through the use of AI or machine learning technologies, while simultaneously restricting the patentability

[7] *See* Hattenbach & Glucoft, *supra* note 4, at 36 (identifying potential uses of computer-generated claims in the prior art context, such as that utilized by the company Cloem, and in patent context, as utilized by inventors, patent prosecutors, and applicants). *See generally* Lamb-Weston, Inc. v. McCain Foods, Ltd., 78 F.3d 540, 549 (Fed. Cir. 1996) (Newman, J., dissenting) ("35 U.S.C. § 102(a) and (b) define prior art as what is known in the literature or deemed to be publicly available through use or sale.").

[8] *See infra* note 63.

[9] *See* Plotkin, *supra* note 6.

[10] *See* Fisher, *supra* note 5, at 8-10 (indicating that the four primary theoretical perspectives that currently dominate theoretical writing in intellectual property law, in order of influence, include the utilitarian approach, the Lockean approach, the personality theory, and the social planning theory, and highlighting the weaknesses in each approach).

[11] *See generally* Ted Sichelman, *Commercializing Patents*, 62 Stan. L. Rev. 341, 412 (2010) ("The reward theory of patent law generally focuses on providing direct incentives for invention, but not for the preceding step of identifying problems that need inventive solutions.") and Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 Tex. L. Rev. 1031, 1031 (2005) (indicating that "... creators will not have sufficient incentive to invent unless they are legally entitled to capture the full social value of their inventions.").

of potentially monopolistic computer-generated practices.

This Article seeks to develop a framework for understanding the issue of inventorship in computer-assisted and computer-generated inventions so that computers can effectively be utilized throughout the inventive process. Part I begins by outlining the legal scope of inventorship and segues into a discussion on the current landscape of the "artificial invention age."[12] This part connects the inventorship requirement found in patent law to modern technological advancements, where defining "inventor" is not as clear as it has traditionally been. Part II addresses the deeper fundamental legal problems underlying machine learning, as applied to computer-assisted and computer-generated inventions. This part seeks to articulate the novelty of the inventorship issue by mapping the spectrum of intervention that exists in the inventive process. It will then survey the core theoretical justifications of property rights to determine the point at which inventions resulting from computer-assisted software lack a sufficient nexus to human inventorship. Part III concludes with a framework proposal for analyzing the legal issue, focusing on the requisite amount of human intervention accompanying a computer-assisted invention necessary for patentability. This proposal will better equip judges and legislators to determine the allowable degree of technological intervention throughout the inventive process required to obtain traditional patent rights.

I. Inventorship and Artificial Intelligence

A. *The Legal Scope of Inventorship*

Seeing as though technology tends to develop at a rate superior to the law,[13] neither Congress nor the courts have explicitly ruled on the issue of whether a "computer-conceived invention" is patentable.[14] As such, this section will examine how the doctrine of inventorship has traditionally been regarded. The legal scope of inventorship stems from the text of the Constitution, has been developed through legislative activity made possible by a Constitutional grant of power to Congress, and such legislation has been refined by subsequent judicial decisions.[15] These sources highlight various time-honored core values of the patent system and shed light on the doctrine of inventorship.

The Founding Fathers, in drafting Article I, Section 8, Clause 8 of the Constitution, granted Congress the power "to promote the progress of science and useful arts, by securing for limited times to authors and *inventors* the exclusive right to their respective writings and discoveries."[16] This Patent and Copyright Clause of the Constitution sought to protect the works of authors and inventors by granting them exclusive rights to their work product. James Madison explained the utility of this Clause and discussed the issue of inventorship

[12] Plotkin, *supra* note 6.

[13] *See* Mark Fenwick et al., *supra* note 3.

[14] *See supra* note 4 and accompanying text.

[15] *See* Edward G. Greive, *The Doctrine of Inventorship: Its Ramifications in Patent Law*, 17 W. Res. L. Rev. 1342, 1342-43 (1966) (discussing the original authority for patent law and inventorship in the United States).

[16] U.S. Const. art. I, § 8, cl. 8. (emphasis added).

in The Federalist Papers; expressing that "[t]he right to useful inventions seems with equal reason to belong to the *inventors*" and indicating that "[t]he public good fully coincides . . . with the claims of individuals."[17] While there is little that can be gleaned about inventorship directly from the Constitution, acts of Congress and other historical sources speak directly on the topic of inventorship.[18]

Congress, exercising its Constitutional power to promote science and the useful arts, codified the 1952 patent act with the intent that statutory subject matter "include anything under the sun that is made by *man*."[19] This description of the breadth of patentable subject matter, however, is ambiguous on its face as it fails to account for unpatentable subject matter; such carve-outs are the product of case law.[20] The statement is also potentially misleading in that it does not identify the prosecutorial limitations on patentability. However, the phrase does indicate that such inventions should be human-made. Further guidance for defining the legal scope of inventorship, as authorized by Congress, can be discovered through the lens of statutory interpretation by examining the word "inventor" as found in Title 35.

In general, an inventor or inventors who obtain patent protection through the prosecutorial process are "grant[ed] . . . the right to exclude others from making, using, offering for sale, or selling the invention. . . ."[21] This right to exclude is granted to the inventor who may assign the exclusive right in the application or the patent to another party.[22] More precisely, on the topic of inventorship, the term "inventor" is statutorily defined as "the *individual* or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention."[23] These joint inventors may apply for a patent jointly despite (1) not having physically worked together or at the same time, (2) not making the same type or amount of contribution, or (3) not making a contribution to the subject matter of every claim of the patent.[24] In order for a person to be considered a joint inventor, they must "contribute in some significant manner to the conception or reduction to practice of the invention [and] make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention."[25] Furthermore, these inventors, whether an individual inventor or a joint inventor, must each be named and must execute an oath or declaration

[17] The Federalist No. 43 (James Madison) (emphasis added).

[18] *See generally* Greive, *supra* note 15 (exploring the historical origins of inventorship and identifying problems that existed with determining inventorship in 1966).

[19] S. Rep. No. 82-1979, at 5 (1952), *reprinted in* 1952 U.S.C.C.A.N. 2394, 2399 (emphasis added).

[20] *See* Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980); *see also* Peter Lee, *The Evolution of Intellectual Infrastructure*, 83 Wash. L. Rev. 39, 64-65 (2008) (identifying that unpatentable subject matter exceptions are the product of case law which has been "deeply influenced by the legislative history of the 1952 Patent Act").

[21] 35 U.S.C. § 154 (2012).

[22] 35 U.S.C. § 261.

[23] 35 U.S.C. § 100(f); *see also* 35 U.S.C. § 100(h) (limiting the scope of inventorship to individuals is further exemplified in other statutory definitions such as "joint research agreement" which requires that an agreement be made between "2 or more *persons* or entities").

[24] 35 U.S.C. § 116.

[25] Nartron Corp. v. Schukra U.S.A., Inc., 558 F.3d 1352, 1356-57 (Fed. Cir. 2006) (citing Pannu v. Iolab Corp., 155 F.3d 1344, 1351 (Fed. Cir. 1998)).

of inventorship.[26]

This oath or affirmation requirement is as old as patent law itself, and was once the focal point of the issue of inventorship in an entirely different era; one which may shed light on modern inventorship issues. In 1858, the Attorney General issued an opinion entitled *Invention of a Slave* which stated that neither a slave nor its owner can patent a machine invented by a slave.[27] The reasoning behind this was that the "slave owner could not swear to be the inventor, and the slave could not take the oath at all."[28] Historically, at least two known patent applications have been filed by slave owners for inventions created by slaves, and both applications were declined since "no one could take the required patent oath."[29] While this historical anecdote recalls a terrible part of American history, it is successful at highlighting the premise that an "inventor" must be a human capable of fulfilling the oath requirement. Thus, in light of the statutory text, case law, and history surrounding the issue of inventorship, it is evident that the word *inventor* has traditionally meant to refer to a *human individual* who is capable of contributing to the invention through conception or reduction to practice.

Throughout modern patent law, the legal confines of inventorship have remained relatively constant despite inventorship issues surrounding artificial inventing. The Leahy-Smith American Invents Act (AIA) made changes to the U.S. patent system, most notably, by switching from a "first-to-invent" to a "first-inventor-to-file" system.[30] Along with this major change, some changes have been made that may be of interest to the overall premise of inventorship,[31] but there is no indication that the scope of inventorship should be expanded to encompass works that are not the product of human invention. The Manual of Patent Examining Procedure (MPEP) published by the USPTO indicates that despite the changes made by the AIA, "the patent laws still require the naming of the actual inventor or joint inventors of the claimed subject matter."[32] These time-honored notions of inventorship will soon encounter a rough road ahead as society traverses the new frontiers of the technological age.

[26] 35 U.S.C. §115(a)); *see also* 37 C.F.R. § 1.63 (2015) (An "Oath or Declaration must: (1) Identify the inventor or joint inventor by his or her legal name, (2) Identify the application to which it is directed, (3) Include a statement that the person executing the oath or declaration believes the named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application for which the oath or declaration is being submitted; and (4) State that the application was made or was authorized to be made by the person executing the oath or declaration.")

[27] Brian L. Frye, *Invention of a Slave*, 68 Syracuse L. Rev. 181, 181 (2018).

[28] Frye, *supra* note 28 at 181-82, 199 (indicating that patent protection was unavailable to slaves at this time for two reasons: (1) slaves were unable to take the patent oath, and (2) slaves were unable to receive property rights).

[29] Frye, *supra* note 28 at 188.

[30] Leahy-Smith America Invents Act, Public L. No. 112-29, § 3(o), 125 Stat. 284, 293 (2011) (indicating reasoning for switching from a "first to invent" system to a "first inventor to file" system).

[31] Under Pre-AIA, only the inventor(s) could be the applicant, but under AIA, the word "applicant" is expanded to refers to the inventor, joint inventors, or the person applying for the patent, who can be: "assignee, the person to whom the inventor is under an obligation to assign the invention, or the person who otherwise shows sufficient proprietary interest in the matter." 37 C.F.R. § 1.42 (2015) (AIA); 37 C.F.R. § 1.41 (2002) (pre-AIA).

[32] U.S. Patent & Trademark Office, U.S. Dep't of Commerce, Manual of Patent Examining Procedure §§ 2137.01, 2157 (9th ed. rev, 7 Nov. 2015) [hereinafter MPEP] (describing the inventorship requirement and improper naming of inventors) (emphasis added).

B. *The Artificial Invention Age*

To appreciate how the inventive process is shifting, an ancillary understanding of the basics of AI is essential. The concept of AI is rapidly breaking away from its long-perceived science fiction characterization and has recently infiltrated daily language, gradually becoming a term that is commonplace in nature. This idea of AI may appear novel, but the concept of AI is far from new. The term was first coined in 1956 by John McCarthy, one of the founding fathers of AI, to mean "the science and engineering of making intelligent machines especially intelligent computer programs."[33] AI has evolved into a vast discipline that subsumes nearly every conceivable industry from genetic sequencing to shipping and logistics. Jerry Kaplan, a well renowned AI expert, has defined the essence of AI and intelligence, in general, to be "the ability to make appropriate generalizations in a timely fashion based on limited data."[34] Subfields of AI include, but are not limited to, search and planning, reasoning and knowledge representation, robotics, natural language processing, and machine learning.[35] The machine learning subfield, however, is the most pervasive subfield of AI; so much so that "artificial intelligence" is often colloquially used in reference to what is actually machine learning.[36]

Subsumed within the field of AI, machine learning is unique because it gives computer systems the ability to learn how to utilize the information they are given. The fundamental goal of machine learning is pattern recognition, where machines are tasked with identifying patterns, predicting outcomes, and have the ability to "'learn' or improve performance over time."[37] This concept is distinguishable from the mere storage of data that comprises a database.[38] Machine learning computer programs can do more than merely store or retrieve information; they are able to utilize this information by recognizing patterns that exist within the set of data available to them.[39] One of the most remarkable qualities of machine learning is that it has the ability to recognize correlations in datasets without human intervention; this is known as "unsupervised learning."[40] Examples of few of the practical uses of machine learning include fraud detection, predicting judicial decisions, and piloting autonomous vehicles.[41]

[33] John McCarthy, *What Is Artificial Intelligence? What is Artificial Intelligence*, (Nov. 12 2007) http://www-formal.stanford.edu/jmc/whatisai/node1.html (answering the question "what is artificial intelligence" and expanding "AI does not have to confine itself to methods that are biologically observable").

[34] Jerry Kaplan, Artificial Intelligence: What Everyone Needs to Know 5 (2016) (likening the essence artificial intelligence to the essence of human intelligence).

[35] *See generally* McCarthy, *What Is Artificial Intelligence? Branches of AI* (Nov. 12 2007) http://www-formal.stanford.edu/jmc/whatisai/node2.html (listing few of the branches of artificial intelligence indicating that the list is not all inclusive).

[36] Warren E. Agin, *A Simple Guide to Machine Learning*, Bus. L. Today 1, 1 (2017) (explaining "[t]he phrase 'artificial intelligence' usually to refers machine learning in one form or another").

[37] Harry Surden, *Machine Learning and Law*, 89 Wash. L. Rev. 87, 88 (2014).

[38] Kaplan, *supra* note 34, at 27.

[39] Kaplan, *supra* note 34, at 27 ("As a general description, computers programs that learn extract patterns from data.").

[40] Kaplan, *supra* note 34, at 30.

[41] *See* Surden, *supra* note 37, at 88-90, 88 n.10 (discussing the wide range of machine learning applications, including legal applications, that were previously thought to require human cognition). *See generally* Igor

The numerous applications of machine learning, however, are not without limitation, nor are they free from ethical and legal concern. The polarity of opinions that exist about the future of AI, as debated by prominent technologists, indicates the societal complexities in understanding the potential ramifications of the quickly approaching artificially intelligent age. For example, Mark Zuckerberg, CEO of Facebook, and Elon Musk, CEO of SpaceX, have recently engaged in banter on the subject. Zuckerberg has publicly cautioned the use of AI, and Elon Musk responded by classifying Zuckerberg's understanding of AI as being "limited."[42] Despite the clashing opinions surrounding the mysterious future of AI, the prevalence of such technology is unavoidable.[43]

Commonplace examples of machine learning applications and their potential for concern can be spotted in the way websites like Google, Amazon, or Facebook operate.[44] The software implemented by these companies are able to provide results in a way that is individually tailored to the subjective interests of the user based on preexisting data to facilitate efficient use,[45] but such a technology will undoubtedly encounter in legal and ethical issues.[46] As the number of practical applications of machine learning rapidly increase, it becomes clear that AI is bound to have an immense impact on the law in general and how the legal community operates.

C. *Artificial Intelligence and the Law*

The practice of law has undergone an inconceivable metamorphosis throughout the technological revolution. Lawyers of yesterday did not have the luxury of today's technological advancements at their leisure; the information available for their legal analysis was limited to either memory or available literature.[47] From word processors to information and communication technologies, the profound effect technology has had on the legal profession is undisputable. As this technological revolution continues to promote innovation, it is difficult to conceptualize a ceiling for technologies such as machine learning. These

Kononenko & Matjaz Kukar, Machine Learning and Data Mining: Introduction to Principles and Algorithms 24-29 (2007) (describing various application areas for machine learning methods such as predicting the structure of chemical compounds).

[42] John Russel, *Elon Musk says Mark Zuckerberg's understanding of the future of AI is 'limited'*, TechCrunch (July 25, 2017), https://techcrunch.com/2017/07/25/elon-musk-mark-zuckerberg-artificial-intelligence/.

[43] *See* Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29 Harv. J. L. & Tech. 353, 374 (2016) (concluding that virtually every tech company has a major AI project including Google's Deep Mind, IBM's Watson, Facebook's Artificial Intelligence Research Lab, and Microsoft's Project Adam).

[44] Artificial Intelligence: Rise of the Machines, Economist (May 9, 2015), https://www.economist.com/news/briefing/21650526-artificial-intelligence-scares-peopleexcessively-so-rise-machines ("Firms such as Google, Facebook, Amazon and Baidu have got into an AI arms race, poaching researchers, setting up laboratories and buying start-ups.").

[45] *See* Deven R. Desai, *Exploration and Exploitation: An Essay on (Machine) Learning, Algorithms, and Information Provision*, 47 Loy. Univ. Chi. L.J. 541, 556-57 (2015) (illustrating the privacy issues accompanying information providers' usage of personal information to tend to individualized user preferences).

[46] Scherer, *supra* note 43 (indicating the preexisting "calls for government regulation of Al development and restrictions on Al operation").

[47] Kaplan, *supra* note 34, at 91 (referencing Professor Oliver Goodenough's observation that Abraham Lincoln's practice legal practice was largely limited to the number of books he could carry on his horse).

technologies are only just beginning to deeply impact practical legal efficiency and test previously sound legal principles.

Currently, lawyers are gaining the capacity to use machine learning to complement their work. For example, Automation during the discovery process helps filter large amounts of documents. In general, the use of machine learning in the legal profession can be utilized in at least three highly practical areas: (1) generating legal predictions through pattern detection, used to statistically formalize the intuition of a lawyer's professional judgement in predicting outcomes for client counseling, (2) discovering hidden relationships in data (datamining), for example detecting "obscure variables," such as implicit racial bias or partisanship in judicial decisions, and (3) document classification and clustering, utilized in litigation docket organization.[48] However, these benefits do not come without costs. Current limitations include, but are not limited to, overgeneralizations in pattern detection, reduced accuracy resulting from incomplete data sets, and inherent limitations surrounding the use of existing data to anticipate or predict future novel legal issues.[49]

Despite current limitations, machine learning is overwhelmingly transforming the legal workplace, automating what has previously been thought of as requiring human intelligence in a multitude of "real-world commercial applications."[50] The impact of machine learning on the legal field is twofold: first, it will revolutionize the ways in which lawyers complete daily tasks; and secondly, it will test the legal limitations of existing laws that were not designed with this particular technological capability in mind. An illustrative example of both the practical efficiency and the far-reaching constitutional implications of machine learning can be appreciated by examining an example found in the area of criminal law. In this particular illustration, computer engineers have created programs capable of predicting individual criminality such as potential terrorists or sex traffickers through Automated Suspicion Algorithms (ASAs).[51] It should, therefore, come as no surprise that the majority of these applications would lend themselves to all corners of the law.

The prevalence of the legal issues surrounding machine learning, and other areas of AI, seem to be particularly common in the area of intellectual property law. Copyright, trademark, and patent law all lend themselves to the issues surrounding this technology, testing previously sound legal principles. In addition to the practical legal efficiency benefits obtained by the legal profession, the public is also able to utilize this technology to their benefit in ways that

[48] Surden, *supra* note 37, at 101-112 (presenting the applicability of three areas machine learning can be used in the law).

[49] Surden, *supra* note 37, at 105-106 (indicating the sophistication of internal statistical models in machine learning algorithms are only as good as the data they are given to analyze); *See also* Thomas C. Redman, *If Your Data Is Bad, Your Machine Learning Tools Are Useless*, Harvard Business Law Review (Apr. 02, 2018), https://hbr.org/2018/04/if-your-data-is-bad-your-machine-learning-tools-are-useless (discussing problems in machine learning associated with poor data quality).

[50] *See* Surden, *supra* note 37, at 87, 89, 95 (listing tasks commonly associated with human intelligence which can be computed using non-intelligent computer algorithms: "higher-order cognitive skills such as reasoning, comprehension, meta-cognition, or contextual perception of abstract concepts").

[51] *See* Michael L. Rich, *Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment*, 164 U. Pa. L. Rev. 871, 873, 75-78 (2016) (suggesting while ASA advancements would likely lead to increased national security, the implementation of such a technology risks running afoul of the 4th Amendment).

will inevitably engender a complementary legal dilemma in the field intellectual property law. Put more simply, if the public can use machine learning or artificially intelligent systems to create or invent, should the individuals implementing this technology be able to receive the bounties of intellectual property law?

In copyright law, it is perhaps one of the most fundamental principles that "copyright protection may extend only to those components of a work that are original to the author."[52] Protection of these original works of authorship vests initially in the author of the work.[53] The term "original" here requires the work to be more than merely new; the work must also "be the product of intellectual effort or perhaps, of the authors imagination."[54] This creativity standard seems to be necessary for copyrightability as the court in Feist has stated that mere intellectual effort or "sweat of the brow" is not enough on its own to obtain a copyright;[55] there must also be "the formation of a mental conception ultimately given tangible expression in a work of authorship."[56] Therefore, it seems as though, at least in copyright law, there is a requirement that there must be mental conception on the part of the author to receive the bounties of intellectual property law.

The issue of mental conception in authorship, however, is particularly vexing when applied to AI. Artificially intelligent systems have been described as possessing many inherently intelligent characteristics that allow the systems to independently create copyrightable works of art or produce patentable inventions. One authors list of the inherently intelligent characteristics allowing for artificial creativity and innovation includes the following: (1) innovative or creative, (2) unpredictable, (3) independent, (4) autonomous operation, (5) rational intelligence, (6) evolving and capable of learning, (7) efficient, (8) accurate, (9) goal-oriented, and (10) capable of processing free choice.[57] An example found in copyright law of a device possessing these inherently intelligent features is digital authorship in procedurally generated works, for instance, an automatic poetry generator capable of emulating human creativity.[58] It has been suggested that these works should be copyrightable because of their "sufficient nexus to human creativity."[59] But who should receive the copyright in

[52] *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. at 342, 348.

[53] 17 U.S.C. §201(a) (2000) ("Copyright in a work protected under this title vests initially in the author or authors of the work").

[54] Alan L. Durham, *The Random Muse: Authorship and Indeterminacy*, 44 Wm. & Mary L. Rev. 569, 578 (2002).

[55] *See Feist*, 499 U.S. at 359-60.

[56] Durham, *supra* note 54, at 585.

[57] *See* Shlomit Yanisky Ravid & Xiaoqiong (Jackie) Liu, *When Artificial Intelligence Systems Produce Inventions: The 3A Era and an Alternative Model for Patent Law* 11-15 (March 1, 2017), Cardozo L. Rev. (forthcoming), Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2931828 (listing eight characteristics of artificial intelligence systems that allow for the independent creation of inventions); *See also* Shlomit Yanisky Ravid; Luis Antonio Velez-Hernandez, *Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model*, 19 Minn. J.L. Sci. & Tech. 1, 8 (2018) (listing ten characteristic of artificial intelligence systems that allow for the independent creation of original works of art).

[58] *See* Bridy, *supra* note 4, at 15 (discussing Kurzweil's Cybernetic Poet which can be used as either a "poet's assistant" or as an "automatic poetry generator").

[59] *See* Bridy, *supra* note 4, at 20 (indicating that the current copyright framework does not expressly require human authorship and that automatic writing cases, "despite their non-human genesis," should be regarded as "works of authorship" due to a "sufficient nexus to human creativity").

these computer-generated works and under what circumstances?

The current framework of copyright law is unable to grant ownership in the author-in-fact (the computer) of these computer-generated works because the author has "no legal personhood."[60] This authorship dilemma of copyright law is readily translatable to patent law where machine learning can be used to assist or completely automate the inventive process in the same way computer-generated authors have been seen to pseudo-create works mistakable for human work. In patent law, an artificially intelligent inventor, although likely an inventor-in-fact, should not be treated as the inventor-in-law.[61] Therefore, the inventorship dilemma should result in a similar manner as the authorship dilemma due to the lack of legal personhood in artificially intelligent inventors. The question that remains if artificially intelligent inventors are not to be treated as inventors-in-law is who should be treated as the inventor-in-law and under what circumstances.

II. Computer-Assistance and Computer-Generation

Computer-assisted inventions occur when humans utilize sophisticated software to allow the human to arrive at a desired outcome, and a computer-generated invention occurs when a software conceives novel subject matter independent of human intervention. This new approach to problem-solving is the cause of a number of legal and ethical issues. To date, there has not been a known instance of a patented independently computer-generated invention, but these advancements raise the question – once machines are able to compose patentable subject matter entirely independent of human intervention, who should be granted property rights by the USPTO and under what circumstances? To determine who or what, if anyone or anything, should receive a patent in resulting inventions, this section will consider the scholarly opinions currently available on this topic. It will then address the circumstance under which a human or entity employing AI to invent should be granted a patent.

A. *Artificial Intelligence in the Inventive Process*

While Congress and the courts have yet to explicitly rule on the issue of whether a "computer-conceived invention" is patentable,[62] patent applications that are solely the product of computer-assistance and computer-generation have already successfully been granted by the USPTO.[63] In response to these tech-

[60] Bridy, *supra* note 4, at 21.

[61] *Cf.* Frye, *supra* note 28 and accompanying text (indicating slaves were denied patentability and were not treated as inventors-in-law as they "were unable to take the patent oath" despite being inventors-in-fact of patentable subject matter; accordingly only humans inventors, capable of taking the patent oath should be considered inventors-in law).

[62] *See supra* note 4 and accompanying text.

[63] *See* Plotkin, *supra* note 6, at 1-3, 51-61 (referencing inventors Stephen Thaler who used the Creativity Machine to invent the cross bristled configuration of the Oral-B Cross Action toothbrush, Gregory Hornby who used a computer software to devise a small antenna used in space missions whose configuration is so unique that no

nologies and the resulting inventorship issue, a number of proposals have been offered as potential solutions.[64] As one would imagine, in addressing such a novel issue, scholars have come up with a diverse sample of suggestions. This section will begin by addressing a few of these different proposals in turn. The opinions analyzed in this section will contribute to the foundational premise for a prescriptive framework that will be developed throughout the remainder of this article.

One perspective from the limited amount of literature available addresses the patentability of computer-generated patent claims by asking two questions: first, who should be considered the inventor of subject matter initially described by computer-generated claims,[65] and second, should mechanically-generated claims be patentable?[66] After analyzing different classes of people who may seek patents resulting from improvements upon existing inventions made autonomously by a computer software, one article indicates that a key consideration is whether the "contribution helped to make the invention patentable."[67] As a result, this article concludes that companies or individuals that "invent" by sifting through mechanically generated claims or develop software for generating such claims should be rewarded a patent for their work.[68] While this strand of thinking is limited to inventions that are the byproduct of linguistic variations of pre-existing claims, it represents the perspective that individuals may be able to receive patents for inventions generated by machines in select instances.

Other scholars have differed as to whether these creative computers should be included under the statutory definition of an "inventor."[69] One scholar in particular has posited the idea that the creative computers should be considered the legal inventor, and that such a classification would lead to "new sci-

human engineer would have thought to come up with it, and John Konza who used a genetic programing software to automatically create and patent a new controller); *See* Ralph D. Clifford, *Intellectual Property in the Era of the Creative Computer Program: Will the True Creator Please Stand Up?*, 71 Tul L. Rev. 1675, 1677-80 (describing how the Creativity Machine uses neural networks modeled after the human brain to produce "new dance choreographies, songs, and automobile designs, and to propose construction materials that may be ultra-hard"); *See also* Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 57 B.C. L. Rev. 1079, 1083-91 (2016) (detailing three examples of computers that independently generate patentable results and indicating that in 1998 a patent (U.S. Patent No. 5,852,815) was granted for an invention created by Thaler's Creativity Machine).

[64] *See* Yanisky Ravid & Liu *supra* note 57 at 8 & nn. 20-21 (summarizing the variety of proposals made by scholars in the field, and introducing an alternative approach for addressing inventions made by artificial intelligence).

[65] *See infra* text and accompanying notes 86-87 (describing a software capable of generating computer-generated claims that could result in patentable inventions).

[66] *See* Hattenbach & Glucoft, *supra* note 4, at 45-50.

[67] *See* Hattenbach & Glucoft, *supra* note 4, at 46-47 (citing Levin v. Septodont, Inc., 34 F. Appx. 65, 72 (4th Cir. 2002)) (categorizing original inventors and drafters of the "seed claim" as most likely to receive a patent, developers of the claim-generating code as less likely to be considered inventors, and computers as being highly unlikely to be granted inventorship by the courts).

[68] Hattenbach & Glucoft, *supra* note 4, at 50.

[69] *See* Abbott, *supra* note 63, at 1081 (arguing that computers are currently responsible for the generation of patentable subject matter ("computational invention") and as such, the computer, as opposed to a human inventor, qualifies as an inventor). *But See* Clifford, *supra* note 63, at 1696-98 (claiming that the user of a creative computer cannot obtain a patent because they did not conceive the invention, and claiming that a creative computer cannot receive a patent as the legal inventor of an invention because only the actual inventor can file a patent application; the actual inventor "must be human").

entific advances" in the AI industry.[70] This conclusion would ultimately result in granting machines patent rights. While advanced computer programs unquestionably play a critical role in the advancement of scientific progress, computers themselves should not be treated as inventors. Suggesting such a classification for creative computers would seem to adhere the old adage, if you can't beat them, join them, as indicated in the statement "soon computers will be routinely inventing, and it may only be a matter of time until computers are responsible for most innovation."[71]

A third perspective takes a different approach altogether. It proposes that patent law in general is ill-equipped to handle inventions resulting from such AI systems - suggesting "abolishing patent protection of inventions of AI altogether" in order to keep up with this technology.[72] This perspective concludes that AI systems may not own the products they produce, and that since humans on their own are unable to receive the patent rights in inventions independently created by AI systems, patent law will not work in this new technological era.[73] This conclusion relies upon one particular flaw of the current patent system: it "fails in the multiplayer and cumulative patent environment characteristic of AI systems."[74] In order to address this flaw, the article proposes a solution of a non patent-model that accommodates the multiple players present,[75] but the level of reform necessary for this proposal to succeed would require a massive legislative overhaul.

In line with the majority of the preceding perspectives and the statutory definition of an "inventor,"[76] this article presupposes that the current legal framework does not allow for artificial inventors to be treated as inventors-in-law. It, therefore, concludes that such inventors are unable to receive a patent. This article will proceed by approaching the analysis of the inventorship issue from the perspective of the individual or entity using the AI software as a computerized tool to assist in the inventive process. The remainder of this article will focus on the issue surrounding human assignment of inventions produced with the assistance of AI. To determine when an individual or entity should be able to patent inventions resulting from technologies produced with or by AI, an understanding of the different degrees to which AI may be used throughout the inventive process must first be appreciated.

[70] Abbott, *supra* note 63, at 1081.

[71] Abbott, *supra* note 63, at 1080.

[72] Yanisky Ravid & Liu, *supra* note 57 at 8.

[73] *See* Yanisky Ravid & Liu, *supra* note 57, at 16-19 (suggesting artificial inventors would be capable of receiving patents on their inventions if it were not for the current structure of patent law because they arguably satisfy many of the statutory conditions for receiving a patent, and noting U.S. patent laws do not take into consideration the possibility that there could be a nonhuman inventor and offering support from the treatment of non-human creators in the copyright context).

[74] *See* Yanisky Ravid & Liu, *supra* note 57, at 20-22; 46 (the Multiple Player Model lists a number of entities that could be considered potential stakeholders in inventions resulting from automated inventions including the software programmers, the data suppliers, the trainers/feedback suppliers, the owners or the operators of the AI system, the new employers of other players, the public, the government, the investors, and the AI system itself).

[75] *See* Yanisky Ravid & Liu, *supra* note 57, at 46-54 (identifying "being first in the market, electronic open source tools, and social recognition" as the best alternatives to current patent law for dealing with inventions made by AI).

[76] *See* 35 U.S.C. § 100(f).

B. *Degrees of Artificial Contribution*

While it is indisputable that computers play a critical role in innovation, the degree of contribution in the inventive process varies on a case by case basis. Presupposing that the current legal landscape does not allow for artificial inventors to receive patents on inventions produced by them, the issue surrounding when humans should be able to receive patents in the resulting inventions remains. As such, this section attempts to classify two ways in which computers may partake in the inventive process: computer-assistance and computer-generation.[77] On one end of this spectrum, a computer-assisted invention requires some degree of human intervention in arriving at a predictable outcome, whereas a computer-generated invention is produced independent of human guidance. Computer-assisted inventions allow the inventor to sit in the driver's seat and utilize various design services, computer modeling software, or other programs to facilitate the creation of their original idea.[78] There are, however, varying degrees in which computer-assisted inventions require human intervention.[79]

Computer-generated inventions, on the other hand, lack a human inventive component and may, therefore, spawn a technological advancement far beyond the capacity of the most innovative of engineers. One example of a computer-generated invention can be seen in Google's AutoML, an automated approach to the making of machine learning models.[80] This project utilizes AI to create more sophisticated AIs; AIs that are "more efficient and powerful than the best human-designed systems."[81] Additional examples of inventions that are the product of AI include a generatively-designed airplane cabin portion that is currently used in the Airbus A320 which was designed to be stronger and lighter than previously used cabin portions, or an even more impressive generatively-designed "ultimate car chassis."[82] To create this "ulti-

[77] *Cf.* Kalin Hristov, *Article: Artificial Intelligence and the Copyright Dilemma*, 57 IDEA 431, 433-35 (2017) (dividing AI generated works in the field of copyright law into two main categories: (1) "works generated by AI programs with the direct guidance, assistance or input of human beings", and (2) "autonomously generated AI creations").

[78] *E.g.* W. J. Marx et al., An Application of Artificial Intelligence for Computer-Aided Design and Manufacturing 1-2 (1995) (discussing the application of AI technology in the area of computer-aided design and manufacturing for the purpose of determining airframe structural components for the wing of a High Speed Civil Transport).

[79] *See infra* Part II.C.1. (examining cases of high and low human intervention computer-assisted inventions).

[80] *See* Quoc Le & Barret Zoph, *Using Machine Learning to Explore Neural Network Architecture*, Google Research Blog (May 17, 2009), https://research.googleblog.com/2017/05/using-machine-learning-to-explore.html.

[81] Karla Lant, *Google's machine-learning software has learned to replicate itself*, Business Insider (Oct. 16, 2017, 8:48 PM), http://www.businessinsider.com/googles-automl-replicates-itself-artificial-intelligence-2017-10.

[82] *See* Maurice Conti, *The incredible inventions of intuitive AI*, TED, (April 9, 2016) https://www.ted.com/talks/maurice_conti_the_incredible_inventions_of_intuitive_ai/up-next#t-452273 (Humanity is currently at the cusp of a new age in human history, Until now, there have been four major historical eras defined by the way we work: the hunter gather age. the agricultural age, the industrial age, and the information age. Maurice Conti, director of strategic innovation at Autodesk, defines a new era as the augmented age where "natural human capabilities are going to be augmented by computational systems that help you think, robotic systems that help you make, and a digital nervous system that connects you to the world far beyond your natural senses." The augmentation age encompasses a time where humans can surpass the limitations of passive tools, limited to manual input, and move to an era where tools are generative. Cognitive augmentation consists of tools capable of generative-design and will soon encompass intuitive design tools as well. "Generative-design tools use a computer and algorithms to synthesize geometry" thereby coming up with new designs based on the input of the user's well defined goals and constraints. These computers are producing outputs that are purely

mate car chassis," a race car driver drove a car containing a digital nervous system attached to the chassis for a week collecting up to 4 billion data points.[83] The data points were fed to a generative-design AI program called "Dreamcatcher" which produced an end car chassis design that could have never been designed by humans.[84]

In addition to computer-generated inventions, there are non-inventive ways machine learning can rattle the current patent landscape. One example of this exists in the generation of prior art references.[85] A French company, Cloem, is using "algorithmic patenting" to computer-generate claim language.[86] The company operates by taking existing patent claims (or an invention description if a patent is unavailable) and creates thousands of timestamped linguistic variants of the text called cloems.[87] While this particular use of machine learning technology may benefit a singular inventor by defending him against other potential patentees who may seek to circumvent the existing invention, it could be harmful to society as a whole. Such iterations create prior art, not necessarily directly covering the submitted invention, which may prevent other potential inventors from obtaining legitimate patents; inventions that would be independently patentable. As a result, said inventor would likely not invest in developing his invention covered by an iterative claim because he is not guaranteed the protection he deserves, and the invention covered by the iteration could in effect sit unused by society.

With such a diverse array of potential AI applications, it is important to distinguish the ways in which AI is being utilized by inventors throughout the inventive process. Is the technology being used to assist humans as a design tool,[88] to solve well-defined problems,[89] to generate patent claims without accompanying enabled inventions,[90] or to independently create without human intervention.[91] All of these variables on the ways AI may assist an inventor will have a different impact on society and should therefore be treated differently. The following sections will focus on developing a model to determine where computer-assistance is too great of a contributor in the inventive process as to render the resulting invention unpatentable. In order to make this determination, two essential considerations must be examined. The following section will walk through these considerations.

C. *Inventorship Framework*

To address the circumstance under which a human or entity employing AI to invent should be granted a patent, two topics must be considered to produce an

generated from scratch.).

[83] Conti, *supra* note 82.

[84] Conti, *supra* note 82.

[85] *See supra* note 7.

[86] Cloem, https://www.cloem.com (last visited Oct. 29, 2017).

[87] Cloem, *supra* note 86.

[88] *See supra* note 78.

[89] *See infra* notes 98-99; for a examples of well-defined problem;, *see* Plotkin *supra* note 63.

[90] *See supra* notes 86-87.

[91] *See supra* notes 80-84.

analytical framework predicated upon the fundamental justifications for property rights. First, a spectrum for analyzing the degree of human intervention that occurs throughout a given inventive process must be established. [92]One way to frame this dynamic inventorship issue is to establish categories representing the various degrees of human intervention that may take place throughout the inventive process. Next, computer-assisted and computer-generated inventions should be examined through a philosophical lens to determine the point along the spectrum at which human intervention is so minimal that the right to a patent is relinquished. [93]A sufficient nexus to human intervention requirement for inventorship seeks to promote innovation through the use of machine learning technologies, while simultaneously restricting the patentability of potentially monopolistic computer-generated practices.

1. Establishing a Spectrum of Human Intervention

To determine whether computer-assisted inventions or computer-generated inventions should be granted a monopoly right intended to be reserved for inventions conceived by human inventors, two essential issues must be examined. First, it is important to establish a spectrum of intervention that exists in the practical application of utilizing machine learning throughout the inventive process.[94] In order to establish the spectrum of human intervention that occurs in using machine learning, one must first look at the nature of the software being utilized. The next inquiry requires a consideration of what philosophical justifications exist for protecting computer-assisted and computer-generated inventions. In examining the second issue, one must compare the prevailing philosophical justifications for protecting intellectual property rights: primarily the utilitarian approach, the Lockean approach (labor theory), the personality theory, and the social planning theory.[95] This section will focus on inventorship and will establish a spectrum of intervention,[96] with the intent of designating a point at which human intervention is so minimum that the constitutional right to a patent in the invention is extinguished.

The inventive process has traditionally required conception derived from either "long toil and experimentation" or "a flash of genius"[97] to solve a problem. This time-honored notion of the inventive process operates in a systematic fashion where the traditional focus of inventorship has been geared toward solving problems; an inventor discovers a problem in need of a solution and inevitably conceives a solution for said problem. Conversely, machine learning programs of increasing prevalence are being crafted to operate in a different

[92] *See infra* Part II.C.1.

[93] *See infra* Part II.C.2.

[94] *See generally* Hattenbach & Glucoft, *supra* note 4, at 47 (identifying that the inventorship inquiry requires a determination of whether a human inventor had a significant contribution in making the invention patentable, but also indicating that the "mere fact that a computer assisted with the process" is not a bar to patentability).

[95] *See* Fisher, *supra* note 5, at 8-10.

[96] *See infra* Figure 1.

[97] 35 U.S.C. § 103 (1952) (amended 2011) (Historical and Revision Notes) ("The second sentence [of § 103] states that patentability as to this requirement is not to be negatived by the manner in which the invention was made, that is, it is immaterial whether it resulted from long toil and experimentation or from a flash of genius.").

fashion. An individual seeking to "invent" using a machine learning software program begins by describing a well-defined problem and constraints then a computer arrives at the desired solution without the traditional requirements of human conception.[98] The concept of obtaining desired results merely by describing problems to a sophisticated software (as opposed to physically solving problems) can be seen throughout technology.[99] The fundamental legal issue that arises from these programs is determining who qualifies as an inventor; are these computer programs preprogramed systems or are they programed systems with the ability to generate their own decisions? In order to make a patentability determination, the nature of inventorship must be considered.[100]

For the purposes of the law generally, the term "individual" has understandably been treated as interchangeable with person or organization.[101] Naturally, it should follow that when a statute uses the term "individual," the definition or scope of an individual is limited to human beings. But how should the legal system cope with the idea that given activities regulated by statute can be performed by non-humans, such as animals or computers?[102] In *Naruto v. Slater*, a six-year-old crested macaque monkey, Naruto, grabbed hold of Slater's camera and captured a picture of itself (the "Monkey Selfies") through "independent, autonomous action."[103] Naruto, through Next Friend PETA, filed suit against Slater asserting that Naruto, acting as the photographer, authored and therefore owned the copyright in the photo.[104] The United States District Court for the Northern District of California dismissed the case holding that animals lack statutory standing under the Copyright Act.[105] While this decision supports the premise that some areas of the law should reserved for human actors, determining how the legal system, more specifically the patent system, should cope with the idea that given activities regulated by statute can be completed by computers is not as straightforward as determining whether some activity was undertaken by an animal or not.[106]

To establish where patent rights should be cut off in the inventive process, it

[98] *See* Plotkin, *supra* note 6, at 1-3 (describing the traditional inventive process of solving Problems to the computer enabled inventive process of describing problems).

[99] *See supra* note 98.

[100] For a discussion on inventorship, *see supra* Part II.C.1.

[101] *E.g.*, Restatement (Third) of Agency §1.04(5) (Am. Law Inst., 2006) (defining person to be "(a) individual; (b) an organization or association that has legal capacity to process rights and incur obligations; (c) a government, political subdivision, or instrumentality or entity created by government; or (d) any other entity that has legal capacity to possess rights and incur obligations").

[102] *See generally* Cary Coglianese & David Lehr, *Regulating by Robot: Administrative Decision Making in the Machine-Learning Era*, 105 Geo. L.J. 1147 (2017) (discussing ways in which machine learning is currently used in administrative applications).

[103] *See* Naruto v. Slater, No. 15-cv-04324-WHO, 2016 U.S. Dist. LEXIS 11041, at *1-3 (N.D. Cal. Jan. 28, 2016).

[104] *See Id*.

[105] *See Id* at *10-11 ("Works That Lack Human Authorship" in the Compendium of the U.S. Copyright Office Practices § 313.2 (3d ed.): "[t]o qualify as a work of 'authorship' a work must be created by a human being. Works that do not satisfy this requirement are not copyrightable.").

[106] *See* Hristov, *supra* note 77, at 437 (suggesting independent autonomous works are not copyrightable and should fall into the public domain since "autonomously learned behavior is something that cannot be attributed to the human programmer of an AI machine); *But See* Abbott, *supra* note 63, at 1103-08 (laying out arguments in support of and against computer inventors, but concluding that "allowing patents on computational inventions as well as computational inventors would . . . do away with the idea that only a human can be the inventor of the autonomous output of a creative computer – resulting in fairer and more effective incentives").

is helpful to examine the amount of human intervention that occurs throughout the inventive process. If there is sufficient human intervention to constitute a nexus to human inventorship,[107] then the resulting product should be deemed to fall within the zone of patentability. On the other hand, if such a minimal amount of human intervention is present in the inventive process, then the invention should fall within the zone of unpatentability. One example of a computer-assisted invention with high human intervention would be a computer aided design software used to evaluate various design constraints where the user is directly in control of the input and the output.[108] Here there would be a sufficient nexus to human inventorship. An example of a computer-assisted invention with low human intervention would be a generatively-designed product where data is fed to an AI program to create an end product that could have never been conceived by humans.[109] Here there would not be a sufficient nexus to human inventorship because the computer assistance was used not to arrive at a well-defined solution, but rather to draw up a solution that was beyond the scope of human intelligence.

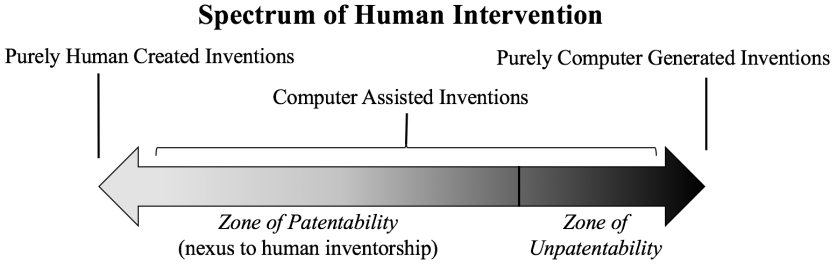

Figure 1: Spectrum of Human Intervention

The two examples above illustrate two different types of computer-assisted inventions that lie in opposing zones on the spectrum of human intervention" one resulting in a patent, and not the other based on the manner in which the invention was made. While Section 103 of the patent act indicates that "patentability shall not be negated by the manner in which the invention was

[107] The sufficient nexus to human inventorship described here in reference to computer-assisted inventions is analogous to the "sufficient nexus to human creativity" of computer programs utilizing AI to autonomously generate works of art in the copyright context. *See supra* notes 58-60 and accompanying text.

[108] *See infra* note 148 and accompanying text (testing human intervention framework on high a human intervention work).

[109] *See infra* note 149 and accompanying text (testing the human intervention framework on a low human intervention work); *see also* Autodesk Research Project Dreamcatcher, https://autodeskresearch.com/projects/dreamcatcher (last visited, May 14, 2018) (depicting Project Dreamcatcher, a next generation computer aided design software capable of "generat[ing] thousands of design options that all meet [a users] specified goals").

made,"[110] the intent of this statute was to address the human inventive process, not the computer-generated inventive process.[111] Therefore it should follow that computer-assisted inventions with a sufficient nexus to human inventorship should remain patentable, whereas computer-generated inventions and computer-assisted inventions lacking the requisite minimal human intervention should not be patentable. The reasoning as to why patentability should terminate once human intervention approaches a minimum will be highlighted through the primary philosophical justifications of intellectual property law.

2. Finding a Nexus to Human Inventorship

Establishing a boundary between the zone of patentability and the zone of unpatentability may be difficult to maintain across all types of patentable subject matter. In the model being developed in this article, the point at which a computer-assisted or computer-generated invention should enter the zone of unpatentability occurs when said invention lacks sufficient human intervention to constitute a nexus to human inventorship.[112] To determine how such a nexus to human inventorship should be analyzed, this section will dissect the prevailing theoretical approaches to intellectual property law and examine purely human generated inventions, computer-assisted inventions, and computer-generated inventions through a philosophical lens to deduce where patentability should seize on the spectrum of intervention.

The four main theoretical approaches to intellectual property law will establish the basis for which fundamental justifications of intellectual property rights will be focused on in determining patentability.[113] The four fundamental justifications are as follows: (1) the utilitarian approach, which seeks to serve the "maximization of net social welfare"; (2) the Lockean approach, which focuses on "the proposition that a person who labors upon resources that are either unowned or 'held in common' has a natural property right in his or her efforts – and that the state has a duty to respect and enforce that natural right"; (3) the personality theory, the premise of which is that "private property rights are crucial to the satisfaction of some fundamental human need," and that policy should be developed that enables people to fulfil this need; and lastly, (4) the social planning theory, which is based on the premise that property rights should be designed to "help foster the achievement of a just and attractive culture."[114]

[110] 35 U.S.C. § 103.

[111] *See* Hattenbach & Glucoft, *supra* note 4, at 44 (The legislative history suggests the "portion of Section 103 was intended to direct courts to disregard whether an invention was conceived in a 'eureka' moment or through random success. It was intended to address the process of invention undertaken by human inventors, not machines.").

[112] *See supra* Figure 1.

[113] Fisher, *supra* note 5, at 8 (outlining four main theoretical approaches to IP law).

[114] Fisher, *supra* note 5, at 2-8, 36 ("The indeterminacy of the personality and social-planning perspectives has long been recognized. That recognition is reflected, for example, in the common accusation that those perspectives are "illiberal" insofar as they seek to regulate persons' behavior on the basis of necessarily controversial "theories of the good" – the sort of thing that governments ought not do. A closely related, equally common charge is that the social planning and personhood perspectives are "paternalistic" insofar as they curtail persons' freedom on the basis of conceptions of what is "good for them" with which they themselves may not agree.

To maximize net social welfare in line with the utilitarian approach, Congress should allow for the patentability of most computer-assisted inventions, but not allow computer-generated inventions to be patentable. The Supreme Court has consistently held that the primary purpose of the patent system "is not the creation of private fortunes for the owners of patents but is 'to promote the progress of science and useful arts.'"[115] To promote this Constitutional requirement and serve the "maximization of net social welfare"[116] an appropriate balance must be struck between the exclusive rights offered by a patent and public enjoyment of purely human generated inventions, computer-assisted inventions, and computer-generated inventions.[117] Allowing computer-generated inventions to be patentable would surely aid in the creation of the private fortunes of those that can afford the technology to generate such inventions. As a result, computer-generated inventions should not be patentable because such a determination would favor exclusivity over public enjoyment. The question that remains is how broad should the protection of computer-assisted inventions be.

There are a number of costs associated with granting overbroad intellectual property rights and finding the correct compensation for creators or inventors; therefore, the goal of granting an intellectual property right should be to find "not merely an incentive but the right incentive."[118] Granting economic incentives to the owner of a computer program that assists in the inventive process should only take place where there is sufficient human intervention throughout the inventive process. To grant patent rights to a computer-assisted invention lacking a sufficient nexus to human inventorship would not stimulate invention and creativity in a way similar to the way patents on computer-generated inventions would prioritize exclusion over the stimulation of invention.

A similar conclusion can be drawn when the issue of computer-assisted and computer-generated inventions are examined through the Lockean labor approach. Allowing the owners or users of a computer software capable of generating an invention to obtain a 20-year monopoly[119] on their invention would offer said owners or users an unproportioned reward for their labor. According to Justin Hughes, "the limited capacities of humans put a natural ceiling

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By contrast, the utilitarian and labor-desert approaches, especially the former, have enjoyed an aura of neutrality, objectivity, and above all determinacy. That aura helps to explain why courts, when presented with difficult problems of statutory interpretation, have sought guidance most often from economic arguments and least often from social-planning arguments.").

[115] Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 511 (1917) (quoting Pennock v. Dialogue, 27 U.S. 1, 19 (1829) (Story, J.) ("While one great object [of our patent laws] was, by holding out a reasonable reward to inventors, and giving them an exclusive right to their inventions for a limited period, to stimulate the efforts of genius; the main object was 'to promote the progress of science and useful arts.'").

[116] Fisher, *supra* note 5, at 2.

[117] *See supra* Figure 1.

[118] Lemley, *supra* note 11, at 1058-59 (listing five categories of costs associated with granting overbroad intellectual property rights: (1) "intellectual property rights distort markets away from the competitive norm, and therefore create static inefficiencies in the form of deadweight losses," (2) "intellectual property rights interfere with the ability of other creators to work, and therefore create dynamic inefficiencies," (3) "the prospect of intellectual property rights encourages rent-seeking behavior that is socially wasteful," (4) "enforcement of intellectual property rights imposes administrative costs," (5) "overinvestment in research and development is itself distortionary").

[119] 35 U.S.C. § 154(a)(2).

on how much an individual may appropriate through labor."[120] This premise however is tested by the aided capacities of individuals utilizing computer-assistance to invent. Machine learning technologies now allow individuals to invent beyond previous natural limitations by outputting inventions that the human could never conceive independently.[121] In sum, it does not necessarily follow that the end result of a computer-assisted invention is in fact the fruit of the user's labor or ability. The primary focus of the Lockean approach is rewarding the labor of the inventor when the labor is derived from the inventor's actual handiwork.[122] Therefore, the Lockean approach supports the conclusion that computer-assisted inventions lacking a sufficient nexus to human inventorship should not be patentable because there is no human labor deserving of a societal reward.

The personality theory of property proposes that "an idea belongs to its creator because the idea is the manifestation of the creator's personality."[123] If the allocation of private property rights is indeed a manifestation of the creator's personality crucial to the satisfaction of a deeper human need to flourish,[124] entitling computers or the operators of computers to benefit from the entitlements that drive this need would hinder the incentive to invent. Little human need would be satisfied by allowing purely computer-generated output to dwarf human expression. Additionally, the social planning theory, used to build desirable society with an "attractive intellectual culture,"[125] can be employed as a guide to determine whether patentability should seize in computer-assisted inventions lacking human intervention. In generating a vision for a desirable society, it is essential to balance incentive with benefit.

The benefit of using computer-assistance or computer-generation to invent would undoubtedly produce inventions that would benefit society, but the use of such computation would likely reduce the number of "inventors" to those who could afford to own such technology. As a result, the incentive to become educated or proactive in the scientific arts would likely be devastated as a consequence of a computational monopoly. In conclusion, the four prevailing theoretical justifications of intellectual property law suggest that patentability should seize if computer-assistance reduces human intervention from the inventive process, such that there is no longer a nexus of inventorship between the inventor and the invention.

[120] Hughes, *supra* note 5, at 297, 300 (identifying three propositions to justify the propertizing of ideas under the Lockean approach: (1) a person's labor is required for the production of ideas, (2) these ideas come from a "common" that is not devalued by the removal of a given idea, and (3) these ideas can be propertized without becoming waste).

[121] *See supra* Section II.A.

[122] *See generally* Hughes, *supra* note 5, at 302 (discussing that human handiwork becomes the property of said human because it is the product of their "energy, consciousness, and control").

[123] Hughes, *supra* note 5, at 297.

[124] *See* Fisher, *supra* note 5, at 5-6.

[125] *See* Fisher, *supra* note 5, at 33-35 (indicating the difficulty in formulating the vision of a just and attractive culture; and offering which qualities are foundational for an attractive intellectual culture: consumer welfare, a cornucopia of information and ideas, a rich artistic tradition, distributive justice, semiotic democracy, sociability, and respect).

III. A Human Intervention Requirement

The human intervention requirement is essential to establishing a boundary between the zone of patentability and the zone of unpatentability as defined in the spectrum of intervention.[126] Such a requirement is primarily justified by the utilitarian and Lockean approaches, and need to maintain the incentive to invent. The following sections seek to develop the model framework into a workable test that can be used to provide law makers with an analytical guide for addressing this issue. Once established, the final section will run the proposed framework through a number of simulations to examine its workability and identify its faults.

A. *Maintaining the Incentive to Invent*

In providing the quid pro quo required for the patent system to function, courts have explained that maintaining the incentive to invent is essential.[127] Similarly, the Report of the President's Commission on the Patent System from 1966 listed four fundamental justifications for the patent system: an incentive to invent, a stimulation of investment capital required for development and marketing, encouragement of early public disclosure of the technological information, and promoting a beneficial exchange of products.[128] The incentive to invent operates "by offering the possibility of reward to the *inventor* and to those who support him. This prospect encourages the expenditure of time and private risk capital in research and development efforts."[129] While this economic justification recognizes the costs of research and development, the rights of the inventing individual or individuals remain central to this justification; not machines as machines require no incentives or economic justifications to operate.[130]

Keeping with the trend that machine learning technology will continue to develop at an exponential rate,[131] it is essential to determine whether the current regulatory regime is capable of maintaining the incentive to invent.[132] As society enters the "artificial invention age,"[133] and computer-assisted and

[126] *See supra* Figure 1.

[127] *See generally* Mazer v. Stein, 347 U.S. 201, 219 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in "Science and useful Arts." Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.").

[128] Report of the President's Commission on the Patent System 10-11 (1966) [hereafter Commission Report] (emphasis added) (listing the incentive to invent as the first "basic worth of the patent system"); *See also* Robert P. Merges, Peter S. Menell & Mark A. Lemley, Intellectual Property in the New Technological Age 17-18 (6th ed. 2012).

[129] Commission Report, *supra* note 128.

[130] *See* Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. Pitt. L. Rev. 1185, 1199 (1986) ("[I]t simply does not make any sense to allocate intellectual property rights to machines because they do not need to be given incentives to generate output.66 All it takes is electricity (or some other motive force) to get the machines into production.).

[131] *See* Mark Fenwick et al., *supra* note 3.

[132] *See* Commission Report, *supra* note 128.

[133] *See* Plotkin, *supra* note 6, at 1, 10-11 (stating artificial inventing is here to say and "[t]he future . . . won't wait for patent law," and noting that if patent law fails to reform "control over artificial invention will fall to those

computer-generated inventions increase in prevalence, an established test to determine how much human intervention is required to constitute inventorship remains nonexistent. Since the law is not yet adept to handle the idea of artificially intelligent inventors, this section seeks to establish a framework for determining the scope of patentability of inventions that are the product of AI. This framework will include a requirement that demands substantive human intervention throughout the inventive process for computer-generated "inventions" to be patentable. The result of computer-generated inventions and computer-assisted inventions lacking sufficient human intervention to constitute a nexus to human inventorship should enter the public domain and remain free to be protected other areas of law such as trade secret law.

Since the current law is not well suited to determine which computer based inventions should be deemed unpatentable, the following analytical framework seeks to offer guidance to the judiciary and legislature on how to make this determination and arrive at a conclusion of patentability.[134] In step 1, determine the nature of inventorship of the claimed invention. If the claimed invention is a purely human created invention, the invention should not fail for patentability. If the claimed invention is the product of computer-assistance or computer-generation proceed to step 2A. In step 2A, determine the degree of human intervention in the claimed invention. If the claimed invention is a computer-assisted invention, containing a combination of human intervention and computer-assistance, proceed to step 2B. If, however, the claimed invention is the product of computer-generation, containing no human intervention, said invention is unpatentable. In step 2B, determine whether the degree of human intervention in the claimed computer-assisted invention has a sufficient nexus to human inventorship. If the computer-assistance is (a) designed for the particular purpose of solving a well-defined problem, and (b) used merely as a tool to assist a human inventor arrive at a predictable result, said computer-assistance should not fail for patentability. If, however, the computer-assistance is used to design or create an invention with minimal human intervention said invention is unpatentable.

Declaring that inventions lacking minimal human intervention are unpatentable does not automatically mean that innovation would be stifled as a result. In fact, Justice Breyer once said that "sometimes *too much* patent protection can impede rather than 'promote the Progress of Science and useful Arts' . . . ."[135] The justification behind this principle is "sometimes [a patent's] presence can discourage research by impeding the free exchange of information."[136] While it is true that too much patent protection may sometimes impede the incentive to invent, alternative avenues of protection exist outside of traditional patent law that may not impede such incentives. To obtain protection for devices found to be unpatentable under the spectrum of human

players who are savvy enough to game the existing system to their private benefit").

[134] *See supra* Figure 1.

[135] Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 126 (2006) (referencing the justification behind not affording laws of nature patent protection despite the amount of time it may take to research or discover them or the investment that may go into such research).

[136] *Id.* at 127.

intervention model, "being first in the market, electronic open source tools, and social recognition" have all been suggested as some potential alternatives to current patent law for dealing with inventions made by AI.[137] While such methods may be successful at maintaining the incentive to invent, another alternative avenue of protection exists that would not require patent law reform – trade secret law. This area of the law would allow individuals to capitalize on unpatentable computer-assisted or computer-generated inventions.

There are many advantages to seeking trade secret protection over both computer-assisted and computer generated inventions. Seeking trade secret protection over either type of artificially produced inventions would mitigate the risk of disclosing sensitive information pertaining to the software that developed the patentable invention, and would limit the amount of information available for competitor use upon rejection of an application.[138] Additionally, if individuals utilizing such computer programs attempt to patent their inventions, nothing would prevent other countries from using the resulting invention if patented.[139] As such, trade secret law is a valuable option to those works that fall within the zone of unpatentability.[140] However, trade secret law has limitations in the scope of protection it may offer – such as reverse engineering.[141] Generally, works unable to obtain or maintain trade secret protection are left to the public.

If patent protection is unavailable, and trade secret law also fails to afford protection, remaining works should be left for the public to use. Here, the result of computer-generated inventions and computer-assisted inventions lacking a sufficient degree of human intervention should, as suggested by Ralph D. Clifford, appear in the public domain in the same way works generated by creative computers, where no human creativity exists in the creative process, should appear in the public domain.[142] Courts have traditionally been motivated to allow works to enter the public domain in trademark and copyright cases to balance "concerns over productivity losses from intellectual monopolies."[143] The same principle has been applied in patent cases to incentivize inventive activity.[144] In the case of computer-assisted and computer-generated

[137] Yanisky Ravid & Liu, *supra* notes 75 and accompanying text.

[138] Frank A. DeCosta, III & Aliza G. Carrano, *Intellectual Property Protection for Artificial Intelligence*, Westlaw Journal Intellectual Property 1, 4 (2017) (indicating that "[t]rade secret protection may be particularly well-suited for rapidly developing and changing AI inventions, where refinements and improvements are fluid").

[139] *Id.*

[140] *See supra* Figure 1.

[141] *See* Pamela Samuelson; Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 Yale L.J. 1575, 1664 (2002) (expressing "reverse engineering has always been a lawful way to acquire a trade secret, as long as 'acquisition of the known product... [is] by a fair and honest means, such as purchase of the item on the open market.'").

[142] *See* Clifford, *supra* note 63, at 1690, 95, 98 (suggesting that both seemingly patentable and copyrightable computer-generated works produced by the Creativity Machine should appear in the public domain since the creation or invention has no claimant); *See generally* § 1 J. Thomas McCarthy, McCarthy on Trademarks and Unfair Competition § 1.23 (5th ed. 2017) ("'Public Domain' is the status of an invention, creative work, commercial symbol, or any other creation that is not protected by any form of intellectual property. Legally protected zones of exclusive rights, such as patents, trademarks and copyrights, are exceptions to the general principle of free copying and imitation.")

[143] Lee, *supra* note 20.

[144] *See* Lee, *supra* note 20 (indicating the importance of "[m]aintaining intellectual infrastructure in the public

inventions, the most effective way to maintain an incentive to invent would be to allow works lacking a sufficient nexus to human inventorship to fall into the public domain.[145] The following section seeks to test the inventorship framework developed in this paper with the intent that the incentive to invent is not restricted.

B. *Testing the Human Intervention Framework*

The human intervention requirement for inventorship allows for the spectrum of intervention previously discussed[146] to be tested on real world examples. The resulting framework examines how much intervention is necessary for such works to be patentable, and the intended result of this framework is to prescribe ways to disincentivize individuals or companies from gaining a monopoly[147] over computer-assisted inventions that are the product of minimal human intervention. Regulating computer-assisted or computer-generated inventions of this nature will help maintain the incentive for individuals or companies to use machine learning by offering predictability for inventors during the patent prosecution process. Maintaining the incentive to use machine learning in the inventive process also seeks to ensure the general welfare of society is not hindered. This section will run the proposed framework through three simulations to examine its workability and identify its faults. The first case will test a computer-assisted invention with high human intervention, the second case will test a computer-assisted invention with low human intervention, and the third case will test a purely computer-generated invention.

In the first case of a computer-assisted invention with high human intervention, examples can be seen in almost every mechanically based engineering design as little design work is done without the help of a computer aided design (CAD) software.[148] Upon examination of step 2A, an invention resulting from the assistance of such a technology contains a combination of human intervention and computer-assistance and should be examined under step 2B. Under step 2B, the resulting invention should not fail for patentability because the technology is simply a tool used for the particular purpose of solving a well-defined problem and assisting the inventor arrive at a desired result, such as calculating the tolerances of their design and making an economic decision in selecting design materials. The result of this test case conforms to the desired result of the human intervention framework and the accompanying policy considerations.

domain" as it "promotes inventive activity").

[145] *See* Samuelson, *supra* note 130, at 1226 (Weighing the pros and cons of granting no ownership rights in the raw output of computer generated works found in copyright law. On one hand, if the authorship dilemma surrounding computer generated works is unable to be resolved, it may be best to allow the works to enter the public domain because there is no human author and therefore no human in need of motivation to create. On the other, if someone should be given an incentive to publicize the work, it should be the user of the work because they are best suited to further the Constitutional purpose. If a "flawless work" created by a computer program were deemed to be unprotectable for the reason that there is no human author, there would be little incentive to publicize the work only to have the work to fall into the public domain.).

[146] *See supra* Section III.A.

[147] *See supra* note 119 and accompanying text.

[148] *See* Marx, *supra* note 78 and accompanying text.

The second case of a computer-assisted invention with low human intervention, can be seen in the generatively-designed "ultimate car chassis" where data points were fed to a generative-design AI program called "Dreamcatcher" which produced an end car chassis design that could have never been designed by humans.[149] Upon examination of step 2A, such a claimed invention also contains a combination of human intervention and computer-assistance and should be examined under step 2B. Under step 2B, the resulting invention should fail for patentability and exist in the public domain because the computer assistance was not used as a tool to help the inventor arrive at a predicted and well-defined design solution, but rather arrive at a design that could have never been dreamt up by human inventors.

The third case of a purely computer-generated invention can be seen in Stephen Thaler's Creativity Machine which was used to independently invent the cross bristled configuration of the Oral-B Cross Action toothbrush,[150] or in Google's AutoML, the automated approach to the making of machine learning models.[151] Upon examination of step 2A, such claimed inventions do not contain a combination of human intervention and computer-assistance and should therefore be unpatentable and exist in the public domain. While the Creativity Machine may have received an input that led to the resulting invention, the invention lacks all of the essential traditional components of invention.

The result of the second and third cases also conform to the desired result of the human intervention framework and the accompanying policy considerations, but they expose potential setbacks in achieving the result the framework seeks to obtain. One of the potential enforcement difficulties that exists is the likelihood that a given computer-assisted invention with low human intervention or a purely computer-generated invention may lack distinction from computer-assisted inventions with high human intervention in the eyes of an outside examiner. Within the currently proposed human intervention framework, there is no way to accurately determine the level of computer-assistance that takes place during the inventive process from the view of a patent examiner, particularly since current patent law states that "patentability shall not be negated by the manner in which the invention was made."[152] Aside from the potential difficulty in implementing this framework in close call cases, the overall value of the proposal endures as a tool to enable courts and legislators to examine what protection should be granted to inventions output from artificially intelligent computers.

Conclusion

AI is developing with such rapidity that regulation related to corresponding areas of the law are left lagging behind. This revolutionary technology contin-

[149] Conti, *supra* note 82.

[150] *See supra* note 63.

[151] *See supra* notes 80-81.

[152] 35 U.S.C. § 103. *See also* Durham, *supra* note 54, at 587-88 (listing examples of instances in which inventions were discovered accidentally; highlighting the need for 35 U.S.C. § 103).

ues to subsume nearly every industrial area, and the need for legal guidance on this topic is increasing exponentially, particularly in the area of patent law. As developers and inventors gain the ability to create machine learning technologies capable of independently generating inventions, a novel issue of inventorship emerges; are computers capable of being inventors? If not, who, if anyone, may claim the rights to inventions resulting from artificially intelligent inventors. To answer such a question, this article examined the inventorship requirement and established three ways in which an invention may be made: pure human generation, computer-assistance, or pure computer-generation.

The product of such an inquiry is a framework derived from the prevailing theoretical justifications for intellectual property rights. This framework analyzes the spectrum of human intervention to determine the requisite amount of intervention necessary to constitute inventorship. In order to distinguish between patentable and unpatentable computer-assisted and computer-generated inventions, the spectrum incorporates a point at which a computer-assisted invention enters a zone of unpatentability. This occurs when said invention lacks sufficient human intervention to constitute a nexus to human inventorship. If a nexus to human inventorship is lacking, the resulting invention should enter the public domain. This proposal will assist judges and legislators in their determination of the allowable degree of technological intervention required to obtain traditional patent rights by designating a point at which human intervention is so minimal that the constitutional right to a patent in the invention is extinguished.

Vanda v. West-Ward: Swinging Back the Pendulum for Patenting Natural Phenomena

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Abstract

Since the Human Genome Project was completed in 2001, the U.S. Patent and Trademark Office granted patent protection to nearly sixty thousand DNA-based patents, about twenty-six hundred of which are for isolated DNA. However, the rulings of two Supreme Court decisions, *Mayo* in 2012 and *Myriad* in 2014, put an end to the laissez-faire environment for DNA-based patents. Under those decisions, natural gene and protein sequences are per se ineligible subject matter. The Court's decisions left the USPTO and many DNA-based patent-holders bewildered. While the Court attempted to define a bright-line rule proscribing natural phenomena, known as the *Mayo/Alice* framework, its lack of clear guidance on how to apply the test left the lower courts to wrestle with its practical administration. The Supreme Court rightfully aimed to avoid preempting researchers and the public from using natural phenomena, but in doing so gutted the patent incentives for modern research. This Note argues that in a recent decision, *Vanda v. West-Ward*, the United States Court of Appeals for the Federal Circuit misapplied the *Mayo/Alice* framework when analyzing a method patent involving a natural relationship. However, the Federal Circuit was justified in redrawing the bounds of patentable subject matter requirements for pro-patent and pro-scientific research reasons. The current patentability statutes under 35 U.S.C. bleed together, and clarifying the requirements may require Congressional and Supreme Court intervention and cooperation.

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Introduction

Personalized precision medicine, once thought possible only in science fiction and Popular Mechanics, continues its rise to prominence in the medical field. Thanks to the efforts of the Human Genome Project[1] and advanced sequencing technologies,[2] physicians and researchers can predict how individuals with a unique genetic sequence will respond to particular treatments.[3] Some doctors even request a patient's DNA sample as part of their annual physical.[4]

[1]NIH, AN OVERVIEW OF THE HUMAN GENOME PROJECT (last reviewed May 11, 2016), https://www.genome.gov/12011238/an-overview-of-the-human-genome-project/.

[2]Simona Coco, et. al, *Next Generation Sequencing in Non-Small Cell Lung Cancer: New Avenues Toward the Personalized Medicine*, 16 CURRENT DRUG TARGETS (Jan. 2015), https://www.ingentaconnect.com/content/ben/cdt/2015/00000016/00000001/art00007.

[3]Antonio Regalado, *Look How Far Precision Medicine Has Come*, MIT TECH. REV. (Oct. 23, 2018), https://www.technologyreview.com/s/612281/look-how-far-precision-medicine-has-come/.

[4]Lisa Schencker, *Turn Your Head, Cough, Submit Your DNA: Your Next Physical May Include Genetic Testing*, CHI. TRIB. (Jan. 25, 2019), https://www.chicagotribune.com/business/ct-biz-northshore-genetic-testing-in-primary-care-20190116-story.html.

Continued development in the sciences and personalized medicine requires a robust patent system that incentivizes inventors and investors to continue their quest for new discoveries. The patent system, even with all of its criticisms, is intended to promote innovation in the sciences.[5] Patent exclusivity grants innovators the limited right to prohibit others from practicing a claimed invention in exchange for disclosing to the public the specifics of how to practice said invention.[6] The Biotechnology Industry Organization, a trade group, argues that patenting genes, a type of natural phenomena, is necessary for incentivizing investments that lead to innovation.[7] Opponents to gene patents contend that those patents inhibit innovation by preventing the free use of scientific knowledge,[8] while improperly opening the door for infringement liability.[9]

The Supreme Court was rightfully concerned with these issues when it carved out the judicial exceptions to patent eligibility.[10] In part, this Note argues the unclear standards offered by the Court's attempt at a bright-line rule does more harm than good. The Federal Circuit's analysis and holding stands in questionable contrast with that of the Supreme Court just six years prior in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,[11] invalidating a method claim that recited identical steps of first *administering* a drug and next *determining* the level of metabolites in the blood to adjust the dosage *wherein* the determined metabolite level instructs physicians to alter the dosage to reduce harm to side effects.[12] Under *Mayo*, the Court set out a two-step standard (the "*Mayo*/*Alice* framework") for determining whether a claimed invention directed to patent-ineligible laws of nature, physical phenomena, or abstract ideas,[13] could still nonetheless be patentable where there is an inventive application of said patent-ineligible subject matter.[14]

The *Mayo*/*Alice* framework has since been responsible for prohibiting patenting natural phenomena, and is criticized by inventors, patent practition-

[5] Manny Schecter, *Closing the Gap Between Intellectual Property Awareness and Understanding*, IP Watchdog (Feb. 3, 2019), https://www.ipwatchdog.com/2019/02/03/closing-gap-intellectual-property-awareness-understanding/id=105866/.

[6] *Id.*

[7] Kathlyn Stone, *The Debate About Gene Patents*, Balance (Nov. 18, 2018) ("In many cases, gene-based patents are critical for a biotech company's ability to attract the capital and investment necessary for the development of innovative diagnostic, therapeutic, agricultural and environmental products. Thus, the issues raised in this case are of great importance to the U.S. biotechnology industry."), https://www.thebalance.com/the-gene-patents-debate-2663137.

[8] *Id.*

[9] Allison W. Dobson & James P. Evans, *Gene Patents in the US-Focusing on What Really Matters*, Genome Biology (2012), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3446309/pdf/gb-2012-13-6-161.pdf.

[10] *See generally* Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576 (2013); Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66 (2012).

[11] 566 U.S. 66 (2012).

[12] *Id.* at 86–87.

[13] Diamond v. Chakrabarty, 447 U.S. 303 (1980) (citing Parker v. Flook, 437 U.S. 584 (1978); Gottschalk v. Benson, 409 U.S. 63, 67 (1972); Funk Brothers Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948); O'Reilly v. Morse, 56 U.S. 62, 112–121 (1854); Le Roy v. Tatham, 55 U.S. 156, 175 (1853)).

[14] *See* discussion of *Mayo*/*Alice* framework *infra* Part II.

ers, and the lower courts.[15] The Court's 2014 *Myriad*[16] decision, while distinguished from *Mayo*, is criticized along the same line for its express prohibition on patenting natural gene sequences. Under these decisions, patent drafters are barred from drafting claims around full-length natural gene and protein sequences. Instead, practitioners claim protein and gene sequences by spelling out only small portions of functionally-specific sequences, and then introducing functionally-silent substitutions or mutations in putative non-functional regions of the sequence.[17] Together, these claimed functional sequences with the substituted non-functional sequences make a claimed full-length sequence that is different from the wild type. While these sequence changes are considered functionally-silent, any substitution to a protein sequence or mutation to a DNA sequence may likely have unforeseen deleterious consequences. Therefore, a superior patent would claim the full-length wild type gene or protein sequence. The Supreme Court's *Mayo* and *Myriad* decisions and lack of guidance on subject matter eligibility prohibits claiming full-length wild type sequences.

Left to grapple with this in a whole host of decisions, the United States Court of Appeals for the Federal Circuit has made every effort to balance its jurisprudential requirements with the its pro-patent needs. This Note highlights such a tension in a recent decision, *Vanda Pharmaceuticals Inc. v. West-Ward Pharmaceuticals International Ltd.*,[18] where significant policy and scientific rationale correctly motivated the Federal Circuit's misapplication of the patent subject matter eligibility standard. In *Vanda*, the Federal Circuit affirmed the United States District Court for the District of Delaware's finding that Vanda Pharmaceuticals, Inc.'s method patent for treating schizophrenia was valid and was not directed to patent ineligible subject matter.[19] Vanda's patent claim-at-issue recited the steps of *determining* whether the patient has a poor metabolizer genotype for the drug iloperidone, and next *administering* the drug in a specified dosage to mitigate QTc prolongation, *wherein* a risk of a harmful side effect from poor drug metabolism is related to the claimed dosage.[20]

The Federal Circuit in *Vanda* erred by analyzing Vanda's patent claim as a function of the claimed elements' order at Step One of the *Mayo*/*Alice* framework.[21] *Mayo* Step One requires determining whether the claimed invention is directed to patent ineligible subject matter, an inquiry that is independent of the claim's element order.[22] Only after finding the claim to be directed to patent-ineligible subject matter can the inquiry consider claim element order

[15] Christopher M. Holman, *The* Mayo *Framework is Bad for Your Health*, 23 Geo. Mason L. Rev. 901 (2016); Eugene Kim, *Biotech Patent Eligibility: A New Hope*, 3 Colum. Bus. L. Rev. 1157 (2017).

[16] Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576 (2013).

[17] For a review of amino acid substitutions and limitations, see Lev Y. Yampolsky & Arlin Stoltzfus, 170 Genetics 1459 (2005). Practitioners may also specify the function of the claimed unnatural sequence to distinguish the claimed invention. Such functions include binding targets, enzymatic and signaling activity, and protein translation products for the case of claimed DNA sequences.

[18] 887 F.3d 1117 (Fed. Cir. 2018).

[19] *Id.* at 1140.

[20] *Id.* at 1121.

[21] *Vanda*, 887 F.3d at 1135.

[22] *Mayo*, 566 U.S. at 79 (citing Diamond v. Diehr, 450 U.S. 175, 188 (1981)) (noting that the order of claim elements "as an ordered combination adds nothing to the laws of nature that is not already present when the steps are considered separately").

at Step Two's search for an inventive application of the claimed ineligible subject matter.[23]

This Note argues that although the Federal Circuit correctly concluded Vanda's patent was valid, the court misapplied the *Mayo*/*Alice* standard in an effort to loosen the constraints on patentable natural phenomena.[24] The Supreme Court expressly intends patent protection and the exclusion of natural phenomena to strike a "delicate balance" incentivizing innovation and preempting the use of knowledge.[25] Relaxing the standards for patentable inventions could incentivize the monopolization of natural phenomena, while potentially preempting inventors, researchers, and the public from using these basic tools of scientific and technological work.[26] While anti-patent critics argue destabilizing this balance would impede innovation more than it would tend to promote it,[27] this Note argues that the *Mayo*/*Alice* subject matter eligibility analysis neuters the economic power of the patent system altogether. Congress and the Supreme Court should revisit the requirements for subject matter eligibility and allow for patenting of natural phenomena so long as the claims are narrow enough to avoid broad preemption.

I. The Case

In *Vanda v. West-Ward*, the United States Court of Appeals for the Federal Circuit affirmed the Delaware district court's decision finding the validity of Vanda's method patent for treatment of schizophrenia using an iloperidone regimen based off the patient's genotype to mitigate QTc prolongation.[28] In a four-part opinion, the court addressed the issues of jurisdiction, infringement, subject matter eligibility, and patent written description.[29] This Section discusses the patent-in-suit,[30] the alleged infringement that gave rise to Vanda's cause of action,[31] and the district court's reasoning and holding.[32]

A. The Plaintiffs and the '610 Patent-in-Suit

Plaintiffs Vanda Pharmaceuticals Inc. ("Vanda") and Aventisub LLC ("Aventisub") are both Delaware corporations with their principal places of business in Washington, D.C. and Greenville, Delaware, respectively.[33] Vanda owns U.S. Reissue Patent 39,198 ("the '198 patent"), while Aventisub holds the exclusive

[23] *Id.*

[24] *See* discussion *infra* Part IV.C.

[25] Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576, 590 (2013) (quoting *Mayo*, 566 U.S. at 92) (alteration in original).

[26] Gottschalk v. Benson, 409 U.S. 63, 67 (1972).

[27] *Mayo*, 566 U.S. at 71.

[28] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 418 (D. Del. 2016), *aff'd sub nom.* Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117 (Fed. Cir. 2018).

[29] *Vanda*, 884 F.3d at 1123–40.

[30] *See* discussion Part I.A. *infra.*

[31] *See* discussion Part I.B, *infra.*

[32] *See* discussion Part I.C, *infra*.

[33] Vanda, 203 F. Supp. 3d at 418.

license to operate the '198 patent.[34] Vanda also owns U.S. Patent 8,586,610 ("the '610 patent").[35] The '198 patent expired on November 15, 2016, and the '610 patent expires on November 2, 2027.[36] Both the '198 and the '610 patents were at issue in the Delaware district court case, *Vanda Pharmaceuticals Inc. v. Roxane Laboratories, Inc*,[37] which was appealed to the Federal Circuit.[38] However only the '610 patent ruling was appealed.[39]

The '610 patent claims a method of treating patients with schizophrenia using iloperidone with a dosage based on the patient's identified genotype.[40] The specific genetic marker claimed in the '610 patent is for the cytochrome P450 2D6 gene ("CYP2D6").[41] Independent claim 1 of the '610 patent is a method claim containing three steps of *determining* the patient's CYP2D6 genotype, *administering* a drug dosage based on that phenotype, *wherein* the prescribed dosage is recommended for a lower risk of side effects.[42] The '610 patent was issued on November 19, 2013.[43]

Vanda owns the New Drug Application ("NDA") for Fanapt®, an iloperidone antipsychotic approved by the U.S. Food and Drug Administration for the treatment of patients with schizophrenia.[44] Vanda obtained FDA approval for iloperidone-based treatment of schizophrenia in part from the findings disclosed in the '610 patent.[45] Both the '610 and '198 patents are listed in connection with Fanapt® in the FDA's Orange Book.[46]

B. West-Ward's Infringement on Fanapt®

In 2013, West-Ward Pharmaceuticals International Limited ("West-Ward"), formerly Roxane Laboratories, Inc.,[47] filed Abbreviated New Drug Application ("ANDA") 20-5480 for approval to manufacture and sell generic Fanapt® for the treatment of schizophrenia.[48] At that time, the '610 patent was pending and only the '198 patent was listed in the Orange Book.[49] The ANDA certified that the '198 patent was invalid and/or would not be infringed.[50]

[34] *Vanda*, 887 F.3d at 1120.

[35] *Id.*

[36] *Id.* at 1120, 21.

[37] *Vanda*, 203 F. Supp. 3d at 418.

[38] *Vanda*, 887 F.3d at 1117.

[39] *Id.* at 1121 n.1.

[40] *Id.* at 1121.

[41] *Id.* CYP2D6 encodes an enzyme known to metabolize, among other things, iloperidone. *Id.* (citing '610 patent col. 1 ll. 29–36).

[42] *Id.* at col. 17 ll. 2–19 (emphasis added).

[43] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 418 (D. Del. 2016).

[44] *Vanda*, 887 F.3d at 1121.

[45] *Id.*

[46] *Id.* The "Orange Book" is the FDA's publication, "Approved Drug Products with Therapeutic Equivalence Evaluations." *Id.*

[47] *Id.* at 1122 n.3. On June 26, 2018, Hikma Pharmaceuticals PLC, the international pharmaceutical company, announced that West-Ward, its United States subsidiary, will operate as Hikma Pharmaceuticals USA Inc.

[48] *Id.* at 1122.

[49] *Id.*; *see supra* n.43.

[50] *Vanda*, 887 F.3d at 1122. West-Ward alleged the '198 patent was invalid for reasons of obviousness, lack of subject matter eligibility, and lack of written description. *Id.*

On November 25, 2013, Vanda filed Civil Action No. 13-1973 ("2013 suit") alleging infringement of the '198 patent.[51] Later on June 16, 2014, Vanda filed Civil Action No. 14-757 ("2014 suit") alleging infringement of the '610 patent.[52] Seven months later, Vanda listed the '610 patent in the Orange Book for Fanapt®.[53] West-Ward subsequently amended ANDA 20-5480 to certify that the '610 patent is invalid and/or not infringed and notified Vanda accordingly.[54] Both the 2013 and 2014 suits were consolidated.[55]

C. The District Court's Reasoning and Holding

Following a bench trial, the district court held that the '198 and '610 patents were not invalid for reasons of obviousness,[56] lack of subject matter eligibility,[57] or lack of written description.[58] The court then held the proposed generic products induce infringement of the '610 patent, but do not contributorily infringe the '610 patent.[59]

The district court held the '610 patent was not invalid for lack of patentable subject matter.[60] Under 35 U.S.C. § 101, the categories of patentable subject matter are listed as, "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof."[61] Exceptions to these categories are "laws of nature, natural phenomena, and abstract ideas."[62] The Supreme Court first promulgated the modern outlining the confines of eligible patent subject matter in *Mayo v. Prometheus*.[63] Under *Mayo*, the reviewing court first determines if the invention qualifies as patent ineligible subject matter, and then determines if there are sufficient inventive elements beyond just the patent ineligible concept.[64]

The district court held that genetic testing requirement in the '610 patent's dosage step amounted to significantly more than a natural law.[65] The court concluded that the asserted claims depend upon laws of nature.[66] However,

[51] *Vanda*, 887 F.3d at 1122.

[52] *Id.*

[53] *Id.*

[54] *Id.* West-Ward amended its complaint to include the '610 patent was invalid for reasons of obviousness, lack of subject matter eligibility, and lack of written description. *Id.*

[55] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 417 (D. Del. 2016).

[56] *Id.* at 423–27.

[57] *Id.* at 427–30.

[58] *Id.* at 430–31.

[59] *Id.* at 431–35. A defendant has induced infringement when it instructs or causes another party to infringe a patent. 35 U.S.C. § 271(b). For a method patent, a defendant induces infringement if it instructs another party to perform all of the steps of the method. *Id.* The party who performs all of the steps is liable as a direct infringer, while the inducer is liable as an indirect infringer. *Id.* Contributory infringement exists when a defendant sells or offers to sell a component that can only be used in infringing a patented invention. 35 U.S.C. § 271(d).

[60] *Vanda*, 203 F. Supp. 3d at 427–30.

[61] 35 U.S.C. § 101.

[62] Diamond v. Diehr, 450 U.S. 175, 185 (1981).

[63] 566 U.S. 66 (2012).

[64] *Vanda*, 203 F. Supp. 3d at 428 (D. Del. 2016) (citing DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245, 1255 (Fed. Cir. 2014) (quoting Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347, 2355 (2014) (citing *Mayo*, 566 U.S. at 73))).

[65] *Id.* at 429.

[66] *Id.* at 428–29.

it reasoned that the CYP2D6 genotyping tests added to the claimed natural relationship.[67] The court also reasoned Justice Breyer's concern from *Mayo* that "patent law not inhibit further discovery by improperly tying up the future use of laws of nature"[68] did not apply since the '610 patent did not preempt future use.[69] In the view of the district court, while it would be conventional to test for side-effects, the defendant did not prove the tests were routine or conventional.[70] The court therefore found the patent-at-issue was not invalid for lack of patentable subject matter.[71]

In the remaining three parts of the opinion, the district court addressed the challenged requirements for non-obviousness,[72] written description,[73] and secondary infringement liability.[74] The district court denied injunctive relief for the plaintiff under 35 U.S.C. § 271(e)(4)(A) because the valid '610 patent did not issue until after the ANDA was filed.[75] However, the court provided equitable injunctive relief for the plaintiff, enjoining the defendant from engaging in the manufacture, use, offer to sell, sale, or importation into the United States of the ANDA product prior to the expiration of the '610 patent.[76] West-Ward filed a timely appeal from the district court's final judgment.[77]

[67] *Id.*

[68] *Mayo*, 566 U.S. at 85.

[69] *Vanda*, 203 F. Supp. 3d at 430.

[70] *Id.* at 429.

[71] *Id.* at 430.

[72] *Id.* at 423–27. Under 35 U.S.C. § 103(a), a patent may not be issued "if the differences between the claimed invention as a whole would have been obvious . . . to a person having ordinary skill in the art." 35 U.S.C. § 103(a). The district court concluded the '610 patent claim to base iloperidone dosage on a CYPD26 genotype was not obvious mostly because "Novartis abandoned iloperidone due to QTc prolongation." *Vanda*, 203 F. Supp. 3d at 426–27. There are a number of secondary considerations that may overcome an obviousness rejection, including "evidence of commercial success, long-felt but unsolved needs, *failure of others*, and unexpected results." Graham v. John Deere Co., 383 U.S. 1 (1966) (emphasis added) (outlining the *Graham* factors for secondary considerations of nonobviousness). The failure of iloperidone by Novartis was enough to overcome the obviousness rejection. *Vanda*, 203 F. Supp. 3d at 426–27.

[73] *Vanda*, 203 F. Supp. 3d at 430–31. Under 35 U.S.C. § 112, the patent must contain "full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same." 35 U.S.C. § 112. To meet this description, the application must show the applicants were in possession of the invention as of the filing date. *Vanda*, 203 F. Supp. 3d at 430 (citing Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991)). The disclosure must "reasonably convey" to those skilled in the art that the inventor had possession of the invention. *Id.* (quoting Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1351 (Fed. Cir. 2010)). The '610 patent discloses a trend of higher QTc prolongation among CYP2D6 metabolizers given 24 mg/day, and "an individual with a genotype associated with decreased CYP2D6 activity may receive a reduced dosage of 18, 12, or 6 mg per day." *Id.* While defendants argued there is no support for the dosage range of 12 mg/day, the court agreed with the plaintiffs that the disclosed data reasonably conveyed the '610 dosage range of 12 mg/day. *Id.*

[74] *Vanda*, 203 F. Supp. 3d at 435. The district court held West-Ward's generic iloperidone "would, if marketed, induce infringement . . ." but "does not contribute to the infringement of the '610 patent." *Id.* An accused infringer may escape liability for contributory infringement if "his product is capable of substantial non-infringing use." *Id.* at 434 (citing Toshiba Corp. v. Imation Corp., 681 F.3d 1358, 1362 (Fed. Cir. 2012)). The plaintiffs relied on evidence that a physician could prescribe iloperidone to treat schizophrenia without a genotyping test. *Id.* at 434–35. The court found the plaintiffs did not meet their burden of proof to show there is "not a substantial noninfringing use" of the proposed generic label. *Id.* at 435.

[75] *Id.* The Hatch-Waxman Amendments provide injunctive relief to protect reissue patents. 35 U.S.C. § 271 (e)(4)(A). The relevant section states, "the court shall order the effective date of any approval of the drug or veterinary biological product involved in the infringement to be a date which is not earlier than the date of the expiration of the patent which has been infringed." *Id.*

[76] *Vanda*, 203 F. Supp. 3d at 435.

[77] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1123 (Fed. Cir. 2018).

II. Legal Background

While the Constitution vests inventors with the right to patent and thereby secure "the exclusive right to their respective writings and discoveries,"[78] Congress limits the broad range of patent eligible subject matter.[79] The Patent Act provides "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" may be patented.[80] Legislative history affirms the intent of Congress to convey broad coverage for patent eligible subject matter "to include anything under the sun that is made by man."[81] However, both Congress and the Constitution are silent to the limits of what is eligible for patent protection. The Supreme Court, unwilling to take a literal reading of the "anything under the sun that is made by man" standard, confined the scope of patentable discoveries to exclude laws of nature, physical phenomena, and abstract ideas.[82] Laws of nature practically applied to a known structure or process may be patented.[83]

The Court in *Mayo* invalidated a patent because the claims failed what would be later known as Steps One and Two.[84] The '623 patent at issue in *Mayo* contained steps almost identical to that of *Vanda*. Independent claim 1 in *Mayo* contained the three steps of *administering* a drug, *determining* the drug metabolite levels in the patient's blood, *wherein* the metabolite level indicates a need to change the dosage to avoid potential side effects.[85] The *Mayo* claim involved the "relationships between metabolite concentrations in the blood, and the likelihood that a dosage of a thiopurine drug will . . . cause harm."[86] The Court invalidated the patent and held that a patented process that uses a natural law must also contain other elements or a combination of elements that amount to more than a patent upon the natural law itself.[87] The *Mayo* claim, thus did not contain enough of an inventive concept to allow patenting the natural relationship.[88]

Two years later, the Supreme Court in *Alice*[89] reaffirmed *Mayo* and solidified a two-step framework to determine patent subject matter eligibility for all inventions, including those that use natural laws:

> First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, "[w]hat else is there in the claims before us?" To answer that question, we consider the elements of each claim both individually and "as an or-

[78] U.S. Const. art. I, § 8, cl. 8.
[79] 35 U.S.C. § 101 (2012).
[80] *Id.*
[81] S. Rep. No. 82–1979 at 5 (1952); H.R. Rep. No. 82–1923 at 6 (1952). *See also* Diamond v. Chakrabarty, 447 U.S. 303 (1980).
[82] *See supra* note 13.
[83] Diamond v. Diehr, 450 U.S. 175 (1980).
[84] Mayo Collaborative Serv. v. Prometheus Labs., Inc., 566 U.S. 66, 76 (2012).
[85] *Id.* (emphasis added).
[86] *Id.* at 77.
[87] *See id.* (referring to the requisite other elements or combination of elements as an "inventive concept").
[88] *Id.*
[89] Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347 (2014).

> dered combination" to determine whether the additional elements "transform the nature of the claim" into a patent-eligible application. We have described step two of this analysis as a search for an " 'inventive concept' "—i.e., an element or combination of elements that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself."[90]

Under the *Mayo/Alice* framework, the court must first determine ("Step One") if the patent claims are directed to ineligible subject matter.[91] If so, the court determines ("Step Two") whether the invention contains an inventive concept sufficient to transform the claimed abstract idea into a patent eligible application.[92] A negative answer to Step One results in a patent eligible invention, while a Step One affirmative answer is only patent eligible if it satisfies Step Two.[93] This Part will first analyze how the Federal Circuit has interpreted Step One of the *Mayo/Alice* framework,[94] and will then address how it has interpreted Step Two.[95]

A. *Mayo/Alice* Step One Asks Whether the Patent Claims are Directed to a Patent-Ineligible Concept[96]

Step One of the *Mayo/Alice* framework asks "whether the claims at issue are directed to one of those patent-ineligible concepts."[97] In a patent subject matter eligibility inquiry, the claims "must be considered as a whole."[98] The order of the patent claim elements "as an ordered combination adds nothing to the laws of nature that is not already present when the [elements] are considered separately."[99] The *Mayo* claim comprised the three steps of *administering*, *determining*, and *wherein*.[100] The *Mayo* Court analyzed the meaning of each element and concluded that the combination of the three allowed the doctors to gather data to infer a course of action.[101] The *Mayo* Court reasoned the relation was a

[90] *Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 566 U.S. at 72–73, 75–79).
[91] *Id.*
[92] *Id.*
[93] *Id.*
[94] *See* discussion *infra* Part A.
[95] *See* discussion *infra* Part B.
[96] Alice, 134 S.Ct. at 2355 (quoting Mayo, 566 U.S. at 72–73, 75–79).
[97] *Id.*
[98] Diamond v. Diehr, 450 U.S. 175, 188 (1981). The Court states, "[t]his is particularly true in a process claim because the new combination of steps in a process may be patentable." *Id.* "The 'novelty' of any element or steps in a process . . . is of no relevance in determining whether the subject matter of a claim falls within the [35 U.S.C.] § 101 categories of possibly patentable subject matter." *Id.*
[99] *Mayo*, 566 U.S. at 79 (citing *Diehr*, 450 U.S. at 188). While claim elements are often referred to as "steps," here the claim steps are referred to as claim "elements" to avoid confusion with the legal inquiry of *Mayo* Step One and Step Two.
[100] *See*, *Mayo* claim, *supra* Part II.
[101] *Mayo*, 566 U.S. at 78–79 (noting "administering" refers to the doctors who are the audience of the claims, "wherein" tells a doctor "about the relevant natural laws," and "determining" tells the doctor "to determine the relevant metabolites in the blood).

natural law.[102]

One year after *Mayo*,[103] the Court decided *Association for Molecular Pathology v. Myriad Genetics, Inc.*[104] Distinguishing Mayo's method claim from Myriad's composition claim, the Court did not apply the full test from *Mayo*.[105] However, the Court elucidated the criteria for *Mayo* Step One defining "laws of nature, natural phenomena, and abstract ideas" as having the "basic tools of scientific and technological work."[106] The Court held that a naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated, but that cDNA is patent eligible because it is not naturally occurring.[107] The claimed cDNA in *Myriad* was made by a lab technician and thus patent eligible because it was not a product of nature.[108] While the *Myriad* holding on its face is not applicable to method claims,[109] it is the only time since *Mayo* that the Supreme Court has elaborated the criteria behind *Mayo* Step One. The *Mayo*[110] and *Myriad*[111] decisions are the only instances the Supreme Court spoke on patenting natural phenomena under the new standard, and are thus the only unwieldy bulwarks prohibiting the patenting of natural gene and protein sequences.

The United States Court of Appeals for the Federal Circuit has been left to wrestle with the *Mayo*/*Alice* framework with little guidance from above. The Federal Circuit routinely finds patent claims directed to a patent-ineligible concept at *Mayo*/*Alice* Step One when the claims just identified the ineligible concept.[112] At Step One, the court emphasizes the necessity that the claim be directed to the patent ineligible concept, and not just an underlying patent-

[102] *Mayo*, 566 U.S. at 77 (emphasis added). Having met the criteria for Step One, the Court moved on to Step Two of the inquiry. *Id.* at 77–78.

[103] *Id.* at 77.

[104] 569 U.S. 576 (2013).

[105] *Id.* at 595–96. Myriad's patent did not claim a diagnostic method, rather it claimed, in part, the cDNA as a composition of matter. *Id.*

[106] *Id.* at 589.

[107] *Id.*

[108] *Id.* at 595 (noting the key difference between cDNA and DNA being that the "cDNA retains [only] the naturally occurring exons of DNA, but it is distinct from the DNA from which it was derived" because it lacks any intron sequences that occur in the native gene).

[109] *Id.* at 595–96 (distinguishing the holding form method claims because "there are no method claims before this Court. Had Myriad created an innovative method of manipulating genes . . . it could possibly have sought a method patent. However, the processes used by Myriad to isolate DNA were well understood by geneticists at the time of Myriad's patents . . . and are not at issue in this case.").

[110] 566 U.S. 66 (2012).

[111] 569 U.S. 576 (2013).

[112] *See, e.g.*, Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1373–74 (Fed. Cir. 2015) (finding a method claim detecting cell-free fetal DNA ("cffDNA") in the blood or serum of a pregnant serum was directed to a natural relationship because identifying its presence was claiming the natural phenomena itself); In re BRCA1 & BRCA2-Based Hereditary Cancer Test Patent Litig., 774 F.3d 755, 761–62 (Fed. Cir 2014) (finding a method claim for screening human germline for an altered gene by comparing the germline DNA sequence with wildtype patent-ineligible because it was abstract mental process); *but see* Rapid Litig. Mgmt. v. CellzDirect, Inc., 827 F.3d 1042, 1048 (Fed. Cir. 2016) (finding a method claim for multiple freeze-thaw cycles for hepatocytes was not directed to a natural relationship because the claims recited a new and useful laboratory technique for producing a desired product–preserved hepatocytes).

ineligible concept.[113] In *Genetic Technologies, Ltd. v. Merial L.L.C.*,[114] the claim-at-issue recited methods for detecting a coding region of a person's genome in relation to a linked non-coding region of that person's genome.[115] Because the coding and non-coding DNA are naturally related to each other, the court found the claim was directed to a law of nature.[116]

B. *Mayo/Alice* Step Two Requires an Inventive Concept to Transform the Claimed Idea into a Patent-Eligible Subject Matter[117]

Step Two of the *Mayo/Alice* framework is an inquiry into whether the claims directed to a patent-ineligible subject matter contain an "inventive concept."[118] The "inventive concept" must be sufficient to transform the idea into a patent-eligible application.[119] The Court reasoned it must distinguish patents that claim the "building block of human ingenuity," which are ineligible for patent protection, from those that integrate the building blocks into something more . . . ."[120]

In *Mayo*, after the Court found the patent claim was directed to a patent-ineligible concept,[121] the Court found the claim did not supply an "inventive concept."[122] The *Mayo* patent claimed a method for measuring drug metabolites in the patient's blood to determine the appropriate drug dosage.[123] The *Mayo* Court reasoned there was no "inventive concept" because methods for determining metabolite levels were well known and routine, and the claimed method did nothing more than instruct doctors to apply known methods during treatment.[124] Under Step Two, claims that are "directed to" a patent-ineligible concept, that improve an existing technological process transform it into an inventive application of the patent-ineligible concept.[125]

The Federal Circuit echoes the fact-based nature of the "inventive concept" inquiry of *Mayo/Alice* Step Two.[126] "Inventive concept" steps must not be routine and conventional.[127] While the court has not evaluated what claim ele-

[113] Rapid Litig. Mgmt. v. CellzDirect, Inc., 827 F.3d 1042, 1050 (Fed. Cir. 2016) (noting that "it is not enough to merely identify a patent-ineligible concept underlying the claim; we must determine whether that patent-ineligible concept is what the claim is 'directed to' "). The court looked to the plain language of the claim to determine that the claim was not directed to a patent-ineligible concept. *Id.*

[114] 818 F.3d 1369, (Fed. Cir. 2016).

[115] *Id.* at 1374.

[116] *Id.* at 1376.

[117] Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347 (2014) (quoting Mayo, 566 U.S. at 72–73, 75–79).

[118] *Id.* at 2350 (quoting *Mayo*, 566 U.S. at 67).

[119] *Id.* at 2357.

[120] *Id.* (quoting *Mayo*, 566 U.S. at 67) (alteration in original) (citation omitted) (internal quotation marks omitted).

[121] *See* discussion *supra* Part A.

[122] *Mayo*, 566 U.S. at 73.

[123] *Alice*, 2357 (2014) (quoting *Mayo*, 566 U.S. at 71).

[124] *Id.* (quoting *Mayo*, 566 U.S. at 78–79).

[125] *Id.* at 2358 (quoting *Mayo*, 566 U.S. at 81).

[126] Genetic Techs., Ltd. v. Merial L.L.C., 818 F.3d 1369, 1377 (Fed. Cir. 2016) (quoting *Mayo*, 566 U.S. at 72).

[127] Rapid Litig. Mgmt. v. CellzDirect, Inc., 827 F.3d 1042, 1051 (Fed. Cir. 2016) (noting the claims in *Mayo* failed at step two "because the steps . . . were already being performed by those in the field," (citing *Mayo*, 566 U.S. at 72) and the claims in *Ariosa* for performing steps on newly discovered, naturally-occurring substrate were routine (citing Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1377–78 (Fed. Cir. 2015))).

ments can allow for an inventive concept on their own, the court has outlined a number of laboratory techniques as being well-understood, routine, or conventional activity.[128]

The search for an inventive concept often requires the courts to consider the patent claim elements individually and as a whole. Considering the claim element order and combination together can provide an inventive concept sufficient to elevate an ineligible natural phenomenon to patent eligible subject matter. In *Rapid Litigation Management Ltd. v. CellzDirect Inc.*,[129] a patent claim requiring repeated conventional freezing and thawing of cell suspensions was "far from routine and conventional," and thus eligible for patent protection.[130] This same principle of the combination of claim elements elevating conventional steps to patent eligible subject matter extends to software patents.[131]

While the "inventive concept" inquiry is theoretically not the same as the inquiries for the statutory requirements of novelty[132] and nonobviousness,[133] the practical barriers separating the statutory requirements are fuzzy and ill-defined. Analysis of what is routine, conventional, and well-known in patent claims eerily parallels the language of novelty and nonobviousness requirements. Nevertheless, in *Mayo*, the Court outright declined the government's invitation to substitute 35 U.S.C. §§ 102 and 103 for a more robust subject matter eligibility inquiry.[134] The United States Court of Appeals for the Federal Circuit echoed this view and expressly rejects novelty and nonobviousness from the subject matter eligibility inquiry.[135]

III. The Court's Reasoning

The United States Court of Appeals for the Federal Circuit affirmed the District Court for the District of Delaware's holding that patent claims directed to a treatment method using a specific compound at specific doses based on a patient's genotype were patent eligible.[136] In a 2-1 decision, the Federal Circuit

[128] Of note, determining the level of a biomarker in blood by any means is considered conventional. *Mayo*, 566 U.S. at 79; Cleveland Clinic Foundation v. True Health Diagnostics, LLC, 859 F.3d 1352, 1362 (Fed. Cir. 2017). Using polymerase chain reaction ("PCR") to amplify and detect DNA, and analyzing DNA to provide sequence information or detect allelic variants are considered as conventional and well-known. *Genetic Techs.*, 818 F.3d at 1376–77.

[129] 827 F.3d 1042 (Fed. Cir. 2016).

[130] *Id.* at 1051.

[131] *See* BASCOM Global Internet Servs. v. AT&T Mobility LLC, 827 F.3d 1341, 1350 (Fed. Cir. 2016) (finding an inventive concept in the non-conventional arrangement of well-known and conventional components).

[132] 35 U.S.C. § 102.

[133] 35 U.S.C. § 103.

[134] Mayo Collaborative Serv. v. Prometheus Labs., Inc., 566 U.S. 66, 91 (2012). The Court also rejected the invitation to substitute the written description requirements of 35 U.S.C. § 112. *Id.*

[135] *See* Intellectual Ventures I LLC v. Symantec Corp., 838 F.3d 1307, 1315 (noting that "novelty" has "no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter" (internal quotation marks omitted) (quoting Diamond v. Diehr, 450 U.S. 175, 188–89 (1981))).

[136] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1140 (Fed. Cir. 2018). On appeal, West-Ward argued the claims at issue were ineligible because they are directed to a natural relationship between iloperidone, CYP2D6 metabolism, and QT prolongation. *Id.* at 1133. West-Ward contended the claims were indistinguishable from claims which had been previously found patent ineligible because they were directed to a natural relationship. *Id.* Vanda asserted the claims were eligible under the framework from *Mayo*, and that the

agreed with Vanda that the claims were eligible under the *Mayo* framework.[137] Dissenting from the majority, Chief Judge Prost argued the patent claims failed the *Mayo* framework and were directed to a law of nature.[138]

On appeal, West-Ward argued the claims at issue were ineligible under 35 U.S.C. § 101 because they are directed to a natural relationship between iloperidone, CYP2D6 metabolism, and QT prolongation.[139] Section 101 states that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent . . . ."[140] However, there are exceptions to patent eligibility to laws of nature, natural phenomena, and abstract ideas.[141] Under *Mayo*[142] and *Alice*,[143] the Supreme Court articulated a two-step framework to determine patent eligibility: (1) "whether the claims at issue are directed to one of those patent-ineligible concepts", and (2) "if so, '[w]hat else is there in the claims before us?"[144] Vanda argued the asserted claims are not patent-ineligible, therefore passing the *Mayo*/*Alice* Step One inquiry.[145] However, West-Ward argued the claims were indistinguishable to that of *Mayo* and should be found ineligible.[146]

The Federal Circuit agreed with Vanda that the claims were patent eligible and distinguished the '610 claims from that of *Mayo*.[147] The patent claims in *Mayo* were directed to a method for optimizing the drug dosage by administering the drug to a patient and detecting metabolite levels in the blood, wherein the metabolite levels indicate whether to adjust the dosage.[148] The Court stated that although the *Mayo* claim recited administering a drug to a patient, the claim as a whole was not directed to an inventive application.[149]

In the instant case, the Federal Circuit distinguished the '610 patent claims from that in *Mayo* because the '610 patent claims recite "an application of the relationship" to treat schizophrenia,[150] while the *Mayo* patent claims were broad and not directed to the application of a drug to treat a particular disease.[151] The '610 patent claims did not limit a doctor's treatment decisions,[152] while the *Mayo* claims did not go beyond recognizing a need to increase or decrease a dose.[153] The court reasoned the claim elements were akin to treatment steps

district court erred in holding the claims are directed to a law of nature. *Id.* (citing Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576 (2013); *Mayo*, 566 U.S. 66 (2012)).

[137] *Vanda*, 887 F.3d at 1136.

[138] *Id.* at 1140 (Prost, C.J., dissenting).

[139] *Id.* at 1133 (majority opinion).

[140] 35 U.S.C § 101.

[141] *Mayo*, 566 U.S. at 70 (citation and internal quotation marks omitted).

[142] *Id.*

[143] 134 S.Ct. 2347 (2014).

[144] *Id.* at 2355 (2014) (citation omitted).

[145] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1134 (Fed. Cir. 2018).

[146] *Id.*

[147] *Vanda*, 887 F.3d at 1134.

[148] *Id.* (citing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 74–75 (2012)).

[149] *Id.*

[150] *Id.* (reciting the relationship between iloperidone, CYP2D6 metabolism, and QTc prolongation).

[151] *Id.* at 1135.

[152] *Id.*

[153] *Id.* (citing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 75 (2012)). The court opined that the claim in *Mayo* "did not involve doctors *using* the natural relationship between the metabolite level and

did not tie up the doctor's subsequent treatment decision.[154]

The Federal Circuit supported its analysis through prior case precedent.[155] The court first cited its prior holding in *CellzDirect*, where claims for preserving hepatocyte cells were patent eligible.[156] In *CellzDirect*, the court explained the claims at issue were directed to a new and useful method of preserving cells, and not simply an observation hepatocytes' ability to survive multiple freeze-thaw cycles.[157] The court also cited *Myriad* as supporting authority for its decision, as the '610 patent does not claim naturally occurring DNA segments, and the '610 claims were patent eligible.[158]

In her dissent, Chief Judge Prost argued the '610 asserted claims were patent ineligible under *Mayo*.[159] She reasoned the majority conflated the inquiry at Step One with the search for an inventive concept at Step Two,[160] and asserted the court's analysis should have recognized the claimed natural law in Step One and found the '610 claims patent ineligible.[161] She argued the '610 claims were indistinguishable from *Mayo*, where the claim was directed to the natural relationship between thiopurine metabolite concentrations and the efficacy or side effects of a thiopurine drug.[162] The '610 patent claim was also directed to a natural relationship, the CYP2D6 genotype and the likelihood that a dosage of the claimed drug will cause harmful side effects.[163] Chief Judge Prost finally concluded that the end result of the '610 patent claims is no more than the conclusion of a natural law and should be patent ineligible.[164]

IV. Analysis

In affirming the Delaware district court's decision, the Federal Circuit misapplied the Supreme Court's *Mayo*/*Alice* framework[165] when it determined Vanda's '610 patent claim was patent eligible.[166] In line with Chief Judge Prost's measured dissent,[167] the claim at issue should have been found directed to a patent-ineligible subject matter because it involved the relationship between iloperidone, the CYP2D6 genotype, and the likelihood of harmful side effects, satisfying *Mayo*/*Alice* Step One.[168] After failing to satisfy Step One, the Fed-

lessening 'the likelihood that a dosage of a thiopurine drug will prove ineffective or cause harm.'" *Id.* (quoting *Mayo*, 566 U.S. at 75 (2012)).

[154] *Id.* (citing *Mayo*, 566 U.S. at 86 (2012)).

[155] *Id.* at 1135–36.

[156] 827 F.3d 1042 (Fed. Cir. 2016).

[157] *Vanda*, 887 F.3d at 1136 (quoting *CellzDirect*, 827 F.3d at 1047).

[158] *Id.*

[159] *Vanda*, 887 F.3d at 1140 (Prost, C.J., dissenting).

[160] *Id.*

[161] *Id.*

[162] *Id.* at 1141.

[163] *Id.*

[164] *Id.* at 1143.

[165] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 75, 72–73, 75–79 (2012); Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347, 2355 (2014).

[166] 35 U.S.C. § 101.

[167] *See* text accompanying notes 159–164.

[168] *Mayo*, 566 U.S. at 72–73, 75–79; *Alice*, 134 S.Ct. at 2355.

eral Circuit never reached Step Two of *Mayo*/*Alice* where the claim should be found valid if it contains an "inventive concept."[169] Because Vanda's '610 patent contained an inventive application of genotyping patients to determine the CYP2D6 gene,[170] the claim is still likely patentable under *Mayo*/*Alice* Step Two.

Part IV.A discusses how the Federal Circuit's misapplication of the *Mayo*/*Alice* framework is consistent with a trend within the court to reduce the two-step analysis of subject matter eligibility to a single step in an effort to remove any inquiry into the novelty[171] and non-obviousness[172] requirements of patentability.[173] Part IV.B provides an analytical remedy to the Court's incorrect reasoning.[174] Part IV.C. discusses that while the Federal Circuit may have misapplied the *Mayo*/*Alice* framework, significant policy reasons to advance scientific research rightly justify the expansion of patent eligible subject matter.[175]

While the courts are unlikely to opine a unifying decision on the matter,[176] Congress is poised to tackle the issue.[177] In 2019, Senators Thom Tillis and Chris Coons held public hearings on the subject of subject matter eligibility reform.[178] A synopsis of the Senators' efforts highlights the global concerns Section 101 invokes: "The U.S. Supreme Court has confused and narrowed Section 101 of the Patent Act to the point that investors are reluctant to pursue the innovations that propel our country forward."[179] The issue is ripe for congressional reform, however, any legislation must be in line with the aims of the patent system.[180]

A recent draft of a bill to reform Section 101 is hopefully poised to receive bipartisan, bicameral support.[181] Specifically the new Section 101 provides:

1. Whoever invents or discovers any useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

[169] *Mayo*, 566 U.S. at 72–73, 75–79 (2012); *Alice*, 134 S.Ct. at 2355.

[170] *Vanda*, 887 F.3d at 1121 (majority opinion).

[171] 35 U.S.C. § 102.

[172] 35 U.S.C. § 103.

[173] *See* Berkheimer v. HP Inc., 890 F.3d 1369, 1375–76 (Fed. Cir. 2018) (Lourie, J, concurring in the denial of en banc rehearing) (noting that "[35 U.S.C. §] 101 does not need a two-step analysis").

[174] *See* discussion *infra* Part IV.B.

[175] *See* Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 595 (2013) (citing Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 72–73, 75–79 (2012)).

[176] David O. Taylor, *Amending Patent Eligibility*, 50 U.C. Davis L. Rev. 2149, 2157–64 (2017).

[177] *Id.* at 2165.

[178] Kevin E. Noonan, *Biotech Prospects for Patent Reform* (June 29, 2019), https://www.patentdocs.org/2019/06/biotech-prospects-for-patent-reform.html.

[179] Sen. Chris Coons & Sen. Thom R. Tillis, *Tillis and Coons: What We Learned at Patent Reform Hearings* (June 24, 2019), https://www.tillis.senate.gov/2019/6/tillis-and-coons-what-we-learned-at-patent-reform-hearings.

[180] *See* Taylor, *supra* note 1, at 2165 ("Congress must ensure that any legislation addressing the non-statutory exceptions . . . . In particular, any such legislation must have social utility by encouraging the creation and disclosure of inventions that add to the 'sum of useful knowledge,' and conversely must not remove existent knowledge from the public domain or restrict free access to materials already available.").

[181] Kevin E. Noonan, *Senate Proposal for Section 101 Reform: Effect on Biotech/Pharma Inventions* (May 23, 2019), https://www.patentdocs.org/2019/05/senate-proposal-for-section-101-reform-effect-on-biotechpharma-inventions.html.

2. Eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation.[182]

The draft bill aims to lower the bar for patent eligibility under Section 101, thereby reducing the convoluted restrictions the courts wrestle with.[183] The bill would not act retroactively, thereby alleviating some critiques of congressional overreach.[184] The bill's drafters aim only to abrogate the judicial exceptions in prior case law, not reverse the individual outcomes of the cases.[185] The bill aims, in part, to remove any ambiguity associated with the *Mayo/Alice* framework.

However, it is unclear whether the bill will receive the support needed to reform the problems with patent subject matter eligibility. As Kevin E. Koonan states, "[I]t is certain that stakeholders who disagree than there is anything amiss under current circumstances will oppose and, at best, extract some concessions of their own before meaningful legislation will advance (and of course there is no telling what the Trump administration's position will be on the issue)."[186] No matter what the outcome of any proposed legislation, the current system must be reformed not only to promote investment, but more importantly to promote innovation in the sciences.

A. The Claim Element Order Analysis in *Vanda* at Step One Reduces *Mayo/Alice* to a Single Step Inquiry

Although West-Ward asserted the '610 patent is directed toward a patent ineligible law of nature, the Federal Circuit affirmed the Delaware district court's holding on an alternate basis, thereby reducing *Mayo/Alice* to a single step inquiry.[187] West-Ward alleged the '610 patent embodies two laws of nature: (1) that mutations in the CYP2D6 genes can alter enzymatic activity, and (2) that a patient's CYP2D6 enzymatic activity affects their metabolism of iloperidone.[188] The district court reasoned the '610 patent claim satisfied Step One

[182] Sen. Thom R. Tillis *et al.*, *Draft Bill to Revise 35 U.S.C. §§ 100, 101, and 112*, (May 22, 2019), https://www.tillis.senate.gov/services/files/E8ED2188-DC15-4876-8F51-A03CF4A63E26.

[183] *Id.* The draft bill provides additional legislative provisions:

The provisions of section 101 shall be construed in favor of eligibility.

No implicit or other judicially created exceptions to subject matter eligibility, including "abstract ideas," "laws of nature," or "natural phenomena," shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.

The eligibility of a claimed invention under section 101 shall be determined without regard to: the manner in which the claimed invention was made; whether individual limitations of a claim are well known, conventional or routine; the state of the art at the time of the invention; or any other considerations relating to sections 102, 103, or 112 of this title.

Id.

[184] Academics disagree with the interpretation that Article III, Section 2 of the Constitution empowers Congress to withdraw the appellate jurisdiction of the Court over patents. *Compare* Steven G. Calabresi & Gary Lawson, The Unitary Executive, Jurisdiction Stripping, and the Hamdan Opinions: A Textualist Response to Justice Scalia, 107 Colum. L. Rev. 1002 (2007), with Nat'l Ins. Co. v. Tidewater Co., 337 U.S. 582, 655 (1949), The Francis Wright, 105 U.S. 381, 386 (1881), and Ex Parte McCardle, 74 U.S. 506 (1869).

[185] *See* Noonan, *supra* note 3.

[186] *Id.*

[187] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1121 (Fed. Cir. 2018).

[188] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 428 (D. Del. 2016).

of the *Mayo/Alice* framework.[189] In affirming the district court's outcome, the Federal Circuit held the claims were not directed to a patent ineligible subject matter, prohibiting the inquiry from proceeding into Step Two of *Mayo/Alice*.[190]

The first step of the *Mayo/Alice* framework asks whether the claim is directed to a patent-ineligible concept.[191] The Supreme Court established two mechanical constraints when addressing Step One: (1) the claims must be considered as a whole,[192] and in doing so (2) the analysis is independent of claim element order.[193] In *Mayo*, the Court analyzed the patent claim elements of first *administering* a drug to a patient, second *determining* the metabolite levels in the patient's blood, and third a *wherein* step proscribing the drug's efficacy limits.[194] The *Mayo* claim describing the relationship between thiopurine drug metabolism was found to be directed to a law of nature.[195] The *Vanda* claim contained the almost identical steps of first *determining* the patient's metabolic genotype, second *administering* the drug to the patient, and third a *wherein* step proscribing the drug's efficacy limits.[196] While the district court correctly ignored the '610 patent claim element order, the Federal Circuit incorrectly relied on the claim element order in its analysis at Step One.[197] The Federal Circuit, analyzing Vanda's '610 patent, found the claim to not be directed to a patent ineligible law of nature.[198]

In an attempt to distinguish *Mayo* from the case at bar, the Federal Circuit relied on the '610 claim element order when it reasoned that unlike in *Mayo*, the claim in *Vanda* requires a doctor to alter the dosage based on the genotype assay results.[199] The court's attempt to distinguish *Mayo* on these grounds violates the constraints of ignoring claim element order at Step One, and resulted in analyzing Vanda's subject matter eligibility in a single broad step.[200] The Federal Circuit should have deferred to the district court's judgment that the asserted claims depend upon laws of nature and proceeded to Step Two.[201]

B. The Vanda Court Should Have Adhered to *Mayo/Alice*'s Two-Step Analytical Framework

Having satisfied the criteria for *Mayo/Alice* Step One, the Federal Circuit should have analyzed the claim under Step Two: determining whether the patent

[189] *Id.*

[190] *Vanda*, 887 F.3d at 1134–35.

[191] *See* Part II.A. *supra*; Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347 (2014) (quoting *Mayo*, 566 U.S. at 72–73, 75–79).

[192] Diamond v. Diehr, 450 U.S. 175, 188 (1981).

[193] *See* Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 79 (2012), (citing *Diehr*, 450 U.S. at 188) (noting that the order of claim elements "as an ordered combination adds nothing to the laws of nature that is not already present when the steps are considered separately").

[194] *Id.*

[195] *Id.* at 77–78.

[196] *Id.* at 1122.

[197] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1134–35 (Fed. Cir. 2018).

[198] *Id.*

[199] *Id.* at 1135.

[200] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 79 (2012) (citing Diamond v. Diehr, 450 U.S. 175, 188 (1981)).

[201] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 428–29 (D. Del. 2016).

claims directed to a patent-ineligible subject matter contains an "inventive concept."[202] The *Mayo* claim *determining* step claimed a method for measuring metabolites in the patient's blood.[203] The *Mayo* Court reasoned there was no "inventive concept" because methods for determining metabolite levels were well known in the art, and the claimed method was nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients.[204]

The Federal Circuit should have saved its analysis involving the '610 patent claim element order for *Mayo/Alice* Step Two's inventive concept inquiry.[205] Recently, the Federal Circuit instructed a particular combination of steps can lead to valid patent claims that depend upon a natural relationship.[206] Analyzing claim element order to find an inventive step holds true even though the individual steps may have been well known.[207] In *Vanda*, the court reasoned that the claim requires a treating doctor to administer the drug depending on the result of a genotyping assay and should therefore be valid at Step Two.[208] The Federal Circuit incorrectly applied this ordered-examination at Step One instead of reserving it for Step Two analysis.[209]

Even without analyzing the order of the patent claim's elements, the Federal Circuit should have found the *Vanda* claim was sufficient to transform the nature of the claim, thus satisfying Step Two.[210] The district court reasoned that although investigating for side-effects may be conventional, West-Ward failed to prove by clear and convincing evidence that the *determining* step's precise test and the discovered results were routine or conventional.[211] The court, relying on the specified nature of the dosage step and the lack of routine or conventional processes used for genetic testing, found the claim established an inventive concept.[212] While the Federal Circuit failed to invoke *Mayo/Alice* Step Two, the '610 Patent likely contained an inventive concept to support the patent's subject matter eligibility.[213]

C. Failure to Correct the Federal Circuit's Narrowing of the *Mayo/Alice* Framework Lowers the Threshold for Patent Eligibility

The Federal Circuit's misapplication of *Mayo/Alice* in *Vanda* is consistent with a trend within the court to reduce the two-step analysis of subject matter eligibility to a single step in an effort to remove any inquiry into the novelty[214] and

[202] Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S.Ct. 2347, 2350 (2014) (quoting *Mayo*, 566 U.S. at 67).
[203] *Id.* at 2357 (2014) (quoting *Mayo*, 566 U.S. at 71) (emphasis added).
[204] *Id.*
[205] *Id.*
[206] Rapid Litig. Mgmt. Ltd. V. CellzDirect, Inc., 827 F.3d 1042, 1048–49 (Fed. Cir. 2016) (quoting Diamond v. Diehr, 450 U.S. 175, 188 (1981)).
[207] *Id.* at 1051.
[208] Vanda Pharms. Inc. v. West-Ward Pharms. Int'l Ltd., 887 F.3d 1117, 1135 (Fed. Cir. 2018).
[209] *CellzDirect*, 827 F.3d at 1048–49, 51.
[210] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 79 (2012).
[211] Vanda Pharms. Inc. v. Roxane Labs., Inc., 203 F. Supp. 3d 412, 429 (D. Del. 2016).
[212] *Id.*
[213] *Id.*
[214] 35 U.S.C. § 102.

non-obviousness[215] requirements of patentability.[216] Judge Lourie, who wrote the *Vanda* majority opinion, expressly criticizes the two-step inquiry for subject matter eligibility under *Mayo/Alice*.[217] Disagreeing with the outcome in *Myriad*,[218] Judge Lourie would find patents valid that claimed isolated natural genes and protein products, reasoning that "finding, isolating, and purifying such products are genuine acts of inventiveness, which should be incentivized and rewarded by patents."[219]

Mayo/Alice has been met with open hostility in the years since its decree. Judge Lourie has rightfully expressed dissatisfaction with *Mayo* limitations on patent subject matter eligibility.[220] This dissatisfaction appears to be widespread throughout the policies of Federal Circuit judges.[221] However, since the *Mayo* decision in 2012, district courts have steadily increased their number of validity determinations while decreasing their number of invalidity opinions.[222] In fact, the number of district court validity opinions are close to equal of that of invalidity opinions, meaning solely based off the statistics, a case in district court has about an equal probability of being found valid as it does invalid under *Mayo/Alice*.[223] Based on these statistics alone, the *Mayo/Alice* framework increased the amount of district court decisional entropy when it comes to challenging patent subject matter eligibility.[224] A standard that increases uncertainty in the lower courts requires clarifying from the Supreme Court.

Along with reverting the federal courts to a more predictable playing field

[215] 35 U.S.C. § 103.

[216] *See supra* note 173.

[217] *Id.* at 1375.

[218] Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576 (2013).

[219] *See supra* note 173 at 1376.

[220] For a summary of a sampling of the Federal Circuit Judges' criticisms on the Supreme Court's patent eligibility standards, see Jeffrey A. Lefstin, Peter S. Menell, & David O. Taylor, *Final Report of the Berkeley Center for Law & Technology Section 101 Workshop: Addressing Patent Eligibility Challenges*, 33 Berkeley Tech. L.J. 551, 555 n.13 (2018). Of note are Judge Lourie's criticisms in Ariosa Diagnostics, Inc. v. Sequenom, Inc., 809 F.3d 1282, 1286–87 (Fed. Cir. 2015) (Lourie, J., concurring in the denial of en banc rehearing) (noting that while the claims "recite innovative and practical uses for the [law of nature] . . . [*Mayo*] unfortunately obliged [us] to divorce the additional steps from the asserted natural phenomenon to arrive at a conclusion that they add nothing innovative to the process," commenting that "it is unsound to have a rule that takes inventions of this nature out of the realm of patent-eligibility on grounds that they only claim a natural phenomenon plus conventional steps") (emphasis in original).

[221] Lefstin, Menell, & Taylor *supra* note 209. *See also Ariosa*, 809 F.3d at 1289 (Fed. Cir. 2015) (Dyk, J., concurring in the denial of en banc rehearing) ("[T]here is a problem with *Mayo* insofar as it concludes that inventive concept cannot come from discovering something new in nature–e.g., identification of a previously unknown natural relationship or property. In my view, *Mayo* did not fully take into account the fact that an inventive concept can come not just from creative, unconventional application of a natural law, but also from the creativity and novelty of the discovery of the law itself. This is especially true in the life sciences, where development of useful new diagnostic and therapeutic methods is driven by investigation of complex biological systems. I worry that method claims that apply newly discovered natural laws and phenomena in somewhat conventional ways are screened out by the *Mayo* test."); *id.* at 1294 (Newman, J., dissenting from the denial of en banc rehearing) (questioning *Mayo*'s breadth: "[p]recedent does not require that all discoveries of natural phenomena or their application in new ways or for new uses are ineligible for patenting").

[222] *See* Lefstin, Menell, & Taylor *supra* note 209 at 576–77 Table 1 and Figure 1.

[223] *Id.* (noting that in the wake of the *Mayo/Alice* framework, district court invalidity outcomes are at 54.5% over Jan-Feb 2017 after falling from 77.1% in 2014 and validity outcomes are at 45.5% after rising from a low of 22.9% in 2014).

[224] *Id.*

for patent subject matter eligibility challenges, the Federal Circuit's reduction of *Mayo/Alice* to a single-step inquiry could pave the way for rewarding researchers with a patent for discovering new and useful gene and protein sequences. When *Myriad* was decided along the confines *Mayo/Alice* Step One, there were 653 pending patent applications with at least one claim to an isolated naturally occurring DNA product.[225] Only 47.9% of those pending applications were granted, with all but 14 requiring either cancellation of the DNA product claims or drastic amendments in light of a *Myriad*-based rejection.[226] The allowable prosecution amendments employed one of eight possible strategies: (i) amending to cDNA; (ii) amending to nucleic acids with non-naturally occurring sequence variations; (iii) amending to nucleic acids recombinantly linked with heterologous sequences; (iv) amending to labeled nucleic acids; (v) amending to a nucleic acid in a vector; (vi) amending to a nucleic acid recombined with a nonspecific regulatory sequence; (vii) amending with a type 2 change and a negative claim clause; and (viii) amending to a nucleic acid so short that it does not naturally occur.[227] Amending patent claims with one of these strategies limits the breadth of the claimed invention to the inventive applications listed while rewarding inventors with a patent, thereby addressing societal interests concerning preemption and exclusivity.[228]

Continued destabilizing of the *Mayo* standard could result in allowable patents that claim the natural gene sequences themselves, no longer requiring inventive application limitations.[229] While it is unclear if or when the Supreme Court[230] or Congress will intervene, *Vanda v. West-Ward* presents an opportunity to for the justices to clarify the *Mayo/Alice* framework once again allow patent protection for natural phenomena.

V. Conclusion

Vanda v. West-Ward highlights a conflict between the Supreme Court and the Federal Circuit: the former Court prohibiting patenting of natural phenomena including genes and proteins and the latter advocating for their patenting.[231] In its decision, the United States Court of Appeals for the Federal Circuit redefined an unclear standard for determining patent eligibility of natural phenomena when it affirmed the United States District Court for the District of Delaware's ruling.[232] The Supreme Court's *Mayo/Alice* two-part test narrowed by *Vanda*

[225] Mateo Aboy et al., *After* Myriad, *What Makes a Gene Patent Claim 'Markedly Different' From Nature?* 35 Nature Biotechnology 822 (2017).

[226] *Id.*

[227] *Id.*

[228] *Id.*

[229] *Id.*

[230] In December 2018, Hikma Pharmaceuticals, formerly West-Ward, filed its petition for a writ of certiorari with the Supreme Court. Both Hikma and Vanda filed briefs, and as of May 2019, it is unknown if the Court will grant certiorari. For related updates, see *Hikma Pharmaceuticals USA Inc. v. Vanda Pharmaceuticals Inc.: Pending Petition*, 18-817 SCOTUSblog (May 15, 2019), https://www.scotusblog.com/case-files/cases/hikma-pharmaceuticals-usa-inc-v-vanda-pharmaceuticals-inc/.

[231] *See* discussion *supra* Part IV.C.

[232] *See* discussion *supra* Part IV.

allows inventors wishing to patent natural phenomena only where there was an inventive application of said natural phenomena.[233]

The *Vanda* court examined a method patent claiming a natural relationship between a patient's genetic marker for a poor metabolizer phenotype in order to adjust drug dosage, and found the claim was patent eligible since it was not directed to a natural relationship.[234] In doing so, the court at Step One incorrectly argued the patent claim's element order pushed the invention within the bounds of patent eligibility.[235] This was in defiance of the Supreme Court's express direction to only consider patent claim element order when determining an invention's inventive application at Step Two.[236] Although preemption is a legitimate societal concern, patent drafters have a number of tools at their disposal to narrow claims to avoid claiming the broader natural phenomena as a whole.[237] While the Federal correctly found the Vanda patent valid, its broadening of the standard is in line with the greater scientific desire to push the boundaries of patent eligibility to include patenting natural phenomena.[238]

[233] *See* discussion *supra* Part III. *Mayo/Alice* Step One is determining if the patent claims an ineligible *natural phenomenon*, law of nature, or abstract idea (emphasis added). *Id.* Step Two is a search for whether there is an inventive application said ineligible subject matter enough to make the claim patentable. *Id.*

[234] *See* discussion *supra* Part II

[235] *See* discussion *supra* Part IV.C.

[236] *Id.*

[237] *See supra* note 214.

[238] *Id.*

I Wrote This, I Swear!: Protecting the "Copyright" of Fanfiction Writers from the Thievery of Other Fanfiction Writers

*Narisa Bandali**

Abstract

People who write fanfiction do so to explore, sustain, and contribute to content to which they feel a connection—content that is generally protected under copyright. The legal status of fanfiction in comparison to copyright law is a gray area, but fanfiction is generally considered to be transformative. Regardless of how a court may view fanfiction, writers of fanfiction invest time, effort, and passion into works that can sometimes be longer than a normal published novel. While fanfiction is currently a topic of discussion in the legal world, plagiarism of fanfiction tends to be ignored. Similarly, plagiarism within the fanfiction community does not currently have any real regulation besides social pressure, like online shaming.

However, fanfiction writers can be protected from those who plagiarize their work through the codification of their current social norms and the emulation of current, legal frameworks. The fanfiction community already has social norms, including those against the commercialization of fanworks. The community also frowns upon plagiarism. American and European law have instruments of regulation that allow rights holders to have infringing works taken down through the Digital Millennium Copyright Act and the European Directive on Electronic Commerce, respectively. An association that adapts legal instruments to regulate plagiarism in the fanfiction community, codifying social norms into a system of best practices, can allow fanfiction authors who have been victimized by plagiarists to seek protection for their creations. Similar to the notice-and-takedown procedures under the DMCA and European Directive on Electronic Commerce, the association can regulate notice-and-takedown procedures of plagiarized works through voluntarily enforcement of websites that host fanfiction. A notice-and-takedown procedure within the fanfiction community can protect fanfiction writers who invest hours and effort into their creative expression.

*J.D., Michigan State University College of Law, 2019; Articles Editor, Michigan State Law Review. Thank you to the Michigan State Law Review Notes Editors for your help with this, Professor Nancy Costello for your interest, faith, and expertise, and thank you to all the fanfiction writers who serve as examples in this paper.

Contents

Introduction

In the early 2000s, Cassie Claire (Claire) was one of the biggest names in the online *Harry Potter* fandom, entertaining the collective[1] of *Harry Potter* fans with her fanfiction series titled *The Draco Trilogy*.[2] Her fanfiction trilogy, which captivated the fandom for six years,[3] diverged from J.K. Rowling's series by making the villainous character Draco Malfoy,[4] who squared off against the hero Harry Potter, switch bodies with Harry—making Draco the hero of his own story.[5] Claire's fanfiction was massively popular and influential; the series, along with some other contemporaneous fanfictions, was the genesis of a new perspective on Draco Malfoy,[6] who became a sexier, wittier, and more sympathetic version than the original. Fans of the story named this character trope "Leather Pants Draco,"[7] who seems to be the lovable badboy version of Draco that is popular with fans. The popular trilogy totaled almost one million words.[8] For all its fame and influence, *The Draco Trilogy* experienced a shocking fall from grace when it became one of the most infamous plagiarism scandals in online fanfiction community history.[9] Readers discovered that action scenes, descriptions, and dialogues in Claire's fanfiction had been lifted from Pamela Dean's fantasy novel, *The Hidden Land*, and dialogue was stolen from television shows and books, such as *Buffy the Vampire Slayer*.[10] After the discovery, FanFiction.Net, a website dedicated to hosting fanfictions of multiple fandoms, banned Claire due to the plagiarism and removed her stories.[11]

A fanfiction is a work that extends the premises of an author's original content. It is written by fans who reimagine the content into what fans desire it

[1] *See* Kristina Busse & Karen Hellekson, *Introduction* to Fan Fiction and Fan Communities in the Age of the Internet: New Essays 5, 6 (Karen Hellekson & Kristina Busse eds., 2006).

[2] *See Cassandra Claire*, Fanlore.org, https://fanlore.org/wiki/Cassandra_Claire#Plagiarism (last visited Feb. 14, 2018).

[3] *See The Draco Trilogy*, Fanlore.org, https://fanlore.org/wiki/The_Draco_Trilogy (last visited Jan. 29, 2019).

[4] *See Draco Malfoy*, Pottermore, https://www.pottermore.com/explore-the-story/draco-malfoy (last visited Feb. 14, 2018). Draco Malfoy is described as the arch-rival of Harry Potter, the title character of the *Harry Potter* series. *Id.*

[5] *See The Draco Trilogy*, *supra* note 3 (outlining the plots of each fanfiction in the trilogy).

[6] See *id.* (describing how Claire and other big names in the *Harry Potter* fanfiction community changed the fandom's perspective on Draco Malfoy).

[7] See Fanon Draco, Fanlore.org, https://fanlore.org/wiki/Fanon_Draco (last visited Feb. 14, 2018). Fanon is defined as "the events created by the fan community in a particular fandom and repeated pervasively throughout the fantext." Busse & Hellekson, supra note 1, at 9.

[8] *See The Draco Trilogy*, *supra* note 3 (describing the total series and its plagiarism controversy).

[9] See *The Cassandra Claire Plagiarism Debacle*, Fanlore.org, https://fanlore.org/wiki/The_Cassandra_Claire_Plagiarism_Debacle (last visited Feb. 14, 2018). Fanlore.org refers to the Claire plagiarism saga as a "debacle." *Id.*

[10] *See The Draco Trilogy*, *supra* note 3 (offering evidence of plagiarism by comparing Claire's work and those from which she took).

[11] See id. (discussing the removal of the fanfiction from FanFiction.Net and the subsequent banning of Claire). Interestingly, the fanfiction was uploaded to another site that now shows the message: "We're sorry, but the Draco Trilogy [sic] and all related fanfiction has been removed at the request of the author and is no longer available online. If you do come across a copy online, it's unauthorized and probably not be the original version." *Id.*

to be.[12] Fans who feel a personal connection to the original work[13] borrow from the original content and create something new.[14] Fans, whether writers by trade or passion, write fanfiction for a multitude of reasons:[15] it is fun; it is a way to engage with the content that they love; it is an experimental form to hone one's craft; and it is free.[16] All of these reasons outweigh the disadvantage of not being paid for investing time and energy into a story that could be longer than a traditional novel.[17] It is generally assumed in the fanfiction community that fanfiction is not "professional writing,"[18] but rather a reimaging, continuation, or exploration of an original content's characters or plot.[19] In this way, original content is considered the source text of fanfiction.[20] Another defining feature of fanfiction is that, because it is derived from existing fiction,[21] fanfiction writers assume that fans reading their work are familiar with the original stories.[22] Consequently, this characteristic allows fanfiction writers to be creative with their stories without needing to add extra worldbuilding[23] outside

[12] *See* Samantha S. Peaslee, *Is There a Place for Us?: Protecting Fan Fiction in the United States and Japan*, 43 Denv. J. Int'l L. & Pol'y 199, 203 (2015). The original source material is often referred to by the fanfiction community as "canon." *See* Meredith McCardle, Note, *Fan Fiction, Fandom, and Fanfare: What's All The Fuss?*, 9 B.U. J. Sci. & Tech. L. 433, 435 (2003) (defining canon as "the original work from which the fan fiction author borrows"); *Fanfiction Terminolgy* [sic], http://www.angelfire.com/falcon/moonbeam/terms.html (last visited Feb. 14, 2018). *See also* Busse & Hellekson, *supra* note 1, at 9 (defining canon as "the events presented in the media source that provide the universe, setting, and characters"). The list of possible canon is expansive and can consist of any type of work, including television shows, books, movies, or comics. *Id.* Even the Bible has inspired fanfiction. *Bible*, FanFiction.net, https://www.fanfiction.net/book/Bible (last visited Jan. 10, 2018) (showing that there are over 3,800 fanfictions based on the Bible).

[13] *See generally* McCardle, *supra* note 12, at 441-45; Don Tresca, *Spellbound: An Analysis of Adult-Oriented* Harry Potter *Fanfiction*, *in* Fan CULTure: Essays on Participatory Fandom in the 21st Century 36, 41 (Kristin M. Barton & Jonathan Malcolm Lampley, eds., 2014) (discussing how authors of sexually explicit *Harry Potter* fanfiction write this type of fanfiction "out of a deep love and respect for Rowling's original material").

[14] *See* Mark Peterson, *Fan Fair Use: The Right to Participate in Culture*, 17 U.C. Davis Bus. L.J. 217, 220 (2017) (noting that fanfiction occurs in "about every form of the creative arts").

[15] *See* Rebecca Tushnet, *Payment in Credit: Copyright Law and Subcultural Creativity*, 70 L. & Contemp. Probs. 135, 139-40 (2007) ("[T]he people who participate and their reasons for doing so are quite varied, from twelve-year-olds just having fun sharing stories with their friends to published writers practicing their craft for a guaranteed audience.").

[16] *See generally* dodger_winslow, *Fandom Meta: Why I Write Fanfic*, LiveJournal (May 22, 2007), http://dodger-winslow.livejournal.com/88264.html?format=light.

[17] *See id.*

[18] *See* Meredith McCardle, *supra* note 12, at 434 (citing Rebecca Tushnet, *Using Law and Identity to Script Cultural Production: Legal Fictions: Copyright, Fan Fiction, and a New Common Law*, 17 Loy. L.A. Ent. L.J. 651, 655 (1997)). *See also* Viktor Mayer-Schönberger & Lena Wong, *Fan or Foe? Fan Fiction, Authorship, and the Fight for Control*, 54 IDEA 1, 4 (2013).

[19] *See* Mayer-Schönberger & Wong, *supra* note 18, at 4-6 (noting that fanfiction authors believe that their work "'reweaves the context of [the] tale [of the original work], ultimately changing it'").

[20] *See* Busse & Hellekson, *supra* note 1, at 7 (discussing the constantly changing nature of serial source texts and how this nature then causes changes in fans' "understanding of the characters and the universes the characters inhabit").

[21] *See* Tushnet, *supra* note 15, at 137 (discussing the idea that, because fans depend on existing content, the original author is partly responsible for later interpretations and how this is exemplary of the literary theory that "meaning is negotiated among texts, authors, and audiences").

[22] *See* Mayer-Schönberger & Wong, *supra* note 18, at 5 ("[F]an fiction stories are written with the assumption that those reading it already understand the "world" of a text . . . [and] those who read and write fan fiction do not need further descriptions of the [original content].").

[23] Worldbuilding is the creation of the world in which a fictional work takes place, and covers every detail inside that world. *See* Chuck Wendig, *Twenty-Five Things You Should Know About Worldbuilding*, http://terribleminds.com/ramble/2013/09/17/25-things-you-should-know-about-worldbuilding/ (last visited Feb. 14, 2018). Canon is the starting point of all fanfiction, so it exists in the fanfiction unless otherwise noted. *See Fanfiction*

of what was already created in the original content.[24]

The exposure of Claire and her plagiarism of published work demonstrates only one issue within online fanfiction the plagiarism of original content.[25] The practice of fanfiction itself may often be perceived as plagiarism or copyright infringement of the works being reimagined, as fanfiction occupies a legal gray area between infringement and transformative fair use.[26] Even in the case of Claire, who infringed on science fiction novels and television shows,[27] the scandal centered on the fanfiction writer's infringement of published, commercial works that were distributed to the masses.[28] Plagiarism of original content has been examined in the past; what is not generally considered is plagiarism *within* the fanfiction community when fanfiction writers plagiarize other fanfiction writers.[29] The fanfiction community is a self-governing, regulatory body,[30] wherein fanfiction is generally not commercialized and is also sought out by those who read it.[31]

Even though fanfiction is based on original content, writers of fanfiction are still entitled to protection from plagiarism within the community[32] as they are content creators themselves.[33] Plagiarism within the fanfiction community is prevalent, often occurring when a writer takes an existing fanfiction and changes the character names to pass it off as the plagiarist's own work in a

Terminolgy, *supra* note 12 (describing the definition of "Alternate Universe" or "AU," which is a story in which a major plot point, setting, or character "deviat[es] away from established canon"). *See also* McCardle, *supra* note 12, at 435 (noting that fandoms "come equipped with their own language").

[24] *See* Peaslee, *supra* note 12, at 203 (giving the example of fanfiction about Harry Potter's father expanding the universe of the *Harry Potter* series); *Fanfiction Terminolgy*, *supra* note 12 ("Most fanfictions do not require world-building as the canon itself provides [the] starting off point, but many AUs do indeed richly develop entirely unique universes with their own rules and backgrounds . . . .").

[25] *See generally Plagiarism*, Fanlore.org, https://fanlore.org/wiki/Plagiarism (last visited Feb. 14, 2018).

[26] *See* Mayer-Schönberger & Wong, *supra* note 18, at 8 (noting that even fanfiction authors understand that "their writing exists in a legal gray area").

[27] *See The Draco Trilogy*, *supra* note 3 (discussing the plagiarism by Cassie Claire from books such as *The Hidden Land* and television shows like *Buffy the Vampire Slayer*).

[28] *See Plagiarism*, *supra* note 25 (discussing how fanfiction writers may plagiarize published works in their fanfictions).

[29] *See id.* (discussing how plagiarism that occurs within the fandom is usually when a fan takes another fan's work and changes the character names to portray the work as their own).

[30] *See* Mayer-Schönberger & Wong, *supra* note 18, at 8. This Note speaks of fanfiction and fandoms generally, even though, in reality, it is "impossible, and perhaps even dangerous" to speak of only one fandom or to generalize them together, as fandoms often have differing rules from each other. *See* Busse & Hellekson, *supra* note 1, at 6 (discussing the different rules between the fandoms for *Due South*, a television program, and *Lord of the Rings* books and movies).

[31] *See* Steven A. Hetcher, *Using Social Norms to Regulate Fan Fiction and Remix Culture*, 157 U. Pa. L. Rev. 1869, 1885 (2009) ("Within the fan-fiction community, there is a norm against seeking commercial gain.").

[32] *See generally* Stacey M. Lantagne, *The Copyright Creep: How the Normative Standards of Fan Communities Can Rescue Copyright*, 32 Ga. St. U.L. Rev. 459, 500 (2016) (discussing rules established by fan communities). *See also* Rebecca Tushnet, *Using Law and Identity to Script Cultural Production: Legal Fictions: Copyright, Fan Fiction, and a New Common Law*, 17 Loy. L.A. Ent. L.J. 651, 667 (1997) (discussing that fanfiction can be filed under fair use because it is the creation of new art, and that no bright line or originality exists).

[33] *See* Tushnet, *supra* note 15, at 144 ("[A] fan writer is both fan and writer; she is a creator in her own right . . . . Her words are . . . products of her mind and differ in some measure from the works produced by other authors drawing from the same pool."); Stacey M. Lantagne, *Sherlock Holmes and the Case of the Lucrative Fandom: Recognizing the Economic Power of Fanworks and Reimagining Fair Use in Copyright*, 21 Mich. Telecomm. Tech. L. Rev. 263, 301 (2015) ("Fanworks, just like original creative works, are not easy to create; they take just as much time and effort, and yes, talent.").

different fandom.[34] This is especially easy given that the anonymity of the internet allows for users to engage in wrongful or unethical conduct without fear of repercussions.[35] This Note first identifies the issues that arise from fanfiction being an international and digital medium: first, legal regulations are unable to satisfy all countries with internet access, and, second, since fanfiction as a medium is noncommercial and operated under internal social norms, it largely does not cause conflict outside of its community; thus, the enactment of state or federal regulation is unnecessary.[36] In response, this Note proposes a system of best practices allowing fanfiction writers to protect themselves from plagiarism within the community.[37] The proposed best practices, based on current United States and European law, would be enforced by websites that host fanfiction under an implementing association.[38] Through the websites' terms and conditions, writers who post fanfiction would be bound by the best practices, creating a system of self-governance and self-regulation that is much like the current social norms that already rule the fanfiction community.[39]

Thus, Part I of this Note outlines the history of fanfiction and the fair-use doctrine and considers whether fanfiction is transformative under the fair-use doctrine.[40] Part II discusses different statutes under American and European Law that can be used to model the best practices for the fanfiction community.[41] The proposed best practices should use American and European law because most fanfiction is created in these geographic areas.[42] Part III examines how fanfiction has been legally analyzed in the past, explaining the need for best practices for the self-governing community.[43] Finally, Part IV analyzes the possible implementation and enforcement of the best practices and how they may be accessed from within and outside the community.[44]

[34] *See Plagiarism*, *supra* note 25 (discussing plagiarism within fan communities). Plagiarism is certainly an issue since fan writers "claim credit for their versions of particular characters and stories, like directors and actors putting on Shakespeare." Tushnet, *supra* note 15, at 156 ("Fan authors . . . seek recognition from their peers for adding new perspectives and twists to the official texts.").

[35] *See, e.g.*, Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 25 Ga. L. Rev. 1129, 1160 n.99 (2001); Bryan H. Choi, *The Anonymous Internet*, 72 Md. L. Rev. 501, 503 (2013).

[36] *See infra* Section I.B (discussing fanfiction under current legal doctrine such as fair use).

[37] *See infra* Part IV (proposing new best practices to help regulate the fanfiction community).

[38] *See infra* Part II (discussing American and European law that could be incorporated into the fanfiction best practices).

[39] *See generally* Hetcher, *supra* note 31 (discussing the main social norms of fanfiction and remix culture that play regulatory roles). "[R]ecent norms theory has shown that social norms are often the most effective means of regulation." *Id.* at 1873.

[40] See *infra* Part I for the tracing of the history of fanfiction, an explanation of the fair use doctrine, and a discussion of whether fanfiction is considered fair use.

[41] *See infra* Part II for a discussion on the Digital Millennium Copyright Act and the Directive on Electronic Commerce.

[42] *See Your Guide to the Fanfiction Explosion*, Vulture, http://www.vulture.com/2015/03/fanfiction-guide.html (last visited Feb. 15, 2018). Together, the United States and Great Britain upload more than fifteen million fanfictions to Wattpad, a hosting website, in comparison to the next highest country, the Philippines, with less than three million fanfictions uploaded. *Id.*

[43] *See infra* Part III for a discussion of the unwritten social norms that dictate the fanfiction community.

[44] *See infra* Part IV (discussing how the social norms can be codified and enforced).

I. A Transformative Nature Grounded in Literary and Legal History

Just as the definition of fanfiction can be murky, the history of fanfiction is not entirely clear.[45] However, through the tracing of the history of fanfiction to its current form, fanfiction is generally considered to be fair use under Section 107 of the Copyright Act.[46] Fanfiction is generally considered fair use because it is likely transformative under the Supreme Court case *Campbell v. Acuff-Rose Music, Inc.* because fanfiction either adds something new to or comments on original content.[47]

A. The History of Fanfiction

Fanfiction likely began in the late 1800s with the circulation of newsletters about Sir Arthur Conan Doyle's series *Sherlock Holmes*.[48] After the character Sherlock Holmes was killed off by author Doyle, mourning fans started to write fanfiction, specifically pastiches meant to fill in the gaps of the lives of the dashing detective and his stalwart sidekick.[49] They imagined Holmes's early life and education, wondering what happened during the periods in the books where Holmes was not present.[50] *Sherlock Holmes* fanfiction was published and passed around between fans by means of a magazine, or "fanzine," called *The Baker Street Journal*.[51] Since then, and especially since the 1960s, the form of today's fanfiction has evolved with technology.[52] Changes in technology spawned

[45] *See* Lantagne, *supra* note 33, at 264 (noting that fandom has "frequently lurked in the shadows, outside the spotlight of the dominant culture"); McCardle, *supra* note 12, at 438 ("Beginning first with oral narratives, the impulses of human nature led people to expand on the stories passed down in cultures, changing plotlines or adding characters.").

[46] *See* Tushnet, *supra* note 15, at 141-42 ("The formal legal landscape is more favorable to fans that it was ten years ago, as courts have been more willing to protect transformative unauthorized uses . . . . [A] retelling of a story that offers the villain's point of view or adds explicit sexual content can be a transformative fair use.").

[47] *See* Lantagne, *supra* note 33, at 300-03 (discussing that an automatic aesthetic analysis that occurs in the transformative test may discourage a judge's opinion of whether fanfiction is fair use, but that since aesthetic judgment is not part of the four-factor test, fanfiction is fair use because it creates new information and understandings).

[48] *See id.* at 264 (discussing the series of *Sherlock Holmes* as an impetus for fandom as it is currently known).

[49] *See id.* at 269 ("Holmes fans began producing fanfiction as early as 1897 and have never stopped); *A Brief History of Fandom*, fanlore.org, https://fanlore.org/wiki/A_brief_history_of_fandom,_for_the_teenagers_on_here_who_somehow_think_tumblr_invented_fandom (last visited Feb. 15, 2018).

[50] *See* Lantagne, *supra* note 33, at 269 (describing the fanfiction written by *Sherlock Holmes* fans, or Holmesians).

[51] *See* Tushnet, *supra* note 15, at 139 (discussing the beginnings of media fandom); *Zine*, Fanlore.org, https://fanlore.org/wiki/Zine (last visited Feb. 3, 2018) (calling *The Baker Street Journal* perhaps the first media fandom type publication, dating back to 1946). The Guardian describes *The Baker Street Journal* as "a hybrid zine, halfway between scholarly research and pure fandoms." Ewan Morrison, *In the Beginning, There Was Fan Fiction: From the Four Gospels to Fifty Shades*, The Guardian (Aug. 13, 2012), https://www.theguardian.com/books/2012/aug/13/fan-fiction-fifty-shades-grey.

[52] *See* Lantagne, *supra* note 33, at 264 (describing the genesis of *Sherlock* fanfiction). Print fanzines evolved into electronic mailing lists, where fans would subscribe to a list and then automatically begin receiving emails whenever a member of the list would contribute any type of input to the list or even receive fanfiction, allowing a "more customized and controlled fandom experience." *Mailing List*, Fanlore.org, https://fanlore.org/wiki/Mailing_List (last visited Feb. 3, 2018). As the internet became more sophisticated and archive websites were created, the era of mailing lists seemed to end. *Id.* ("[I]n the early 2000s, much of media fandom began migrating to blogging platforms such as Livejournal . . . prompting many to feel that the era of the mailing list was over.").

mailing groups, fan magazines, and—as internet access expanded—the creation of online archive websites that were made specifically for categorizing and housing fanfiction.[53]

Fandom transitioned to the internet in the early 1990s.[54] Earlier rudimentary forms of electronic correspondence and discussion boards gave way to bulletin board websites[55] like FanFiction.Net in 1998, which is currently the largest "multifandom archive."[56] Starting in 1999, fans could create their own communities and make private spaces on LiveJournal.com, a hosting website, which became widely used by fan communities around 2003.[57] Once fans had the ability to create their own spaces, they then created forums, where moderators[58] would monitor postings, enforce the rules of the forum, and direct "challenges" or writing activities.[59] In 2002, FanFiction.Net banned NC-17 fanfictions, which contained sexually explicit content. Adultfanfiction.net was created for those authors who wanted to continue posting sexually explicit works.[60]

In 2007, the Organization for Transformative Works[61] launched Archive of Our Own, which exclusively hosts fanfiction and other fanworks, and in 2008, David Karp founded tumblr.com, which is a micro-blogging platform that allows fans to interact with each other.[62] While the digitization of fanfiction and

[53] See *A Brief History of Fandom*, *supra* note 49 (discussing how the internet helped fanfiction dissemination to evolve, including through Geocities, Yahoo groups, and FanFiction.Net); Busse & Hellekson, *supra* note 1, at 10 (discussing organization and presentation of fanfiction on archives, or "online libraries that categorize and house fan fiction").

[54] *See* Busse & Hellekson, *supra* note 1, at 13 (overviewing the journey of fan communities to online spaces).

[55] *Id.* at 14 ("[B]ulletin boards [are] fixed Web sites that focus on a large general topic . . . that is in turn divided into smaller, related topics.").

[56] *See* Francesca Coppa, *A Brief History of Media Fandom*, in Fan Fiction and Fan Communities in the Age of the Internet: New Essays 41, 57 (Karen Hellekson & Kristina Busse, eds., 2006); *FanFiction.Net*, fanlore.org, https://fanlore.org/wiki/FanFiction.Net (last visited Feb. 14, 2018). Multifandom archives are websites that host fanfiction for many fandoms, in contrast to fansites, which are dedicated to one fandom; for example, Portkey.org was a fanfiction archive for *Harry Potter* fanfictions that featured, specifically, heterosexual non-canon pairings. *Portkey.org*, fanlore.org, https://fanlore.org/wiki/Portkey.org (last visited Feb. 14, 2018).

[57] *See* Coppa, *supra* note 56, at 57 (discussing fan community movements online in the early 2000s).

[58] *See A Brief History of Fandom*, *supra* note 49. Moderators and owners of online communities maintain control over what can be posted, set rules and guidelines for the community, and outline appropriate action. Busse & Hellekson, *supra* note 1, at 12.

[59] *See Challenge*, fanlore.org, https://fanlore.org/wiki/Challenge (last visited Feb. 14, 2018). Challenges are writing activities where writers produce fanfiction that meet "some pre-determined criteria." *Id.* For example, a 31 Day challenge encourages writers to write a fanfiction every day for 31 days, and each work is centered around a theme, usually one theme per day. *See id.*

[60] *See A Brief History of Fandom*, *supra* note 49. Fanfiction.net also banned songfics, or fanfictions based on songs that which usually incorporate the lyrics of the songs, due to legal concerns. *Id.*

[61] The Organization for Transformative Works (OTW) is a nonprofit organization run by and for fans that aims to provide access to fanworks and fan cultures, and to preserve its history. *About the OTW*, Organization for Transformative Works, http://www.transformativeworks.org/about_otw (last visited Feb. 13, 2018). The OTW makes a distinction between plagiarism, fanfiction, and quotation, calling fanfiction "the acknowledged or obvious borrowing of story elements to tell a new story in the fanfiction writer's words." *Frequently Asked Questions*, Organization for Transformative Works, http://www.transformativeworks.org/faq (last visited Feb. 7, 2018). While the OTW is not lobbying for legal change, it does consult with the Stanford Fair Use Project and the Electronic Frontier Foundation, seeking to broaden knowledge of fan creators' rights and reduce the confusion about fair use as it applies to fanworks. *Id.* The OTW models this mission after the Documentary Filmmakers' Statement of Best Practices in Fair Use. *Id.* It also develops legal resources and works with legal advocacy groups. *Id. See also Board of Directors*, Organization for Transformative Works, http://www.transformativeworks.org/board-directors (last visited Feb. 13, 2018) (displaying the Board of Directors of the OTW).

[62] *See A Brief History of Fandom*, *supra* note 49 (discussing the launch of various fanfiction hosting websites including Archive of Our Own and tumblr.com).

its increased accessibility via the internet has allowed multiple websites with multiple fandoms onto which writers can post their work, it has also allowed plagiarists to access and steal more content.[63] With the internet, fans can join in and participate in fandoms and communities easily since there are minimal restrictions on accessing fanfiction websites with the mainstreaming of internet technology.[64] With minimal restrictions, the chance of illegal copying rises as well.

B. The Transformative Nature of Fanfiction and Laws that Affect it

A "user-generated work," such as fanfiction, is produced for the sake of creativity and pleasure. It is not created to be consumed as a marketable, profitable commodity.[65] User-generated works are based on copyrighted works and are ostensibly copyright infringement.[66] Fanfiction writers violate at least three of a copyright holder's exclusive rights: the exclusive right in reproduction, in creation of derivatives, and in distribution.[67] However, the authors of infringing works would likely escape liability by mounting a "fair use" defense, citing their works as transformative.[68] Fanfiction is generally considered to be transformative, even though there is no case law that specifically addresses its status.[69] For example, Cassie Claire's *The Draco Trilogy* can be considered transformative of the *Harry Potter* series because of the way the fanfiction alters the original canon, such as the treatment of the character Draco Malfoy.[70] *The Draco Trilogy* greatly contributed to the Fanon "Leather Pants Draco" after Claire described Draco as incredibly good looking in leather pants in the second fanfiction in the series.[71] If fanfiction is transformative and is thus fair use, it is a legally permissive endeavor.[72] Before attempting to analyze fanfiction under the fair-use test, it is first important to understand the test and its evolution in

[63] *See* Lantagne, *supra* note 32, at 507 (discussing an example of a Tumblr post that explained that the Digital Millennium Copyright Act can operate to protect artists whose work was stolen, a remedy about which many users did not know).

[64] *See* Coppa, *supra* note 56, at 54 (discussing how the mainstreaming of online technologies allows more people to join fan communities than ever before).

[65] *See* Debora Halbert, Abstract, *Mass Culture and the Culture of the Masses: A Manifesto for User-Generated Rights*, 11 Vand. J. Ent. & Tech. L. 921, 921 (2009).

[66] *See* McCardle, *supra* note 12, at 445 (stating that "yes, writing fan fiction infringes on copyright protections," but that the purpose of copyright is also to advance the progress of science and art, thus, fanfiction authors may raise any defense available for copyright infringement).

[67] *Id.* at 449.

[68] *See id.*

[69] *See* Peaslee, *supra* note 12, at 212 ("Fair Use is another viable defense for most fan fiction authors."); Christina Z. Ranon, Note, *Honor Among Thieves: Copyright Infringement in Internet Fandom*, 8 Vand. J. Ent. & Tech. L. 421, 441 (2006).

[70] *See The Draco Trilogy*, *supra* note 3 (describing relationships and plot points that do not match the original series, such as the main characters, Draco and Harry, switching bodies).

[71] *Id.*

[72] *See* Lenz v. Universal Music Corp., 815 F.3d 1145, 1151 (9th Cir. 2016) ("Fair use is not just excused by the law, it is wholly authorized by the law."). *See also* Natalie H. Montano, *Hero with a Thousand Copyright Violations: Modern Myth and an Argument for Universally Transformative Fan Fiction*, 11 Nw. J. Tech. & Intell. Prop. 689, 692 (2013) ("It is clear . . . that if fan fiction is to receive full protection of the Fair Use Defense, it must be found to be transformative in nature.").

recent case law.[73]

1. *Fair Use: Celebrating Transformative Works*

Fair use is defined in the Copyright Act as a defense against a copyright infringement claim.[74] The preamble of the statute notes that use of a copyrighted work for purposes of criticism, comment, news reporting, teaching, scholarship, or research is fair and not an infringement of copyright.[75] This defense supports the promotion of creative expression and progress,[76] the constitutional purpose of copyright, because it allows the creation of new works based on copyrighted works.[77] In addition to the preamble, the statute also lays out a four-factor test that is the basis of the fair-use analysis.[78] The four-factor test considers: (1) the purpose and character of the second work's use and whether the use is of a commercial nature; (2) the nature of the first work; (3) the amount and substantiality of the portion of the first work used by the second work; and (4) the effect of the second work upon the potential market for or value of the first work.[79]

a. The Revolution of Prong One of the Four-Factor Test

In 1994, the Supreme Court of the United States altered the analysis of the fair-use defense listed in 17 U.S.C. § 107 by redefining the first factor—character and purpose of the second work—and requiring that an otherwise infringing second work be transformative.[80] In *Campbell v. Acuff-Rose*, Roy

[73] *See* McCardle, *supra* note 12, at 445-64 (discussing the copyrightability of aspects that fanfiction writers borrow and analyzing cases that develop the transformative use test).

[74] *See* 17 U.S.C. § 107 (1992).

[75] *See id.*

[76] *See* U.S. Const. art. I, § 8, cl. 8 (declaring that copyright is meant to promote the "progress . . . of the useful arts").

[77] *See* Alfred Bell & Co. v. Catalda Fine Arts, 74 F. Supp. 973, 979 (S.D.N.Y. 1947).

[78] *See* § 107.

[79] *See id.* Courts have also adopted the transformative aspect of the fair use doctrine where enforcement by rights holders may chill free speech. *See* Caitlyn Slater, *The "Sad Michigan Fan": What Accidentally Becoming an Internet Celebrity Means in Terms of Right of Publicity and Copyright*, 2017 Mich. St. L. Rev. 865, 916 (2017); E.T.W. Corp. v. Jireh Publ'g Inc., 332 F.3d 915, 938 (6th Cir. 2003) (finding that the "significant transformative elements" of the plaintiff's work outweighed professional golfer Tiger Woods' economic interest in his likeness). The transformative test is often used in cases for the right of publicity, where courts must balance the right of publicity against the freedom of First Amendment. *Id.* Courts could possibly come down on either side of the balancing test, similar to issues surrounding fanfiction. *Id.* It is of note that it is possible, but unlikely, that the right of publicity could be implicated in fanfiction, as certain forms of fanfiction are written about real people. *See Fanfiction Terminolgy*, *supra* note 12. Real People Fiction (RPF) is usually written about celebrities, including those that portray characters in a fan's favored content. *Id.* ("Real Person Fiction . . . refers to stories featuring the actors themselves (rather than the characters they play) or some real life person, celebrity, or historical figure."). However, since fanfiction is generally noncommercial, any rights of publicity claims brought by a celebrity would likely fail because right of publicity claims center around commercial exploitation of a celebrity. *See* Slater, *supra* note 79, at 881 (noting that the Sixth Circuit held that plaintiffs had to prove that a defendant commercially exploited their identity).

[80] *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 579 (1994). The transformative analysis was first suggested by then District Court Judge Leval and was adopted by the United Supreme Court. *See* Judge Pierre N. Leval, *Toward a Fair Use Standard*, 103 Harv. L. Rev 1105, 1111 (1990) ("I believe the answer to the question of justification [of factors weighing against the copyright owner] turns primarily on whether, and to what extent, the challenged use is *transformative*.").

Orbinson, a rock-and-roller who sang "Oh, Pretty Woman," sued rap group 2Live Crew for copyright infringement when the group released its rap song "Pretty Woman."[81] The rap song used the opening guitar riff and the refrain of Orbinson's "Pretty Woman," as well as the first two lyrics.[82] In response, 2Live Crew mounted a fair-use defense.[83]

The Court outlined the first factor of the fair-use test as an inquiry into the purpose and character of the use, including whether such use is of a commercial nature or if it is for nonprofit or educational purposes.[84] According to *Campbell*, courts should ask whether the new work is transformative by adding or building on the first work.[85] This fresh perspective on the first factor, examining whether the second work is transformative, was the Court's new interpretation of the statutory test.[86] Furthermore, the first factor determination carries through the other three factors—the analysis of the other factors changes depending upon how transformative the second work is.[87]

b. The Evolution of the Four-Factor Test

Cases that followed *Campbell* used the transformative measure in their fair-use defense analysis and have since established that, when a work takes a substantial amount of the original copyrighted work that is more than necessary to harken back to the original, the third factor then weighs against fair use.[88] For example, the plaintiff in *Warner Bros. Entertainment Inc. v. RDR Books* had originally published his work, an encyclopedia of J.K. Rowling's *Harry Potter* series, as a website he called "The Harry Potter Lexicon."[89] Rowling admitted that she had used the "Lexicon" website as a resource[90] but brought suit against the plaintiff when the work was to be commercialized because the

[81] *Campbell*, 510 U.S. at 573.

[82] *Id.* at 588 ("It is true . . . that 2 Live Crew copied the characteristic opening bass riff (or musical phrase) of the original, and true that the words of the first line copy the Orbinson lyrics.").

[83] *See id.* at 573. The procedural history of the case hinged on the commercial aspect of the song. *Id.* The district court reasoned that the commercial purpose of the song was no bar to fair use, but the Sixth Circuit thought that the district court "had put too little emphasis on the fact that 'every commercial use . . . is presumptively . . . unfair." *Id.*

[84] *See id.* at 579 (quoting 17 U.S.C. § 107 (1988 ed. & Supp. IV)).

[85] *See id.* (asking whether the new work "adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message," or "in other words, whether and to what extent the new work is transformative").

[86] *See* Matthew D. Bunker & Clay Calvert, *The Jurisprudence of Transformation: Intellectual Incoherence and Doctrinal Murkiness Twenty Years After* Campbell v. Acuff-Rose Music, 12 Duke L. & Tech. Rev. 92, 94-95 (2014) (describing how the Supreme Court of the United States "turned the transformative use doctrine loose onto copyright law, where it quickly became an enormously important . . . component in lower-court fair-use determinations").

[87] *See Campbell*, 510 U.S. at 586, 590. *See* Ranon, *supra* note 69, at 431 ("A work that merely supplants or supersedes another is likely to have a substantially adverse impact on the potential market of the original work, while a transformative work is less likely to do so.").

[88] *See Campbell*, at 510 U.S. at 588 ("Copying does not become excessive in relation to parodic purpose merely because the portion taken was the original's heart.").

[89] Warner Bros. Ent., Inc. v. RDR Books, 575 F. Supp. 2d 513, 520 (S.D.N.Y. 2008).

[90] *See id.* at 521. Rowling posted on her own website praising the Lexicon, telling readers that she checked the website "'while out writing [to] check a fact rather than go into a bookshop and buy a copy of Harry Potter.'" *Id.*

plaintiff was offered a book deal.[91] The court found that the plaintiff took too much of the original work because the "Lexicon" not only categorized spells, characters, and settings, but also used words directly from Rowling's books beyond just description, including highly aesthetic expression and colorful literary devices.[92] The unnecessary taking outweighed the transformative nature of the "Lexicon."[93] However, the court also found that while the "Lexicon" would not replace the market for the original *Harry Potter* series, it might replace the market for a derivative encyclopedia that Rowling might create.[94] At the end of the analysis, the court determined that the factors weighed together to did not support a finding of fair use.[95]

In 2009, the Second Circuit ruled on a case involving a novel marketed as a sequel to the classic American novel, *Catcher in the Rye*.[96] The original novel's author, J.D. Salinger, did not approve this sequel, which included him as a character.[97] The court found that the sequel was not sufficient to be a comment or critique of Salinger or his work because Salinger was a minor character, and thus, the work could not enjoy protection under the preamble of the Copyright Act. [98]For the other factors, the court found that the ratio of borrowed elements to transformative purpose was too high and that the availability of this sequel could undermine the market for an authorized sequel.[99] The Second Circuit court did not see a reason to disturb the district court's conclusion that the defendant Colting would be able to prevail in his fair use defense, though it remanded the case for the district court's findings of preliminary injunction.[100]

The Southern District of New York conducted an analysis of the fourth fac-

[91] *See id. See also* Mayer-Schönberger & Wong, *supra* note 18, at 2 ("[When] a . . . publishing company called RDR Books announced . . . that they were going to sell print copies of the *Lexicon*, Warner Bros. . . . and Rowling sued [the creator] and his publisher for copyright infringement and plagiarism, demanding that they cease publication of the *Lexicon*.")

[92] *See RDR Books*, 575 F. Supp. 2d at 547 ("Weighing most heavily against Defendant on the third factor is the Lexicon's verbatim copying and close paraphrasing of language from the *Harry Potter* works. In many instances, the copied language is a colorful literary device or distinctive description.").

[93] *See id.* at 548.

[94] *See id.* at 551. This was not the only outcome from *RDR Books*, as noted by Mayer-Schönberger & Wong, *supra* note 18, at 2. In Rowling's testimony, she emphasized that she was protective of the characters she had created, and that they were near and dear to her heart. *See id.* at 2-3. She specifically noted that this lawsuit was not about the money for her, but that the defendant had "committed a 'wholesale theft of 17 years of [her] hard work,' in an act of betrayal." *Id.* at 3. Even so, the lawsuit was won on the merits of the four-factor test because, first, where the defendant took too much from the original text to be justifiable, and second, the work could have replaced the market of any authorized derivative encyclopedia. *See RDR Books*, 575 F. Supp. 2d at 548, 551. Rowling's testimony signifies rights holders' concern, not of money, but of control over their original content. *See* Mayer-Schönberger & Wong, *supra* note 18, at 3.

[95] *See RDR Books*, 575 F. Supp. 2d at 551.

[96] *See* Salinger v. Colting, 607 F.3d 68, 72 (2d Cir. 2009).

[97] *See id.* at 71.

[98] *See* Lantange, *supra* note 33, at 291 ("The court did acknowledge that the addition of the Salinger character did lend Sixty Years Later some transformative purpose that was not parodic in character but found that the effect of it was diminished because the transformation was inconsistent and out of proportion to the amount of The Catcher in the Rye that Sixty Years Later copied, 'both substantively and stylistically.'");17 U.S.C. § 107 (1992) (decreeing that works that have the purpose of criticism or comment are fair use).

[99] *See Salinger*, 607 F.3d at 73-74; *see also* Lantange, *supra* note 33, at 291 (noting that the court's finding on on the first factor of the transformative test influenced the rest of the analysis. On the final factor, the court acknowledged that the secondary work would not have an effect on the original market, but would have an effect on any market for a sequel).

[100] *See Salinger*, 607 F.3d at 83.

tor—the market effect of the second work on the first work—in *Authors Guild v. Google, Inc.*[101] In the creation of its "Google Books" project, Google made digital copies of tens of millions of books, scanning digital copies and making them publically available with a search function.[102] The search function allows internet users to search for a specific word or term and see "snippets" of the text containing the terms.[103] The court found that the fourth factor in this case was in favor of Google because Google did not sell the scans of the books on its site, and, overall, the scans did not replace the books.[104] The court overall found that Google's use was fair use.[105]

Should a case involving fanfiction ever arise, it is this four-factor test that courts would use to evaluate the controversy since it is used in the most analogous legal precedent.[106] Previous comparable precedent includes situations where copyright holders of video games fought to have fan-made video games removed, because the second works contained improvements in the gameplay that the fan creator would have liked to see in their beloved original video game.[107] If courts have been able to conduct an analysis of fan-made video games, then the analysis should also be implemented for fanfiction.[108]

2. *Fanfiction Under the Four-Factor Test*

Copyright scholars generally consider fanfiction to be fair use under the *Campbell* four-factor test, especially under the first and fourth factors.[109] The first factor analysis will likely weigh in favor of the fanfiction writer because the purpose and character of fanfiction is transformative.[110] Fanfiction builds on the original work and also comments on it by extending the original's universe, adding new elements such as in-depth character studies, re-imagination of plot points, and the exploration of different points of view within the canon of the

[101] *See* Authors Guild, Inc. v. Google Inc., 804 F.3d 202, 223 (2d Cir. 2015).

[102] *See id.* at 221 ("The Google Books program has made a digital copy of the entirety of each of Plaintiffs' books.").

[103] *See id.* at 223 ("As snippet view never reveals more than one snippet per page in response to repeated searches for the same term, it is at least difficult, and often impossible, for a searcher to gain access to more than a single snippet's worth of an extended, continuous discussion of the term.").

[104] *See id.* at 222 ("[T]he snippet view does not reveal matter that offers the marketplace a significantly competing substitute for the copyrighted work.").

[105] *See id.* at 207.

[106] *See* Peterson, *supra* note 14, at 227 ("Analysis of an analogous [fair use] case is necessary due to the lack of fan [content] legal precedence.").

[107] *See id.* at 233 (discussing the fate of the release of fan-made "Another Metroid 2 Remake," a remake of the classic game, which Nintendo, the copyright holder, was able to have removed through the notice and takedown process).

[108] *See generally id.* (conducting a fair use analysis that is applicable to participatory culture).

[109] *See, e.g.*, Montano, *supra* 72, at 691 (arguing that fanfiction "essentially comments on the original copyrighted work by transforming a piece of the original, no matter how small"); Lantagne, *supra* note 33, at 313 ("Allowing the effect on the market to be the factor that leads the rest of the analysis—and acknowledging the general lack of evidence that fanworks harm the original copyright work—. . . the fact that there [would be] no evidence that there would be any harm would be of greater and more central importance."); Peaslee, *supra* note 12, at 212 ("Fair use is another viable defense for most fan fiction authors.").

[110] *See* Montano, *supra* 72, at 700-02 (discussing how fanfiction is transformative because it is commenting on the original content).

original content.[111] For example, the fanfiction *I Loved Her First* is a re-telling of the wedding of Scout and Dill, two characters in the novel *To Kill a Mockingbird*; the story is told from the perspective of Atticus, exploring his character's thoughts on his daughter's wedding day.[112] *When Wendy Grew Up . . . and Him* is a *Peter Pan* fanfiction that reimagines the ending of the J.M. Barrie novel.[113] Instead of Peter leaving Wendy to grow old and marry, as happens in the original, Peter chooses to stay with a family in London and grow up; the two reunite when they have grown old.[114]

The second fair use factor is dependent on the nature of the first work, which, for fanfiction, is generally television shows, movies and books, which are highly creative. [115]As long as the original content is not in the public domain,[116] it will likely be highly protected under the second factor since highly creative works are afforded maximum protection.[117] On the other hand, courts, including the Supreme Court in *Campbell*, generally hold that the second factor does not weigh very heavily in the overall balancing of the four factors if the second work is sufficiently transformative.[118]

Much like the second factor, the third factor varies by each second work at bar; given the nature of fanfiction, fanfiction writers use dialogue or material from the original source to allow the reader to recall it.[119] However, since the reader is already familiar with the original work, there is not necessarily a need to reproduce the original content in its entirety.[120] The material from the original source are soft callbacks to enhance readers' experience so that, as they read the fanfiction, the readers can visualize the characters doing what is described in the fanfiction.[121] For example, in *Carpe Noctem*, a fanfiction based on the *Star*

[111] *See* Busse & Hellekson, *supra* note 1, at 11 (discussing different genres of fanfiction). Busse and Hellekson outline several genres of fanfiction that are dependent on the existence of canon. *Id.* These include: "episode fix," which is a rewriting of a less than satisfying event in canon into a more preferred conclusion, and "episode tag" or "missing scene," which is a continuation of a scene in canon to provide more information or explore what was not shown in canon. *Id.* For an example of an episode fix, or a fix-it fic, see animateglee's fix-it script for season 3, episode 9 of the Masterpiece television series, *Victoria*, which was born out of her and the fandom's outrage over the show's treatment of its LGBTQ+ characters. Animateglee, Tumblr, http://animateglee.tumblr.com/post/169342325486/victoria-comfort-and-joy-fix-it-script-because (last visited Feb. 14, 2018).

[112] *See* Chelsea Oz, *I Loved Her First*, FanFiction.Net (May 4, 2016), https://www.fanfiction.net/s/11930145/1/I-Loved-Her-First.

[113] *See* Olympicmayhem, *When Wendy Grew Up and Him*, FanFiction.Net (Jan. 3, 2016), https://www.fanfiction.net/s/11710644/1/When-Wendy-Grew-Up-and-Him.

[114] *Id.*

[115] *See, e.g.*, Arrow Prods. v. Weinstein Co., 44 F. Supp. 3d 359, 371 (S.D.N.Y. 2014) (finding that "the creative and expressive nature of [the movie at issue] places the film within the core copyright protection"); Cambridge Univ. Press v. Patton, 769 F.3d 1232, 1268 (11th Cir. 2014).

[116] This is certainly a possibility, especially given that there are Shakespeare and Bible fandoms, both of which are original content in the public domain.

[117] *See Arrow Prods.*, 44 F. Supp. at 371 (finding that movies are highly creative and within the core of copyright protection).

[118] *See* Ranon, *supra* note 69, at 449. *See also* Bill Graham Archives v. Dorling Kindersley Ltd., 448 F.3d 605, 612 (2d Cir. 2006).

[119] *See* Ranon, *supra* note 69, at 450 ("Sometimes the author uses certain narrative or rhetorical structures in order to evoke the feel of the canon work.").

[120] *See id.* ("The fan fiction does not need to use too much of the author's narrative devices, because the mention of elements of the world or characters is frequently enough to invoke the emotional 'baseline' which fans of the canon recognize and understand.").

[121] *See* Mayer-Schönberger & Wong, *supra* note 18, at 5 (discussing fans' emotional involvement with fanfiction). In the *Arrow* fandom, which surrounds a television show produced by DC Comics, many of the scenes and di-

Wars movies, the author explores a single character, Han Solo, and his relationships.[122] In *Carpe Noctem*, when describing the moment Han Solo fell in love with his canonical love, Princess Leia, the dialogue the author writes—"I love you."/ "I know."—is an immediate callback to the dialogue spoken by the same characters in the movie *The Empire Strikes Back*.[123] In analysis of the third factor, courts have said that second works may take whatever is necessary in pursuit of a transformative purpose, even the entirety of the first work, especially if the taking is necessary to summon the original.[124]

Fanfiction does not take the entirety of the original work, nor does it take what courts consider the essence or heart of the work.[125] This is because fans who are reading the fanfiction are already familiar with the essence of the original content, and it is the passion for that essence that inspires fans to write and consume fanfiction in the first place.[126] For example, fans searched for and discovered Claire's *Draco Trilogy* with the intent to participate more in the story of *Harry Potter* that they love.[127] Due to the familiarity her readers had, Claire was able to expand the *Harry Potter* characters—including by adding a homoerotic subtext between Harry Potter and Draco Malfoy.[128] For example, Claire wrote a missing scene from one of the trilogy stories that "included Draco kissing Harry to prove that Draco 'could be gay, if [he] liked.'"[129]

Lastly, in the analysis of the fourth factor, fanfiction is a non-commercial endeavor, but it is also a derivative of original content.[130] Some courts have

alogue between characters, especially love interests, are written into fanfictions as a nod to the characters. *See generally* Ashley J. Barner, The Case for Fanfiction: Exploring the Pleasures and Practices of a Maligned Craft 138 (2017). One such dialogue occurs during an action sequence where Oliver Queen, the main character of the show, and Felicity Smoak, his love interest and literal partner in vigilantism crime, are about to swing from one end of an elevator shaft to another. *Arrow: Darkness on the Edge of Town* (CW television broadcast May 08, 2013). Oliver says, "Felicity, hold on to me tight," to which Felicity replies, "I imagined you saying that under different circumstances . . . Very platonic circumstances." *Id. To Fight or Let Go*, one of many fanfictions about Oliver and Felicity's romantic relationship, recalls the dialogue in a scene that is considered as an alternate universe. *See* CallenHotchMcGarrettFan, *To Fight or Let Go*, FanFiction.net (Nov. 20, 2014), https://www.fanfiction.net/s/10838105/1/To-Fight-or-Let-go. An alternate universe is a fanfiction which deviates from established canon, usually with some major change to plot, setting, or character arc. *See Fanfiction Terminolgy*, *supra* note 12. In the fanfiction *To Fight or Let Go*, Oliver confesses his love to Felicity, repeating the dialogue from the television scene, and it is in a certainly different circumstance from the action scene that occurred in the show. *See* CallenHotchMcGarretFan, *supra* note 121.

[122] *See* Eryn_leagolas, [C]*arpe* [N]*octem*, ArchiveofOurOwn.Org (Aug. 26, 2017), http://archiveofourown.org/works/11913618.

[123] *See id.*; Manarchy, *I Know*, YouTube (Mar. 3, 2007), https://www.youtube.com/watch?v=sO-KR-14uXM (describing the scene of Han Solo responding to Princess Leia's declaration of love with "I know" as a "[c]lassic clip of Han Solo being Han Solo from The Empire Strikes Back").

[124] *See, e.g.*, Bill Graham Archives v. Dorling Kindersley Ltd., 488 F.3d 605, 613 (2d Cir. 2006); Kelly v. Arriva Soft Corp., 336 F.3d 881, 821 (9th Cir. 2003); Núñez v. Caribbean Int'l News Corp., 235 F.3d 18, 24 (1st Cir. 2000).

[125] *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 588 (1994).

[126] *See* Mayer-Schönberger & Wong, *supra* note 18, at 5 (noting that "fan fiction stories are written with the assumption that those reading it already understand the 'world' of a text including its characters, settings, and past events").

[127] *See The Draco Trilogy*, *supra* note 3 (cataloguing fan reviews of the series, one of which said: "I had just discovered the Harry Potter fandom, and had been searching for good fics on FictionAlley [a *Harry Potter* specific fanfiction hosting website]. That day, I discovered the incredible Draco Trilogy.").

[128] *See id.* (describing fanfictions Claire wrote which were outtakes from her *Draco Trilogy* that paired Harry Potter and Draco Malfoy together).

[129] *Id.*

[130] *See* Ranon, *supra* note 69, at 450 ("Authors of fan fiction do not write Internet fan fiction for a profit, however, and thus Internet fan fiction does not divert any profits from original authors or publishers.").

found that the fourth factor can become very important in the fair-use analysis depending on the amount of harm it inflicts on the market of the original and relative strength of the other factors.[131] However, fanfiction is not a substitute for the original content because it is created based on that content—it is an extension of it.[132] As a result, if fans stop consuming the original content, they likely stop consuming the fanfiction.[133] For instance, if people lose interest in a television show, they likely will not read fanfiction based on it either because their interest in the content overall, fan-made or original, has waned.[134] Further, fanfiction does not replace the market of the original creative work because in general, fanfiction writers are not paid for their work;[135] fanfiction writers simply write for the love of the original content, not for remuneration of any kind.[136]

In regards to fanfiction replacing the original's derivative market, fan works themselves are derivative works in that they are based on a pre-existing work.[137] However, whether or not they replace the derivative market is a debatable question. Being a derivative work is not enough, it must replace the derivative market of the original. It is unlikely that noncommercial fanfiction would replace any derivative markets. Fanfiction exists because of original content—its writers and readers remains fans of the original content. Thus, it stands to reason that out of love for the original content, fans will consume authorized derivative work, such as TV show spin-offs or sequel books, and that the authorized derivative works will in turn spawn new fanfiction as it is consumed.

Fanfiction writers have previously claimed fair use and nonprofessional status in response to threatened legal action from authors.[138] Fanfiction writers could assert the fair-use defense if an owner of the original content sued them because the practice of writing fanfiction is generally transformative and does not replace the market of the original. It is unlikely that any lawsuit would ever happen because the typical fan does not earn money for his or her fanfiction

[131] *See* Cambridge Univ. Press v. Patton, 769 F.3d 1232, 1275 (11th Cir. 2014).

[132] *See* Ranon, *supra* note 69, at 450. *See also* Peterson, *supra* note 14, at 220 (stating that the entertainment industry, rather than being harmed by fanfiction, "thrives on fan participation"). FanFiction.Net provides space for original content categories in anime/manga, books, cartoons, comics, games, movies, plays, and television. *See FanFiction*, FanFiction.Net, https://www.fanfiction.net (last visited Feb. 3, 2018). Just within the books category, FanFiction.Net offers space for fanfiction on more than 2,000 books, including *The Hunger Games*, *Paradise Lost*, and *Catch-22*. *See Books*, FanFiction.Net, https://www.fanfiction.net/book (last visited Feb. 3, 2018). The movies on FanFiction.Net that have the most fanfictions are *Star Wars*, *Avengers*, and *Pirates of the Caribbean*. *See Movies*, FanFiction.Net, https://www.fanfiction.net/movie (Feb. 3, 2018).

[133] *See* Ranon, *supra* note 69, at 450.

[134] *See id.* In fact, it is probable that "fan fiction sustains the commercial community for the original work" as it keeps the content during hiatuses of the original content. *Id.* at 451.

[135] *See id.*; *see also* Peterson, *supra* note 14, at 235 ("It is not very persuasive to argue that a free product can truly have a market impact on a billion-dollar giant."). This is a statement that covers fanfiction writers in general as sometimes fanfiction writers use commission systems to make extra money when they are financially in need.

[136] *See generally* dodger_winslow, *supra* note 16 (discussing how the love of fanfiction outweighs the lack of payment).

[137] Chung, Christina, Note, *Holy Fandom, Batman! Commercial Fan Works, Fair Use, and the Economics of Complements and Market Failure*, 19 B.U. J. Sci. & Tech. L. 367, 371 (2013).

[138] *See* Tresca, *supra* note 13, at 37 (discussing how authors of *Harry Potter* fanfiction "made claims of 'fair use' and nonprofessional status" when confronted with a cease-and-desist order). For more information on J.K. Rowling's attempt to stop *Harry Potter* fanfiction, see *infra* Section III.A.

and so does not cut into the market for the original. Fanfiction is also written across the world,[139] and the typical writer does not have the funds for a lengthy legal battle.[140]

Now that fanfiction is disseminated over the internet,[141] a website or Online Service Provider (OSP), or even an Internet Service Provider (ISP),[142] could be found secondarily liable for infringement by hosting infringing content and enabling illegal activity.[143] However, ISPs are generally immune from secondary liability if they undertake certain actions as prescribed by American and European statutory law.[144]

II. Immunity Practices: The Legal Foundation to Build Upon

Legal frameworks addressing ISP liability already exist in the American and European statutory systems.[145] These statutes discuss the liability of ISPs for both infringement and defamation purposes.[146] Further, these statutes contain procedures to simultaneously allow ISPs to remain immune to infringement by third parties and to protect intellectual property rights.[147] Nevertheless, ISPs can be held secondarily liable for infringement under American and European Union law.[148]

[139] *See Fan Fiction Demographics in 2010: Age, Sex, Country*, FFN Research (Mar. 18, 2011), http://ffnresearch.blogspot.com (noting that accounts on FanFiction.Net have been made and accessed in at least 173 countries, with 57% of user accounts reported from the United States and 9.2% from the United Kingdom). For anonymous users, a rights holder or a defamed person could subpoena third-party websites and ISPs to identify anonymous online users. *See* Colleen M. Devanney, *Serving Subpoenas to Unmask the Identities of Website Owners, Domain Registrants*, Vorys (Nov. 10, 2016), https://www.internetdefamationlaw.com/serving-subpoenas-unmask-*ide*ntities-of-website-owners-domain-registrants/. Failing this, the 1999 Anti-Cybersquatting Consumer Protect Act created *in rem* jurisdiction for domain names, so long as the pleader shows (1) a substantive case and (2) a lack of personal jurisdiction; however, the provision has been interpreted to be a last resort. *See* Eric Misterovich, *In Rem Jurisdiction for Domain Names Under the ACPA*, Revision Legal (Feb. 24, 2015), https://revisionlegal.com/internet-lawyer/in-rem-jurisdiction-for-domain-names-under-the-acpa/#_ftn3.

[140] *See* Peterson, *supra* note 13, at 222. Peterson points out that the vast majority of fans who create content, including fanfiction writers, cannot afford to "find out from a judge which side of the [fair use] line they fall on" and that the lack of legal precedent in the area of fanfiction "prohibitively raises the costs of litigation for the majority of creative fans." *Id.* Even J.K. Rowling's cease-and-desist order was to the webmasters of the fanfiction website, not to the fans directly. *See* Tresca, *supra* note 13, at 36.

[141] *See* Busse & Hellekson, *supra* note 1, at 13 (reviewing the journey of fan communities to online spaces).

[142] Both ISPs and OSPs will be generally referred to as ISPs, as both face the same legal status and sanctions. *See generally* Peterson, *supra* note 14, at 239.

[143] *See id.* at 239 (giving the example of people who use the ISP Comcast to download television shows). ISPs are largely immune from liability

[144] *See* 17 U.S.C. § 512(c) (2010).; Council Directive 2000/31/EC, of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market, art. 14 [*hereinafter* eCommerce Directive]. Immunity for ISPs facilitates society's reliance on "interactive media" for political, educational, cultural, and entertainment services. 47 U.S.C. § 230(a)(5) (2018). The American government has made its internet policy to promote the continued development of the internet, encourage technology development, and preserve the competitive free market. *See* § 230(b).

[145] *See* § 230(c) (2018).

[146] *See id.*; 17 U.S.C. § 512(c); eCommerce Directive, art. 14.

[147] *See* Tonya M. Evans, "*Safe Harbor" for the Innocent Infringer in the Digital Age*, 50 Willamette L. Rev. 1, 4 (2013).

[148] *See generally* § 512; eCommerce Directive, art. 14, which are further discussed *infra* in Section II.C.

A. American Immunity Practices for Internet Service Providers

The Digital Millennium Copyright Act (DMCA) governs ISP liability for infringement and is codified under Title 17 of the United States Code (U.S.C.).[149] First, the DMCA describes how ISPs can be ruled immune from secondary liability for infringement.[150] Second, the DMCA describes a notice-and-takedown procedure, which is the procedure that creates the immunity.[151]

1. *The Digital Millennium Copyright Act*

In 1999, Congress amended Chapter 5 of Title 17 of the U.S.C., adding a section titled "Limitations on liability relating to material online."[152] The new section, § 512, applies to information put on systems or networks by users, not the ISPs.[153] This statute provides that a service provider is not liable for legal or equitable relief for any infringing material stored on the ISP's system or network so long as the ISP does not have actual knowledge or is not aware of the facts or circumstances of infringing.[154] To remain immune upon obtaining knowledge or being given notice of infringement, the ISP must promptly remove the material.[155] Section 512 is known as the "Safe Harbor Clause" because ISPs can find shelter from a legal storm in a "safe harbor" from infringement liability if they follow the notice-and-takedown procedures and do not have knowledge of the infringement.[156]

The DMCA lays out exactly what is needed for a notification to be "effective" in requiring the ISP to takedown infringing material.[157] The notice must

[149] *See* § 512.

[150] *See* §§§ 512(a), (b)(1), (c)(1). The DMCA statute outlines multiple situations when ISPs "shall not be liable . . . for infringement," such as when infringing material is initiated or made available online by a person other than the service provider. §§ 512 at (a)(1), (b)(1); when the service provider does not have knowledge that the material is infringing, or upon obtaining such knowledge acts expeditiously to remove the material; and when the service provider does not receive a financial benefit attributable to the infringing activity and acts expeditiously to remove this material. *See* § 512(c)(1).

[151] *See* § 512(c).

[152] *See* § 512. This section covers multiple types of service providers and methods of communication including: transitory digital network communications, system caching, information residing on systems or networks at direction of users, and information location tools. *See id.*

[153] *See* § 512(c) is titled "Information residing on systems or networks at direction of users."

[154] *See* § 512(c)(1).

[155] *See id.* Another requirement is that the ISP must not receive "a financial benefit directly attributable to the infringing activity" because, in that case, the ISP "has the right and ability to control such activity." § 512(c)(1)(B).

[156] *See generally* Peterson, *supra* note 13, at 239 (noting how the OSP "Reddit" may avoid liability).

[157] *See* § 512(c)(3). The Act describes the elements of a notification as such:

> To be effective under this subsection, a notification of claimed infringement must be a written communication provided to the designated agent of a service provider that includes substantially the following: (i) A physical or electronic signature of a person authorized to act on behalf of the owner of an exclusive right that is allegedly infringed. (ii) Identification of the copyrighted work claimed to have been infringed, or, if multiple copyrighted works at a single online site are covered by a single notification, a representative list of such works at that site. (iii) Identification of the material that is claimed to be infringing or to be the subject of infringing activity and that is to be removed or access to which is to be disabled, and information reasonably sufficient to permit the service provider to locate the material. (iv) Information reasonably sufficient to permit the service provider to contact the complaining party, such as an address, telephone number, and, if available, an electronic mail address at which the complaining party may be contacted. (v) A statement that the complaining party has a good faith belief that use of the material in the manner complained of is not authorized by the copyright owner, its agent, or the law. (vi) A statement that the information in the notification is accurate, and under penalty of perjury, that the complaining party is authorized to act on behalf of the owner of an exclusive right that is allegedly infringed.

come from someone authorized by the rights holder, and that person must provide an electronic or physical signature.[158] The notice must also identify the copyrighted works and the allegedly infringing works.[159] Furthermore, it must provide reasonably sufficient contact information for the rights holder, a statement of good faith belief that the works were not authorized, and a statement that the person is authorized to act on behalf of the owner or rights holder.[160] If the notice and subsequent removal of material was a mistake, the owner of the removed material may submit a counter notification to the ISP's designated agent under the DMCA and potentially have their material restored.[161]

2. *Notice and Takedown under the DMCA*

The implementation of the Safe Harbor Clause has allowed ISPs, especially those that host content, to create DMCA agreements with rights holders.[162] ISPs have created direct lines for rights holders to submit notice statements if their intellectual property rights have been infringed.[163] These agreements have protected ISPs from lawsuits and liability.[164]

The online marketplace eBay.com (eBay) has had a notice-and-takedown system for nearly twenty years called the Verified Rights Owner (VeRO) program, which allows intellectual property rights owners to report potentially infringing items being sold on eBay.[165] When a rights holder submits a "Notice of Claimed Infringement" form, thus notifying eBay of a particular potentially infringing listing, eBay removes the listing within twenty-four hours or less; it also cancels any bids or transactions and notifies the seller of the reason for cancellation.[166] This is not the only anti-infringement measure eBay has taken for members of the VeRO program, as eBay also has a "three strikes rule," where infringers are suspended after three infringement violations.[167] Collectively, these measures mean that eBay may not be held contributorily liable so long as

§ 512(c)(3)(A).

[158] *See* § 512(c)(3)(A)(i).

[159] *See* § 512(c)(3)(A)(ii)-(iii).

[160] *See* § 512(c)(3)(A).

[161] *See* § 512(g)(3) (describing that the contents of a counter notification must include: a physical or electronic signature of the subscriber, identification of the material that has been removed, a statement under penalty of perjury that the material was removed or disabled as a result of a mistake or misidentification, as well as contact information).

[162] *See, e.g.*, Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93, 100 (2d Cir. 2010); Perfect 10, Inc. v. CCBill L.L.C., 488 F.3d 1102 (9th Cir. 2007).

[163] *See Tiffany*, 600 F.3d at 98 (explaining eBay's anti-counterfeiting measures, including a buyer protection program, under which buyers could be reimbursed for the cost of counterfeit items, as well as the "Trust and Safety" department with thousands of employees who focus on combatting infringement).

[164] *See* Evans, *supra* note 146, at 4 ("Absent safe harbor, courts could hold OSPs secondarily liable for infringing activities of their users even absent actual knowledge of any infringement.").

[165] See *Tiffany*, 600 F.3d at 99 ("Any such rights-holder [in the program] with a 'good-faith belief that [a particular listed] item infringed on a copyright or a trademark' could report the item to eBay, using a 'Notice Of Claimed Infringement form or NOCI form.'").

[166] *See id.* ("[The] practice was to remove reported listings within twenty-four hours of receiving a NOCI, but eBay in fact deleted seventy to eighty percent of them within twelve hours of notification.").

[167] *See id.* at 100. However, if a user listed a number of infringing items and it seemed that infringing was the user's intent in coming to eBay, then a user would be suspended after only one violation. *See id.*

it does not have actual knowledge of the infringement.[168] These measures and requirements are in compliance with the DMCA Safe Harbor Clause.[169]

EBay is not the only website that has created its own methods to comply with the DMCA or to facilitate the notice-and-takedown procedure.[170] For instance, YouTube's Content ID program is in response to the DMCA requirements; the Content ID program is an automated content-matching service that compares uploaded videos against other videos that are copyrighted content.[171] YouTube's solutions to infringement are either to block the video, track its use, or monetize it.[172] These solutions make the Content ID program different from other DMCA remedies because content creators are still allowed to have their videos, whereas DMCA notices result in takedowns.[173] Likewise, Tumblr, a website that hosts a multitude of fanworks including fanfiction, has a link for rights holders to submit a notification if other users have posted their copyrighted works on Tumblr without their permission.[174] Archive of Our Own, which hosts fanfiction, has a similar notification process with an explanation of the DMCA and the copyright owner's rights.[175] In comparison, FanFiction.Net has a forum where authors can post which stories have been plagiarized and where the stories were posted, and then FanFiction.Net can post what action it has taken to address the plagiarism.[176]

Even though there is some monitoring of infringers, there are not necessarily methods for dealing with repeat plagiarizers.[177] However, *Perfect 10 v. CCBill* discusses a repeat-infringement policy and how it can be implemented reasonably.[178] In its analysis of whether a service provider had reasonably implemented its repeat-infringer policy, the Ninth Circuit discussed Congress's "red flag" test, where ISPs may lose immunity because they fail to take action when they are aware of the facts or circumstances when infringing activ-

[168] *See id.* at 109 (discussing that the defendant Tiffany, Inc., which has the burden to prove knowledge, "failed to demonstrate that eBay was supplying its services to individuals who knew or had reason to know they were selling counterfeit Tiffany goods"). The court also found that eBay was not willfully blind to counterfeit sales because it did not ignore the information it was given about counterfeit sales on its website. *See id.* at 110.

[169] *See* 17 U.S.C. § 512(c)(3); Evans, *supra* note 146, at 4 ("Qualified OSPs receive safe harbor from copyright infringement liability if they fulfill certain criteria before and after receiving notice of a user's potentially infringing use.").

[170] *See* Peterson, *supra* note 14, at 240 (discussing the DMCA notice and takedown procedures of the online forum "Reddit").

[171] *9 Questions and Answers Regarding YouTube and Content ID*, Plagiarism Today, www.plagiarismtoday.com/2013/12/23/9-questions-answers-regarding-youtube-content-*id* (last visited Feb. 12, 2018).

[172] *See id.* (noting that YouTube's action against infringing videos, whether blocking, tracking, or monetizing, varies from work to work). This occurs with Let's Play videos, which are videos of people playing video games. *See id.*

[173] *See id.* Some content creators are able to keep their content mostly because the sheer volume of content that YouTube hosts makes the DMCA process burdensome with "thousands of notices being sent daily." *Id.* "Content ID is intended as a way to both appease copyright holders . . . and to reduce the number of DMCA notices that the site receives." *Id.*

[174] *DMCA Copyright Notifications*, Tumblr.com, www.tumblr.com/dmca (last visited Feb. 14, 2018). It is important to note that this DMCA page "is used to address copyright infringement involving other websites, not 're-posters,' but there appeared to be confusion on this front." *See* Lantagne, *supra* note 32, at 507.

[175] *DMCA Policy*, Archive of Our Own, www.archiveofourown.org/dmca (last visited Feb. 14, 2018).

[176] *The Anti-Plagiarism Investigation Reports*, FanFiction.Net, www.fanfiction.net/topic/124913/136555680/2/#136716028 (last visited Feb. 14, 2018).

[177] *See generally* Perfect 10, Inc. v. CCBill L.L.C., 488 F.3d 1102 (9th Cir. 2007).

[178] *See generally id.*

ity is apparent.[179] However, the Ninth Circuit also noted that any policy that is implemented should not place an undue burden on the service provider.[180] Repeat-infringer policies have been successfully implemented; for example, repeat infringers on YouTube have their accounts suspended and are permanently blocked from the site.[181]

American law already provides rights holders a method for removing from the internet works that infringe upon their rights—the Digital Millennium Copyright Act.[182] Websites, such as YouTube and Archive of Our Own, have implemented the notice-and-takedown procedures within the DMCA directly so that rights holders can access a form that facilitates the takedown process.[183] Similar to American immunity structures, the European Union also provides for immunity for ISPs.[184]

B. European Immunity for Internet Service Providers

Similar to American statutes governing immunity for ISPs, the European Union also issued a directive that addresses ISP immunity: the European Directive on Electronic Commerce (eCommerce Directive).[185] The eCommerce Directive covers multiple types of ISPs, including hosting websites, which cover those sites that host fanfiction.[186] The eCommerce Directive also has a notice-and-takedown policy that gives ISPs immunity from infringing material.[187]

1. *The European Directive on Electronic Commerce*

The eCommerce Directive directly addresses ISPs that have hosting capabilities—when the ISP hosts information uploaded by the user or content creator.[188] Article 14 of the eCommerce Directive provides that an ISP is not liable for the information hosted so long as the provider does not have actual knowledge of infringement or of the facts or circumstances of infringement.[189]

[179] *See id.* at 1114 (stating that a policy, such as one against repeat infringers, is unreasonable only if the service provider failed to respond when it had knowledge of the infringement).

[180] *See id.* at 1113 ("The DMCA notification procedures place the burden of policing copyright infringement . . . squarely on the owners of the copyright. We decline to shift a substantial burden from the copyright owner to the provider.").

[181] *See* Casey Fiesler, Note, *Everything I Need to Know I Learned from Fandom: How Existing Social Norms Can Help Shape the Next Generation of User-Generated Content*, 10 Vand. J. Ent. & Tech. L. 729, 744 (2008).

[182] *See* 17 U.S.C. § 512.

[183] *See 9 Questions*, *supra* note 170 (describing YouTube's notice and takedown policy); *DMCA Policy*, *supra* note 174 (describing Archive of Our Own's notice and takedown policy).

[184] *See* eCommerce Directive, arts. 12-15 (covering three different types of ISPs that can claim immunity under the directive: "mere conduit," "caching," and "hosting," and decreeing that "Member States shall not impose a general obligation on providers . . . to monitor the information which they transmit or store, nor a general obligation actively to seek facts or circumstances indicating illegal activity").

[185] *See id.*, art. 1(1) ("This Directive seeks to contribute to the proper functioning of the internal market by ensuring the free movement of information society services between the Member States.").

[186] *See id.*, art 14(1) (applying to information society services that are hosting, or that "consists of the storage of information provided by a recipient of the service").

[187] *See id.*, art 14 (declaring that immunity applies where a provider, upon having knowledge or awareness of illegal activity should act expeditiously to take down the material).

[188] *See* Miquel Peguera, *The DMCA Safe Harbors and Their European Counterparts: A Comparative Analysis of Some Common Problems*, 32 Colum. J.L. & Arts 481, 482 (2009).

[189] *See* eCommerce Directive, art. 14(1). The language of the text is as follows:

If the ISP does have knowledge, it may still not be liable if it does not delay in removing the infringing information.[190]

2. *Notice and Takedown Under the eCommerce Directive*

Like the DMCA in the United States, the eCommerce Directive has a similar notice-and-takedown procedure for infringing works.[191] An example of how the notice-and-takedown procedures have worked in the past can be seen in a European Union court case about eBay.[192] This case also describes eBay's Verified Rights Owner's takedown process.[193]

The dispute arose when L'Oréal—a manufacturer and supplier of perfumes, cosmetics, and hair products—sued eBay for trademark infringement when it discovered that third-party users were selling counterfeit goods on the marketplace website.[194] The Court of Justice described eBay's VeRO program and noted that L'Oréal had declined to participate in the VeRO program, having found it unsatisfactory.[195] The court then discussed eBay's potential liability under the eCommerce Directive, holding that eBay fell within Article 14 of the Directive because the service it provides is storing or holding consumer-supplied data in its server's memory.[196] However, eBay was not passive in its hosting because it offered optimization services for the third-party sellers to promote their offers of sale.[197] Under European Union law, when an ISP is not passive, it may have awareness of the circumstances of infringement, and thus, it cannot seek an exemption of liability under Article 14 of the eCommerce Directive.[198] In this case, the court remanded the case to determine whether eBay should have known that the offers for sale were infringement and taken them

> Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that: (a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or (b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.

Id.

[190] *See id.*, art. 14(b) (allowing immunity if the ISP immediately removes illegal material once it has knowledge of the illegality).

[191] *See* eCommerce Directive, art. 14(1)(b).

[192] *See generally* Case C-324/09, L'Oréal SA v. eBay International AG, 2009 R.P.C. 21 (2011).

[193] *See id.* at ¶ 46 (noting that the VeRO program is "a notice and take-down system that is intended to provide intellectual property owners with assistance in removing infringing listings from the marketplace").

[194] *See id.* at ¶ 26-39 (describing the facts giving rise to the action in which L'Oréal brought suit against eBay, seeking a ruling that eBay and the individual defendant be liable for sales of seventeen counterfeit items).

[195] *See id.* at ¶ 46 ("L'Oréal has declined to participate in the VeRO programme, contending that the programme is unsatisfactory.").

[196] *See id.* at ¶ 118 ("[E]Bay has met the conditions to which entitlement to exemption from liability is subject under points (a) and (b) for Article 14(1) of [the eCommerce Directive].").

[197] *See id.* at ¶ 123 (noting that eBay plays an active role, not a passive one, when it "provides assistance which entails, in particular, optimizing the presentation of the offers for sale in question or promoting them").

[198] *See id.* at ¶ 124 ("[An] operator . . . cannot . . . rely on the exemption from liability provided for in that provision if it was aware of facts or circumstances on the basis of which a diligent economic operator should have realized that the offers for sale in question were unlawful and, in the event of it being so aware, failed to act expeditiously in accordance with Article 14.").

down in accordance with Article 14.[199]

The Northern Irish Court of Appeal decided another ISP immunity case under Article 14 in *CG v. Facebook*.[200] Under *L'Oreal v. eBay*, the European Court of Justice set forth the standards used by the Northern Irish Court of Appeal: The measure of whether or not a website operator could have been said to have an acquired an "awareness" of illegal information in connection with its services is whether a diligent economic operator would have identified the illegality and acted expeditiously.[201] In *CG v. Facebook*, a third-party user created a public Facebook page detailing information about individuals who had criminal convictions related to sexual offenses involving children.[202] One of the individuals named on the page sought an injunction against Facebook, but after the removal of the page, the third-party set up a new page with even more information, including the identification of the plaintiff in the suit.[203] The Court of Appeal considered whether, in the light of the harassment committed by the third-party user, Facebook could rely on the Safe Harbor provisions of the eCommerce Directive, noting that Article 14 did apply to the situation.[204]

The court concluded that the knowledge of a propensity to harass did not give Facebook notice about the private information in this case.[205] Furthermore, the actual information shared on the page did not give Facebook notice that there were legal issues surrounding the problematic content.[206] Moreover, Facebook was not required to monitor the third-party user because Facebook is instead obliged to act in a diligent, economic manner.[207] This case also demonstrates the burden of proof for Article 14 cases: It is on the claimant to show that the ISP has knowledge, or else the ISP can likely find protection under the Safe Harbor Clause of the eCommerce Directive.[208] In this case, Facebook is liable in those situations where CG used the appropriate tools to complain about the (potentially) illegal content, especially where CG provided specific URLs.[209]

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[199] *See id.* at ¶ 118.

[200] *See* Lorna Woods, *When is Facebook Liable for Illegal Content Under the E-Commerce Directive? CG v. Facebook in the Northern Ireland Courts*, EU Law Analysis, eulawanalysis.blogspot.com/2017/01/when-is-facebook-liable-for-illegal.html (last visited Feb. 14, 2018).

[201] *See id.* (discussing the precedent of Article 14 in the European Court of Justice).

[202] *See id.* The Facebook page was titled: "Keeping Our Kids Safe from Predators." *Id.*

[203] *See id.* (discussing how CG's photograph was published on the page and that there were discussions about where he lived, the disclosure of which was a violation of the Public Protection Arrangements in Northern Ireland). The Court of Appeal found that the third-party user's conduct did give rise to criminal liability for harassing CG. *Id.* (explaining that in its analysis, the Court noted that the tort of misuse of private information and criminal harassment, "while complementary, are not the same and that a finding of harassment did not automatically mean that there had been a misuse of private information").

[204] *See id.* The Court also applied Article 15 of the eCommerce Directive to Facebook, even though it is not formally implemented in the UK, where the case arose. *Id.* The Court's approach is based on the "assumption that Article 14 . . . also appl[ies]." *Id.* Woods's comment notes that under Article 14 case law, the service provider "must be neutral as regards the content, technical and passive" to find shelter under the Safe Harbor Clause. *Id.*

[205] *See id.* The Court also noted that previous litigation regarding the same third-party and the subsequent removal of a similar page is not actual notice. *See id.*

[206] *See id.* "'The correspondence did not, therefore, provide actual notice of the basis of claim which is now advanced' [in the current suit]." *Id.* (quoting CG v. Facebook ([2016] NICA 54)).

[207] *See id.* (explaining that the Court noted that "Facebook is obliged to act as a diligent economic operator").

[208] *See id.* ("The burden of proof is in the first instance of the claimant to show knowledge; thereafter the ISS must prove it did not.").

[209] *See id.* When there is a specific complaint, especially when URLs are provided directly to illegal content, this is sufficient notice to an ISP. *See generally id.*

The European Union has implemented a directive that binds the European Union and ISPs to a regulation that allows immunity for ISPs from liability from secondary infringement.[210] This regulation, the eCommerce Directive, has a notice-and-takedown procedure that allows European companies to remove infringing content from the internet upon the request of rights holders.[211] Through the notice-and-takedown procedure, rights holders can fight infringing content online.[212]

III. How Is Fanfiction Regulated?

When reading fanfiction, one might wonder whether it is legal to take Harry, Ron, and Hermione—the hero trio from *Harry Potter*—turn them into "elflings" and drop them into the world of *Lord of the Rings*,[213] a high fantasy novel series about a hobbit named Frodo Baggins who inherits a powerful Ring and a quest along with it. A court of law has yet to rule upon the lawfulness or unlawfulness of fanfiction, leaving it in legal limbo as to the legality of its production, reproduction, and distribution.[214] Even though fanfiction litigation has not made a forceful or binding appearance in the United States, original copyright holders have targeted commercialized fanfiction.[215] Fanfiction becomes commercialized when authors change their fanfictions by naming new characters but keep basic plot points that harken back to original content the same and then sell it.[216] This occurred, for example, when E.L. James reworked her *Twilight* fanfiction into bestseller *Fifty Shades of Grey*, as discussed below.[217] Commercialized fanfiction has generated a few legal battles—even

[210] *See* eCommerce Directive, arts. 12, 13, 14 (applying immunity to ISPs that are mere conduits, that cache information, and that host content).

[211] *See id.* at art. 14(1) (outlining two requirements for hosting immunity: no knowledge or awareness, or if there is knowledge or awareness, expeditious action to remove illegal material).

[212] *See generally id.*; Woods, *supra* note 199; Case C-324/09, L'Oréal SA v. eBay International AG, 2009 R.P.C. 21 (2011).

[213] *See* LeilaSecretSmith, *Somehow, This is Harry's Fault*, ArchiveofOurOwn.Org (Jan. 14, 2018), http://archiveofourown.org/works/13365363/chapters/30605136.

[214] *See* Tushnet, *supra* note 32, at 664. At present, fanfiction is akin to Schrodinger's Cat, both legal and illegal. Fanfiction writers are aware that the status of their work in the legal frame is questionable, and often add disclaimers to every chapter of their story. *See* Busse and Hellekson, *supra* note 1, at 10 (defining disclaimers as "an acknowledgement that the author does not own the characters and universe"); Tushnet, *supra* note 32, at 678-79 (discussing the important non-legal functions of disclaimers). These disclaimers are so prevalent as a norm of fanfiction that they are often presumed, and generally do not contain any legalese or legal kind of language (not that this distinction would aid the writer in an infringement suit). *See* kalian-blue, *Magnetic Moment*, FanFiction.net (June 29, 2007), https://www.fanfiction.net/s/3624776/1/Magnetic-Moment ("Disclaimer: JKR owns everything and I don't make any money with this story. The idea of the Marriage Law originated at wiktt, I believe. I'm just borrowing [. . . .]"); BlueRosesAtMidnight, *Love Means Never Having to TimeTravel*, FanFiction.net (Dec. 5, 2005), https://www.fanfiction.net/s/2690076/2/ ("Disclaimer: It's not mine!"). For a discussion on how the historical theories of fanfiction affects its status, see Abigail Derecho, *Archontic Literature: A Definition, a History, and Several Theories of Fan Fiction*, *in* Fan Fiction and Fan Communities in the Age of the Internet: New Essay 61, 64 (Karen Hellekson & Kristina Busse eds., 2006) ("To label the genre of fiction based on antecedent texts 'derivative' or 'appropriative,' then, throws into question the originality, creativity, and legality of that genre.").

[215] *See* Fiesler, *supra* note 180, at 738 (noting how the status of fanfiction has never been ruled upon in a court of law).

[216] *See generally* Mayer-Schönberger & Wong, *supra* note 18, at 9-10 (discussing fanfiction turned into published fiction).

[217] *See id.* at 9 (discussing the success story of the novel *Fifty Shades of Grey*).

noncommercial fanfiction has had some trouble[218]—and these issues highlight how the fanfiction community has established its own norms that mirror legal concepts.[219]

A. The Legal Battles over Fanfiction

In the past, copyright holders or other people deserving of fanfiction-based profit only targeted fanfiction in the legal arena when it was commercialized.[220] For example, a woman in Arlington, Texas, won a lawsuit against her business partner concerning *Fifty Shades of Grey*, because she was entitled royalties from the publication of the reworked *Twilight* fanfiction as their joint e-publishing company first published the novels.[221] *Fifty Shades of Grey* was first published when this company was still an online blog "as a space for people to write fan fiction and discuss books."[222] A year later, the blog became an independent publishing company and published *Fifty Shades of Grey* as an e-book and print-on-demand book, selling 250,000 copies.[223] While the author of *Fifty Shades of Grey*, E.L. James, worked to scrub her professional novel of all traces of fanfiction,[224] the two series have many similarities: both take place in rainy, gloomy towns in Washington state, the female characters almost get run over, and the male leads initially push the female leads away before deciding that they just cannot stay away.[225] The original fanfiction version of *Fifty Shades* was called *Master of the Universe*, featured the two main characters of *Twilight*, human Bella Swan as a young, virgin college graduate and vampire Edward Cullen, as a billionaire with secret sexual desires—the same plot and characterizations Anna and Christian in *Fifty Shades*.[226]

[218] *See* Tushnet, *supra* note 15, at 141 ("Some copyright owners have . . . taken an aggressive stance against fan creativity, sending cease-and-desist letters threatening lawsuits to fan websites."). *See infra* Section II.A for further discussion on fanfiction troubles.

[219] *See id.* at 143 ("[F]an concepts of what makes their creative works acceptable, not immoral, or not unfair resemble American copyright law's fair use principles.").

[220] *See* Cathy Young, *Fan Fiction Has a Place in Literature*, Boston Globe (Aug. 19, 2012), http://www.bostonglobe.com/opinion/2012/08/18/young/4TrgBkw4BhNPnEzXKh803I/story.html (calling the commercialization of fanfiction "mainstreaming" and noting that fan communities believe that fanfiction should not be commercialized to "preserve[] the nature of fan works as a labor of love and averts copyright infringement claims").

[221] Amanda Holpuch, *Fifty Shades of Grey Publisher Ordered to Pay $11.5m in Royalties to Teacher*, The Guardian (Jan. 29, 2016), https://www.theguardian.com/us-news/2016/jan/29/fifty-shades-of-grey-texas-teacher-jennifer-pedroza-royalties-writers-coffee-shop-amanda-hayward.

[222] *Id.*

[223] *Id.* Random House made a deal with this e-publishing company, called The Writer's Coffee Shop, to publish the books in 2012. *Id.*

[224] *Fifty Shades—A Copy of Twilight or Not?*, The Passive Voice (May 23, 2012), http://www.thepassivevoice.com/2012/05/fifty-shades-a-copy-of-twilight-or-not ("The names are changed from the original alternative universe fan fiction (AU) and a few details such as eye color and hair color, but the text of 50 Shades is largely that which was in the original fan fiction, Master of the Universe.").

[225] For a list of more comparisons, see Taylor Ferber, *26 Ways 'Fifty Shades of Grey' Is Actually 'Twilight,' Minus the Vampires*, VH1 News (Mar. 1, 2015), http://www.vh1.com/news/89754/fifty-shades-of-grey-twilight-are-the-same-movie-2/. Interestingly, the author of the *Twilight* series, Stephenie Meyer, gave her blessing on the smutty derivative series. *See* Young, *supra* note 219 (discussing how Meyer responded to the series saying "'good on her,'" even though *50 Shades of Grey* "flouts Meyer's own conservative values").

[226] *See Fifty Shades of Grey by E.L. James Primer* (*and Books Likes 50 Shades*), Dear Author (Mar. 7, 2012), http://dearauthor.com/features/beyond-the-book/50-shades-of-grey-by-e-l-james-primer-and-books-you-might-like-if-you-liked-fifty-shades (featuring a comparison of the beginning of *Master of the Universe* and

Cassie Claire, the plagiarist of the *Harry Potter* fandom who now publishes professionally under the name Cassandra Clare, reimagined a new series out of another fanfiction from the plagiarism debacle; this series became the subject of an infringement lawsuit brought by Sherrilyn Kenyon.[227] Kenyon wrote a series called *The Dark Hunter* and correspondingly owns the trademark "Dark-Hunter."[228] Kenyon brought suit against Claire, alleging that Claire copied parts of her series and that Claire's Shadowhunters series was unlawfully similar to *The Dark Hunter*.[229] In Kenyon's series, Dark Hunters are immortal warriors created by Greek goddess Artemis to hunt daimons, dark creatures created by Apollo that hunt down humans for their souls. Kenyon alleged that some readers had alerted her that Claire had used the term "darkhunter" in her work, after which Claire changed the word to "shadowhunters" and scrubbed from her title the words hunter, dark, and shadow, instead calling the series *The Mortal Instruments: City of Bones*.[230] Shadowhunters are humans with angel blood that patrol the world to protect humans from demons and monsters. The suit proved to be baseless because many of the similarities were *scenes à faire*, which are sequences of events that necessarily follow from a common theme,[231] such as objects imbued with magical properties.[232]

While these cases involved published, commericalized works, some authors go after the actual fanfiction writers, and they are generally unsuccessful.[233] For instance, J.K. Rowling, upon discovering mature and explicit fanfiction featuring her characters—especially those fanfictions that contained sexual relations between students and teachers, incest, or dubious consent between characters—started serving cease-and-desist letters to fanfiction writers, some of whom were minors.[234] These types of objections from authors are founded in

Twilight, where the opening paragraphs are almost exactly the same).

[227] *See* Isabella Biedenharn, *Cassandra Clare Sued for Copyright Infringement over Shadowhunter Series*, Entertainment Weekly, Feb. 10, 2016, http://ew.com/article/2016/02/10/cassandra-clare-shadowhunters-lawsuit.

[228] *Id.* Kenyon alleged that she had trademark rights in certain marks such as "Dark-Hunter," and that she had produced several television commercials and videos, including on the website darkhunter.tv. Kenyon v. Clare, No. 3:16-CV-00191, 2016 WL 6995661, at *1 (M.D. Tenn. Nov. 29, 2016). She also alleged that the confusion was such that even Clare's publisher printed 100,000 copies of Clare's books that referred to the characters as Darkhunters, Kenyon's term, instead of Shadowhunters, Clare's terms. *Id.* at *1. The court found that Clare did not provide evidence that there was no confusion, and refused to dismiss on this ground. *Id.* at *5.

[229] *See* Biedenharn, *supra* note 226. Kenyon sought damages for "lost profits based on similarities" between Clare's and Kenyon's series. *Id.*

[230] *See id.* Kenyon alleged other similarities between the two books, including that both series are "'about an elite band of warriors that must protect the human world from the unseen paranormal threat . . . preserve the balance between good and evil, [and protect] humans from being consumed or enslaved.'" *Id.*

[231] *See* Reyher v. Children's Television Workshop, 533 F.2d 87, 91 (2d Cir. 1976) (finding that a reunion with parents in a children's story about a lost child is common to the theme or a *scene à faire*).

[232] *See id.* (showing a statement from Clare's lawyer, who said that "some ideas Kenyon claims Clare stole, like having 'normal objects [. . .] imbued with magical properties such as a cup, a sword, and a mirror,' have long been part of the human storytelling process"). Indeed, one of the most famous examples of a magic mirror is in the fairytale *Snow White*, which originally appeared the nineteenth century Brothers' Grimm collection. *See* Brothers Grimm, *Snow White*, *in* The Classic Fairytales 83, 83 (Maria Tatar ed., 1999).

[233] *See* Peaslee, *supra* note 12, at 200-01 (noting that with the rise of the internet, authors sent cease-and-desist letters to fans and website operators but that overall, the letters "[did] not seem to curb the increased popularity of fan fiction, nor have they led to any court cases").

[234] *See* Tresca, *supra* note 13, at 40 (describing different characteristics of erotic *Harry Potter* fanfiction). Tresca also notes that some fanfiction writers justify their erotica out of the *Harry Potter* series themselves, where Rowling has left "subtle clues to darker sexual intentions within the work." *Id.* at 41.

moral rights, the idea that an author can bring suit because he or she is "personally offended" by how fan writers use their characters.[235] Rowling's cease-and-desist letter to the hosting website demanded that it stop the publication of sexually explicit fanfiction and "fanart" that depicted characters from the *Harry Potter* series in sexual situations in an effort to protect the integrity of the series and its young, impressionable fan base.[236] This created bad publicity for Rowling and alienated some fans. Ultimately, she ended up giving a blessing to fanfiction based on her works.[237]

Authors are not the only people who can object to fanfiction. In fact, sometimes it is the fans themselves leading the charge against fanfiction that breaks the established social norms of the community.

B. The Regulatory Structure of the Fanfiction Community and Its Social Norms

As seen in the Claire debacle, where readers noticed Claire's infringement, the fanfiction community can and does self-regulate, and this is due to various social norms that exist unwritten within the community.[238] For example, numerous professional authors have spoken out against fanfiction.[239] Anne Rice, author of the famous book *Interview with a Vampire*, has denounced all fanfiction based on her work.[240] In response, FanFiction.Net, in respect of Rice's wishes, does not provide a space on its website for any fanfiction based on Rice's work.[241]

According to Steven Hetcher, an expert of social norms in the law, there are already three norms that regulate fanfiction: (1) socially acceptable and somewhat-encouraged amateur remix (work created by amateurs in noncommercial contexts deemed acceptable by society); (2) the norm against commercializing fanfiction; and (3) competing norms of copyright owners tolerating noncommercial use of the original works.[242] Hetcher cautions that norms

[235] Montano, *supra* 72, at 704 (discussing arguments against the transformative nature of fanfiction). Moral rights are codified in the Berne Convention and are independent from an author's economic rights. Berne Convention for the Protection of Literary and Artistic Works, September 9, 1886, art. 6bis, S. Treaty Doc. No 27, 99th Cong., 2d Sess. 41 (1986). These rights, which exist even after the author transfers these rights, are: (1) "the right to claim authorship of the work," and (2) the right "to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation." *Id.*

[236] *See* Tresca, *supra* note 13, at 36 (discussing J.K. Rowling's attempted legal action against adult-oriented *Harry Potter* fanfiction).

[237] *See* Lantagne, *supra* note 33, at 307-08 ("J.K. Rowling . . . permit[s] fanfiction based on [her] creations.").

[238] *See* Fiesler, *supra* note 180, at 753-54 (discussing how the fanfiction writers deal with plagiarism within the community).

[239] *See* McCardle, *supra* note 12, at 441 (discussing the clash between fanfiction writers and copyright owners, including the "first instance of a recognized clash" between the copyright holder to the television show *Star Trek* and publishers of a *Star Trek* fanzine); Peaslee, *supra* note 12, at 211 (noting that implied consent can be a defense available to fanfiction writers).

[240] *See* McCardle, *supra* note 12, at 449-50 (noting that Anne Rice belongs on an extreme side of the spectrum copyright holder views as she "expressly forbid[s] the writing of fan fiction and [tries] to quash it").

[241] *See FanFiction.Net*, *supra* note 56. The website does provide a space for fanfiction of the *Harry Potter* series as JK Rowling has verbally endorsed fanfiction. *See* Lantagne, *supra* note 33, at 307-08 (discussing how J.K. Rowling permits fanfiction based on her work).

[242] *See* Hetcher, *supra* note 31, at 1880 (stating that these three social norms "directly impact creators of fan-

should be viewed as social practices because the community conforms to them for rational reasons.[243] Typically, these kinds of social practices also have sanctions that are prescribed from peer to peer.[244] Actors within the community, ranging from fanfiction writers to some authors, accept amateur use of commercial copyrighted works as a social norm if it is done in noncommercial contexts.[245] This norm goes hand-in-hand with Hetcher's second norm—the norm against seeking commercial gain—generally because the community fears that commercializing fanfiction will bring unwelcome, possibly legal, attention to the community.[246] The community has agreed that fanfiction should be noncommercial and imposes sanctions on members who deviate from this norm.[247] These sanctions include public ridicule, condemnation, and even banishment from the fandom and fanfiction websites.[248] Casey Fiesler notes that the fallout from Cassie Claire's plagiarism debacle lasted more than five years and continued to haunt her, even throughout her professional publishing career.[249]

In effect, the main norms within the community are twofold: (1) fanfiction communities generally do not commercialize their work; and (2) all community members understand that fanfiction writers do not intend to infringe the original content, but fanfiction writers do not own anything other than what is their unique creation.[250] Norms such as these are understood within the fan communities, and fans enforce these norms themselves.[251] Writers of sexually explicit *Harry Potter* fanfiction claim "that they 'regularly police each other for abuses of interpretative license, but . . . also see themselves as legitimate guardians of [the *Harry Potter* series].'"[252]

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fiction").

[243] *See id.* at 1877 ("It is important to see that it is behavior that matters in the end because that is what produces utility or disutility, and it is the behavior, or rather the collection of conforming behaviors, that has strategic structures.").

[244] *See id.* ("[N]orms qua patterns of social behavior typically have sanctions attached, and conformity to them is typically prescribed by one person to another.").

[245] *See id.* at 1880 (discussing that, when amateurs in noncommercial contexts use commercial copyright-protected works as elements in works of fanfiction, this "is deemed acceptable by a substantial number of relevant actors, as well as by society in general, to the extent that such a view may be discerned at all").

[246] *See id.* at 1885 ("[T]here is a fear in this tightly knit community [of fanfiction writers] that by seeking to commercialize their work, authors will draw unwelcome attention to the entire community . . . . [T]he community's fear of attention does not necessarily mean that it is widely believed that the use made of copyrighted works is infringement. Even if most such works are not infringements, no one wants to be sued.").

[247] *See* Fiesler, *supra* note 180, at 749 (discussing previous profit-making from fanfiction and the fallout thereof); Tushnet, *supra* note 15, at 142-43 ("Fans condemn deviations from this norm [of freely distributing fanfiction], such as attempts to self-publish fan fiction for profit, even before copyright owners can react.").

[248] *See* Fiesler, *supra* note 180, at 750 ("[M]embers of the community have a built-in platform and audience for imposing the 'slight and sometimes forceful sanctions' of the community's norms.").

[249] *See id.* at 753 (discussing sanctions brought against deviators from the established norms of the community). Even with a name change, fans continue to mention Claire's plagiarism scandal with every new original novel published. *Id.* at 753 n. 152. Fiesler notes that in a Google Search of Cassandra Clare, the plagiarism scandal turns up on the first page of search results. *See id.*

[250] *See id.* at 741 (discussing social norms for user-generated content). Such unique creations include "Original Characters" or OCs, which are characters not present in canon and are developed by the writer. *Fanfiction Terminolgy*, *supra* note 12 (defining "OC").

[251] *See* Tresca, *supra* note 13, at 41 (discussing claims made by these writers in defense of their adult-oriented content).

[252] *Id.* (quoting Rosemary Coombe, *Author/izing the Celebrity: Publicity Rights, Postmodern Politics, and Unauthorized Genders*, 365.10 Cardozo Arts & Ent. L.J. 371, 388 (1992)). Most user-generated content, even outside of fanfiction communities, follow norms, such as the expectation that the work is created outside of professional

Communities that struggle with the legality of their work have designed and enacted best practices in the past.[253] The most prominent example is the Statement of Best Practices in Fair Use (Statement of Best Practices) for documentary filmmakers, which draws on ethical principles or, in other words, social norms.[254] Documentary filmmakers are constrained in their artistic work by the requirement to clear rights or license copyrighted material for their films, a process that can be lengthy and costly.[255] Documentarians found themselves restricted by the copyright laws surrounding the materials that they wished to use in their work, and these issues were unique to documentarians from creators in other arts and disciplines.[256] Similar to fanfiction, documentary films are both protected by copyright and use copyrighted material.[257] Within the industry, documentary filmmakers adhere to social norms now enumerated in the Statement of Best Practices, such as appropriate applications of fair use for the betterment of the business and their works.[258] Thus, through legal and industry collaboration, the Center for Media and Social Impact adapted copyright law and fair-use precedent to create best practices, which are organized to specifically address the situations documentary filmmakers face.[259] For example, the best practices address how a documentary filmmaker may adhere to fair use when employing copyrighted material to socially, politically, or culturally critique that material—a fair use enumerated in the preamble of Section 107 of the Copyright Act.[260]

Documentary filmmaking is not the only industry that employs best practices; the various Councils of the American Apparel and Footwear Association (AAFA) also provide best practices for its members.[261] The AAFA is an association that represents more than 1,000 name brands, retailers, and manufacturers.[262] The AAFA is a public policy provider and political voice of its industry.[263] The Product Safety Council provides a space for members to discuss and learn about regulations that affect its industry, specifically in product safety

routines and practices, rendering it non-commercial. *See generally* Fiesler, *supra* note 180 (discussing the norms of user-generated content and fanfiction therein).

[253] *See generally Documentary Filmmakers' Statement of Best Practices in Fair Use*, Center for Media and Social Impact (Nov. 18, 2005), http://cmsimpact.org/wp-content/uploads/2016/01/Documentary-Filmmakers.pdf.

[254] *See id.* at 1. The Statement also describes actual practices of documentary filmmakers. *See id.* at 3.

[255] *See id.* at 1.

[256] *See id.* ("[D]ocumentary filmmakers should have the same kind of access to copyrighted materials that is enjoyed by cultural and historical critics who work in print media and by news broadcasters.").

[257] *See id.* at 1 (noting that, even while using copyrighted work, documentary filmmakers "are themselves copyright holders," and their "whole businesses depend on the willingness of others to honor their claims as copyright holders").

[258] *See id.*

[259] *See id.* at 3 (describing how the best practices are organized around four classes of situations that documentary filmmakers confront regularly in practice).

[260] *See id.* at 4.

[261] *See Product Safety Council*, Am. Apparel & Footwear Ass'n, https://www.aafaglobal.org/AAFA/Committee_Pages/Product_Safety_Council.aspx (last visited Feb. 14, 2018); *Social Responsibility Committee*, Am. Apparel & Footwear Ass'n, https://www.aafaglobal.org/AAFA/Committee_Pages/Social_Responsibility_Committee.aspx (last visited Feb. 14, 2018).

[262] *See Who We Are*, Am. Apparel & Footwear Ass'n, https://www.aafaglobal.org/AAFA/About/Who_We_Are/AAFA/About/Who_We_Are.aspx?hkey=14341662-827d-43ae-8a05-c2979af1933b (last visited Feb. 14, 2018).

[263] *See id.* ("AAFA is the trusted public policy and political voice of the apparel and footwear industry.").

and chemical management.[264] Members also meet periodically to share best practices of the industry and work together to discuss relevant topics.[265] The Social Responsibility Committee studies and identifies global social responsibility issues that affect its industry.[266] The Social Responsibility Committee not only develops best practices but also develops a plan of action that binds the members to specific issues.[267] Membership to the AAFA does not just include the companies or organizations that join the association; it also extends to all employees within the organizations.[268]

Thus, it is possible both to enumerate the social norms within a community, respond to problems within an industry, and to codify them in a statement of best practices.[269] These best practices are only useful, however, if the entire community adheres to them, even when there is no regulated enforcement option.[270] Nevertheless, even a self-regulated community, like the fanfiction community, could benefit from a creation of best practices.[271]

IV. Fanfiction Best Practices

The fanfiction community should follow the example of other communities and combine both legal and community minds to codify its already existing social norms to create a system of best practices that implements the norms, thereby creating a regulatory system to handle plagiarism.[272] Best practices would be incredibly useful to the fanfiction community and can be implemented through the creation of an association.[273] The enforcement of these norms would be in a manner similar to the notice-and-takedown procedures of the DMCA and eCommerce Directive.[274] Because these best practices would apply only within the fanfiction community and given the community's history of self-regulation, there is no need to wonder about enforcement by original content owners and works offending moral rights.[275] The real issue with best practices will stem from the problem of how to actually implement and regulate them—some ini-

[264] *See Product Safety Council*, *supra* note 260 (discussing the role of the Product Safety Council of the American Apparel & Footwear Association).

[265] *See id.* ("The Product Safety Council also includes four working groups that focus on relevant topics that impact the industry.").

[266] *See Social Responsibility Council*, *supra* note 260 (discussing the responsibilities of the Social Responsibility Committee of the American Apparel & Footwear Association).

[267] *See id.* (discussing the role of the Social Responsibility Council in developing best practices for the Apparel and Footwear Association).

[268] *See Membership*, Am. Apparel & Footwear Ass'n, https://www.aafaglobal.org/AAFA/Access/Membership/AAFA/Membership.aspx?hkey=61183698-a89d-4f98-bcf0-397b86cf2d3f (last visited Feb. 14, 2018).

[269] *See, e.g.*, *Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252, at 3; *Product Safety Council*, *supra* note 260; *Social Responsibility Council*, *supra* note 260.

[270] *See Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252, at 1.

[271] *See generally* Fiesler, *supra* note 180 (discussing the norms of User-Generated Content and fanfiction therein).

[272] *See, e.g.*, Documentary Filmmakers' Statement of Best Practices in Fair Use, *supra* note 252.

[273] There are already associations within the fanfiction community working to help the community progress. *See, e.g.*, *About the OTW*, *supra* note 61.

[274] *See* 17 U.S.C. § 512(c)(3); eCommerce Directive, art. 14(1)(b). For more discussion on these procedures, see *infra* Part II.

[275] *See* Fiesler, *supra* note 180, at 746 (discussing community self-regulation).

tiative must come from inside the community to realize the best practices association.[276]

A. Why Does the Community Need Best Practices and How Should They Be Implemented?

Just because fanfiction is noncommercial and is based on original content does not mean that its writers do not deserve protection within its community;[277] therefore, implementing best practices will help writers solve their plagiarism issues and protect their own work.[278] For example, if LeilaSecretSmith's *Harry Potter* fanfiction, which had placed *Harry Potter* characters into the world of *Lord of the Rings*, was plagiarized by another fanfiction writer who copy-pasted her fanfiction onto another website and changed the names so that—instead of Harry, Ron, and Hermoine—Katniss, Gale, and Peeta from *The Hunger Games* were exploring the world of *Lord of the Rings*, then LeilaSecretSmith should be entitled to force the removal of the plagiarism through the association.[279]

An association is needed because of the sheer volume of webpages that host fanfiction, as there are almost 1,000 noted hosting websites.[280] Thus, for the sake of efficiency, there must be a single entity to unite them under the best practices.[281] Outsiders of the community would still be able to access whatever remedies are afforded to them through current means, but an association would be particularly valuable to those within the community who are not necessarily entitled to those means.[282] The fanfiction community is already self-regulated; therefore, implementing a system of best practices just enumerates and solidifies the norms already there.[283]

The nature of the fanfiction community makes it difficult for original content rights holders or other fanfiction writers to bring suits against individuals within the community.[284] It is also largely anonymous, which would only

[276] *See infra* Section IV.E (discussing how, and under what circumstances, best practices and an association could be created).

[277] Fanfiction writers themselves are entitled to their own copyright, especially under the 1976 revision of the Copyright Act, which made it possible to obtain a copyright "in any work 'fixed in a tangible medium of expression.'" McCardle, *supra* note 12, at 439.

[278] *See Plagiarism*, *supra* note 25 (discussing the prevalence of plagiarism within the community).

[279] *See* LeilaSecretSmith, *supra* note 212, which is a real fanfiction but the alleged plagiarism is hypothetical as an exemplar of how a best practices association may regulate plagiarism within the fanfiction community.

[280] *See Category*, Fanlore.org, www.fanlore.org/wiki/Category:Websites (last visited Feb. 14, 2018) (displaying a list of websites that host fanfiction).

[281] *See id.* Given that there are more than 1,000 websites, it would be inefficient to allow each hosting website to enforce its own rule, especially since an association allows for uniform enforcement. *Id.*

[282] *See* Montano, *supra* note 72, at 694 ("It is an easy task for authors to send a cease & desist letter to a website and essentially bully a fan fiction author into taking down her work, regardless of whether the fan author would have a viable Fair Use Defense in court."). *See also* Peterson, *supra* note 13, at 239 (discussing how fanfiction can be regulated from outside on the community through the DMCA). After all, ISPs remain liable under the DMCA, so they would not be able to opt-out of the DMCA process. *Id.* However, people within the communities are generally unable to afford legal efforts for a potentially infringing work. *Id.* at 222.

[283] *See generally* Hetcher, *supra* note 31 (outlining three norms within the fanfiction community that are self-regulated).

[284] *See generally* Tussey, *supra* note 35, at 1160 n.99 ("Users may, of course, employ anonymous 'handles' . . . to shield themselves from discovery.").

allow remedies based on usernames, not legal names.[285] Even if an original content rights holder or fanfiction writer would want to hold an anonymous individual personally and financially liable, they would have to go through the entire process of either subpoenaing a website or as a last resort, filing a suit based on *in rem* jurisdiction, allowing the court to adjudicate rights based on the piece of property—the website domain.[286] These individuals could be outside of the United States, generally then unable to answer a suit within the United States.[287] Also, going after single plaintiffs is costly and inefficient.[288] Similarly, members within the community have difficulty protecting their work because, since they do not threaten legal action, they are required instead to mobilize the community around them to implement sanctions prescribed by unwritten norms—namely public ridicule and condemnation.[289] This may be difficult to do for a writer who does not have legions of fans to help track down the plagiarist and threaten community sanctions against them.[290] Moreover, there is no guarantee that posting on plagiarism report boards like the one on FanFiction.Net will remove the plagiarized work or stop repeat infringers.[291] The best practices should include provisions that fill in the gaps of the current removal procedures by allowing more efficient enforcement than what currently occurs.

B. What Should Be Included in the Best Practices?

The fanfiction community already has some norms that are universally accepted within it—certain rules that everyone follows and is expected to follow.[292] The best practices should be guiding principles for members of the association that suggest how they might help their creators best protect their work, and the best practices should also build upon the current norms that exist in the fanfiction community.[293] In effect, the best practices would codify the norms already followed by the fanfiction community, specifically the ones regarding plagiarism.[294] Additionally, the best practices would set out the regulatory structure, based on notice and takedown, which would be available for fanfiction writers whose stories have been plagiarized.[295] This new method would be more efficient and fair than the current method—enforce-

[285] *See generally id.*

[286] *See* Devanney, *supra* note 138 (discussing internet subpoena procedures); Misterovich, *supra* note 138 (discussing in rem jurisdiction for domain names); 15 U.S.C. § 1125(d)(2)(A) (2012).

[287] *See* FFN Research, *supra* note 138 (noting that accounts from 173 countries have been opened on FanFiction.Net).

[288] *See* Peterson, *supra* note 14, at 222 (discussing how most fanfiction writers cannot afford a legal battle).

[289] *See* Fiesler, *supra* note 180, at 753-54 (discussing how the fanfiction writers deal with plagiarism within the community).

[290] *See id.* at 753 (noting that one blogger used a force of 2,000 fan readers to track down a plagiarist).

[291] *See generally The Anti-Plagiarism Investigation Reports*, *supra* note 175 (showing a message board of plagiarized stories).

[292] *See* Hetcher, *supra* note 31, at 1880 (outlining three norms: socially acceptable and somewhat-encouraged amateur remix, no commercializing of fanfiction, owners' tolerance of non-commercial use).

[293] *See* Fiesler, *supra* note 180, at 746 ("[M]embers [of fandoms] protect themselves by operating under a specific set of self-regulating guidelines–their own social norms.").

[294] *See* Fiesler, *supra* note 180, at 753 ("Plagiarism is also taken very serious when it occurs strictly within the community.").

[295] For a discussion on legal frameworks of the notice-and-takedown procedures, see *supra* Part II.

ment through posting links in hopes that other readers will also mobilize into action against the plagiarist.[296]

1. *How Could Best Practices Be Implemented and Enforced?*

In analyzing the example of the documentary filmmakers who banded together to create a best practices document for the filmmaker community, the fanfiction best practices would require a little more than simply the creation of the best practices themselves.[297] Fanfiction best practices cannot just be a general document for reference because fanfiction is both self-regulated and collaborative.[298] Fanfiction writers are continuously working within the fandom; thus, should their work be plagiarized, they need to be able to act quickly on the website containing the plagiarized work.[299] There must be some kind of larger entity that regulates, adapts, and enforces the best practices similar to how the Center for Media and Social Impact oversees the documentary filmmakers' Statement of Best Practices.[300] However, unlike the CMSI, which does not enforce its best practices because fair use cases in documentaries are judicially reviewed,[301] this fanfiction entity must be able to enforce its best practices because fanfiction is unlikely to be adjudicated in a court.[302] Thus, there should be an association that implements the best practices and facilitates their enforcement based on examples of existing business models.[303] One example of a business model could be eBay's VeRO program, which allows rights holders to submit notice-and-takedown requests to eBay directly and simultaneously indemnifies eBay from secondary liability.[304] Just as eBay allows people to expeditiously use this system by registering with the company, the best practices association would require websites that host fanfiction—and potentially plagiarism—to join the

[296] *See id.* at 753 (discussing sanctions brought against deviators from the established norms of the community); Hetcher, *supra* note 31, at 1877 (discussing peer-to-peer sanctions).

[297] *See Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252 for an example of best practices.

[298] *See* Fiesler, *supra* note 180, at 746 (discussing self-regulation and social norms); Hetcher, *supra* note 31, at 1934 (discussing social norms in remix and fanfiction communities); Tresca, *supra* note 13, at 41 (discussing that fanfiction writers police each other regularly); Busse and Hellekson, *supra* note 1, at 5-9 (discussing the collaborative nature of fanfiction as writers, editors, and fans constantly add to each other's work as an ever-evolving process).

[299] *See* Busse and Hellekson, *supra* note 1, at 5-9 (discussing the constantly updating nature of content in fan communities).

[300] While the CMSI does not enforce its best practices, an association regulating fanfiction would need enforcement capabilities if it is to act under similar practices as the DMCA and eCommerce directive, just as governments enforce those statutes. *See generally e.g.* 17 U.S.C. § 501 (1976) (saying that infringers under this title, including the DMCA, can be brought into a court of law).

[301] *See, e.g.*, Monster Commc'ns v. Turner Broad., 935 F. Supp. 490, 491 (S.D.N.Y. 1996) (finding that plaintiff's documentary was fair use due to the public interest in the documentary subject and because the allegedly infringing footage was not the focus of the secondary work); Elvis Presley Enters., Inc. v. Passport Video, 349 F.3d 622, 631 (9th Cir. 2003) (finding that a documentary producer's unlicensed use of film clips was not fair use because the clips used were not transformative, as both the original and the secondary work had inherent entertainment value).

[302] *See* Peterson, *supra* note 13, at 227 (noting that there is not legal precedent for fan content).

[303] *See* Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93, 99 (2d Cir. 2010) (describing eBay's business model to facilitate enforcement of rights holders against infringers).

[304] *See id.* (noting that eBay's VeRO systems requires rights holders to join the program to access the benefits of expeditious removal of infringing products).

association to take part in the best practices.[305] Associated websites could then subject their users to the best practices via terms and conditions, similar to how eBay and its users are subject to the DMCA under United States law.[306]

The notice-and-takedown procedure through the association would allow fanfiction writers, as creative content generators themselves, to be able to take advantage of the best practices simply by being part of an associated website and agreeing to its terms.[307] For example, if FanFiction.Net were to be part of this association and LeilaSecretSmith realized that her fanfiction had been reposted in the *Lord of The Rings* section of the website, she could submit a notice for takedown to FanFiction.Net. In her notice, she would provide a link to her original fanfiction, a link to the unauthorized fanfiction, and proof that she published her story first, similar to the notice requirement of the DMCA.[308] After providing a notice, she could then access remedies similar to those available under the DMCA.[309]

2. *Remedies to Be Implemented for Plagiarized Fanfiction Writers*

The most efficient way of removing plagiarized work is to model the remedies available after notice-and-takedown procedures.[310] For example, under the DMCA, rights holders submit to the ISP a written notice that contains the signature of the person whose rights have been infringed, identification of their copyrighted work, identification of the infringing material, contact information, and a statement of good-faith basis of claiming infringement.[311] The proposed best practices should incorporate this type of notice requirement within the association, allowing for a more regulated method of trying to remove plagiarism.[312] The DMCA notice requirements would have to be amended to be more specific to instances of plagiarism and the situation of fanfiction writers, as fanfiction writers do not enjoy the same protection under law as the rights holders who take advantage of the DMCA.[313] Thus, just as the remedy under notice and takedown of the DMCA is removal of the infringing content, plagiarized fanfiction work should be removed from the hosting website.[314] For example, LeilaSecretSmith's notification would trigger the removal of the plagiarized fanfiction, and the plagiarist could send a counter notification that the

[305] *See id.*

[306] *See id.* This practice is similar to how governments, after signing a treaty, implement the treaty into its laws via statute, and, by enacting the statute, bind its citizens to that law.

[307] *See generally 9 Questions*, *supra* note 170 (discussing YouTube's Content ID program, which is available to all users and outsiders of the YouTube community).

[308] *See* § 512(c)(3) (outlining the requirements of proper notice). Requirements under the DMCA include a signature, an identification of the copyrighted work, identification of the material claimed to be infringing, contact information, and a statement of a good-faith belief of unauthorized use. *Id.*

[309] See generally Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93 (2d Cir. 2010), and *9 Questions*, *supra* note 170, for examples of notice-and-takedown procedures that have been implemented under the DMCA.

[310] *See* § 512(c)(3); eCommerce Directive, art. 14(1)(b).

[311] *See* § 512(c)(3). The eCommerce Directive has similar requirements. eCommerce Directive, art. 1 14(1)(b).

[312] *See* Fiesler, *supra* note 180, at 746 ("[M]embers [of fandoms] protect themselves by operating under a specific set of self-regulating gu*ide*lines–their own social norms.").

[313] *See id.* at 738 (noting how the status of fanfiction has never been ruled upon in a court of law).

[314] *See 9 Questions*, *supra* note 170 (discussing the removal of infringing content on YouTube).

plagiarized content has been removed or that it is not plagiarism at all.[315] If the plagiarist does not remove the plagiarism, then the ISP may unilaterally remove the fanfiction, since notice was given.

C. How Could This Enforcement Work in Reality?

Normally, there can be issues with regulation and jurisdiction when enforcing notice and takedown online.[316] Fanfiction is worldwide,[317] and each country has its own method of enforcing copyright law.[318] It is for this reason that the best practices would look to two different bodies of law, American and European, which have similar procedures for dealing with infringing content.[319] Jurisdiction issues are also negated because enforcement is not country-based but rather through an association regulating enforcement methods undertaken by a hosting website.[320] The association's duty would be to create and impose the best practices upon joined websites that enforce the notice-and-takedown procedures.[321]

After joining the association, websites would also bind their users to the best practices via terms and conditions and enforce them by using notice-and-takedown procedures similar to the DMCA and eCommerce Directive.[322] Upon realizing their fanfiction has been plagiarized, a writer could submit a notice of plagiarism to the hosting website; this notice would be similar to those outlined in the DMCA but should also require more than a good-faith basis for a claim.[323] It should also include proof of plagiarism, easily shown by comparing the original and plagiarized fanfiction.[324] In response, the alleged plagiarist should be able to submit a counter notification to prove that they did not plagiarize the content to be adjudicated by the website.[325] This will allow fanfiction writers to have control over their work and to access remedies for plagiarism without involving attorneys and their fees but still protecting their copyrights.[326]

Since fanfiction is world-wide, and the internet spans multiple jurisdictions,

[315] *See* Peterson, *supra* note 14, at 242 ("People who have their content taken down have the option to file a counter-notification . . . where they can assert that the DMCA takedown request is invalid.").

[316] *See* Devanney, *supra* note 138 (discussing internet subpoena procedures); Misterovich, *supra* note 138 (discussing in rem jurisdiction for domain names).

[317] *See* FFN Research, *supra* note 138 (noting that accounts from 173 countries have been opened on FanFiction.Net).

[318] *See* Peaslee, *supra* note 69, at 201 ("When the original work is from one country, the fan-writer in another, and the fan fiction is on the Internet, it creates a unique conundrum for both the rights owners and the fan-writers in attempting to determine the legality of the fan-writers' actions and each party's respective rights.").

[319] *See* 17 U.S.C. § 512(c)(3); eCommerce Directive, art. 14(1)(b).

[320] *See* Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93, 99 (2d Cir. 2010) for an example of how an association with enforcement methods has worked in the past with a hosting website, where the VeRO program stands in for the association and eBay is the hosting website.

[321] *See Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252.

[322] *See* 17 U.S.C. § 512(c)(3); eCommerce Directive, art. 14(1)(b).

[323] *See* § 512(c)(3).

[324] *See The Draco Trilogy*, *supra* note 3 (comparing Cassie Claire's fanfiction to the original source content with specific examples of plagiarism).

[325] *See, e.g.*, § 512(c)(3); *9 Questions*, *supra* note 170.

[326] *See* Peterson, *supra* note 14, at 222 (discussing how most fanfiction writers cannot afford a legal battle).

the association would have to be joined by websites on a voluntary basis.[327] Within the fanfiction community, there are already associations that could possibly take on the burden of establishing the association, such as the Organization for Transformative Works.[328] The OTW already examines and supports fanfiction from a legal and academic perspective.[329] It is also accessible worldwide and confronts the issues of jurisdiction for its fanfiction-hosting website, the Archive of Our Own.[330] As well, the OTW is a non-profit with a transparent board of directors.[331] Moreover, unlike in *eBay*, where eBay both created and regulated the association,[332] the actual regulation of fanfiction would be the duty of the websites that have voluntarily joined the association, similar to how YouTube's Content ID program regulates content on YouTube.[333] In this way, the association would act similarly to the American Apparel and Footwear Association, which sets out best practices that allows members of the AAFA to regulate its own practices.[334] The fanfiction association would set out the best practices to which member websites would hold the fanfiction writers.[335] In this way, it would be FanFiction.Net that would receive and respond to LeilaSecretSmith's notice of plagiarism based on the rules of what qualifies for notice and takedown, as set out by the association, such as rules for what information the notice must have to be valid.[336]

D. What Qualifies for Notice and Takedown and How Do Moral Rights Play Out in This?

The DMCA requires that the person sending the notice provide a statement containing a good-faith reason why the material at issue is indeed infringing or violating some law.[337] Some authors may look to the DMCA or the eCommerce Directive as a legal venue to vindicate their moral rights.[338] Author J.K. Rowling threatened legal action via a cease-and-desist letter against sexually explicit fanfiction as an attempt to enforce the moral right that creators should be able

[327] *See* FFN Research, *supra* note 138 (noting that accounts from 173 countries have been opened on FanFiction.Net).

[328] *See About the OTW*, *supra* note 61.

[329] *See Frequently Asked Questions*, *supra* note 61 ("[Their] mission is to be proactive and innovation in protecting and defending [their] work from commercial exploitation and legal challenge, and to preserve [their] fannish economy, values, and way of life.").

[330] *See id.* (providing information on some legal aspects of fair use for those who do not live in the United States).

[331] *See generally Board of Directors*, *supra* note 61.

[332] *See* Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93, 99 (2d Cir. 2010) (describing the creation and regulation of the VeRO system).

[333] *9 Questions*, *supra* note 170 (describing three ways YouTube regulates infringing content).

[334] *See Social Responsibility Council*, *supra* note 260 (discussing the role of the Social Responsibility Council in developing best practices).

[335] *See Tiffany*, 600 F.3d at 98 (describing the eBay's creation of the VeRo program and how it regulates material through the program).

[336] *See generally The Anti-Plagiarism Investigation Reports*, *supra* note 175 (displaying notices of plagiarism already in progress).

[337] *See* 17 U.S.C. § 512(c)(3).

[338] *See* Montano, *supra* note 72, at 704 (discussing moral rights as an argument against the transformative nature of fanfiction).

to censor offensive treatments of their original works.[339] However, this type of complaint is unlikely to occur in the fanfiction community because firstly, sexually explicit work is prevalent and accepted in the community, and secondly, the fanfiction community already has norms in place to protect sexually explicit work.[340] Writers of sexually explicit fanfiction, the kind that would ultimately offend J.K. Rowling's rights, regulate their own work and accept the nature of these types of fanfictions wholeheartedly.[341] Moreover, it is the responsibility of the readers to access content they feel appropriate for themselves; this stems from a social norm within fanfiction: "don't like, don't read."[342] Some websites also have safeguards against explicit content, which readers may choose to access for more appropriate material.[343] FanFiction.Net has a safeguard against explicit content, having already removed explicit content on its website; but, the creativity of fanfiction writers cannot be stifled, and to fill the gap, adultfanfiction.net was created specifically to provide a space for explicit fanfiction.[344] In this sense, even if a fanfiction writer lives in England, where she may enjoy moral rights, these rights do not exist in the fanfiction community because of the already-established norm of accepting sexually explicit or possibly offensive work.[345]

Therefore, the only work that can reasonably be removed through notice and takedown is the kind that would violate analogous rights in the law, such as copyright infringement.[346] If rights holders retain the copyright on their original characters and work, fanfiction writers should likewise have some right to their own creations.[347] Fanfiction writers create original works; certainly, they are re-imaginations of original content, but the fact of a re-imagination implies that some creative aspect has occurred to generate that fanfiction.[348]

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[339] *See* Tresca, *supra* note 13, at 41 (discussing sexually explicit *Harry* Potter fanfiction); Montano, *supra* note 69, at 704 ("The moral rights of original authors arise from the idea that an author should not be forced to be personally offended by the way their characters are used by fan authors.").

[340] *See* Tresca, *supra* note 13, at 41 (discussing actions taken by Rowling against sexually explicit fanfiction).

[341] *See id.* ("For these fanfiction writers, the denial of sexuality for the teenage Harry Potter characters in unrealistic since '[s]exuality is one of teenagers' major concerns and interests.'").

[342] See *Fanfiction Terminolgy*, *supra* note 12, which discusses the policies fanfiction writers adhere to warn others of possibly offensive content, but notes that it is up to the reader to stop reading if they are offended by the material.

> Readers are ultimately the only ones responsible for filtering what they read, so must remain vigilant and stop reading if they come across something they really don't like. You cannot flame [send unjust or hateful remarks to] an author for failing to warn for something when anybody can just hit the Back Button on their browser if they stumble across something that makes them uncomfortable. Warning is a courtesy, a valuable one, used to varying levels among different fandoms but in the end still solely an author's perogrative [sic].

Id.

[343] *FanFiction.Net*, *supra* note 56.

[344] *See id.*

[345] *See* Tresca, *supra* note 13, at 41 (discussing sexually explicit *Harry* Potter fanfiction). Interestingly, Rebecca Tushnet notes that the transformative test protects critics as "creators in their own right only when they draw deeply from a preexisting well." Tushnet, *supra* note 15, at 164. Thus, "[a] court's determination that a work is critically transformative is also a ruling that the original author is partly responsible for the critical work, often content the author finds extremely objectionable." *Id.*

[346] *See* Peterson, *supra* note 13, at 227 (using analogous precedent to evaluate fanfiction).

[347] *See, e.g.*, Arrow Prods. v. Weinstein Co., 44 F. Supp. 3d 359, 371 (S.D.N.Y. 2014) (discussing copyright protection); McCardle, *supra* note 12, at 439 (discussing that fanfiction is entitled to copyright protection).

[348] *See generally* Busse & Hellekson, *supra* note 1 (discussing the work that goes into creating a fanfiction).

Thus, in keeping with norms within the community, the works that apply to the best practices' notice and takedown policy are those works that plagiarize other fanfiction—normally those that change the names and repost in a different fandom.[349] This would allow for codification and enforcement of the norm against plagiarism.[350] LeilaSecretSmith already would rely on existing norms to try and get the plagiarized fanfiction, which used her expression of the idea of transplanting a heroic trio in the world of *Lord of the Rings*, removed, either through FanFiction.Net's forum or by rallying her fans.[351] A formal regulatory process allows for faster and more direct removal, instead of having to hope that the plagiarized fanfiction gets taken down.[352] The requirements of notice would also reduce incidents of independent creation mistaken for plagiarism because the notice submitted would require proof of similarity.[353]

As such, unlike regular copyright issues, this type of enforcement does not require the association to assume that fanfiction is transformative or that it does not offend moral rights.[354] Arguments concerned about the legal status of fanfiction are nullified by the fact that fanfiction writers do not have rights under copyright law because they operate in a gray legal area.[355] While the best practices are based on legal regulatory schemes like the DMCA and the eCommerce Directive, the best practices do not provide legal remedies nor would they be under judicial review.[356] This enforcement simply aids in the already-accepted norm within the community against plagiarism, such as community plagiarism board, which are not subject to judicial review or other legal remedies.[357]

This idea of best practices would be difficult to implement because of current lack of driving force behind this solution, though there are some organizations that may be able to take on such an initiative.[358] It would require legal minds integrated in fandom and fanfiction culture to start the creating the clauses in the practices.[359] Given the collaborative nature of the fanfiction community, it would also be natural to include input from the community.[360] Input from the community is an excellent way to ensure that the best practices codify norms already present and that the best practices are accurate, relevant, and

[349] *See Plagiarism*, *supra* note 25 (discussing how plagiarism that occurs within the fandom is usually when a fan takes an existing fan work and changing character names to portray it as their own).

[350] *See* Fiesler, *supra* note 180, at 753 ("Plagiarism is also taken very serious when it occurs strictly within the community.").

[351] *See id.*; *The Anti-Plagiarism Investigation Reports*, *supra* note 175 (displaying a forum for fans to post about their stolen work).

[352] *See id.* FanFiction.Net has a forum, not a DMCA option like tumblr.com. *See DMCA Copyright Notifications*, *supra* note 163 (showing the DMCA page for tumblr.com). This exemplifies how fanfiction writers do not currently have regulated remedies against plagiarism. *See generally The Anti-Plagiarism Investigation Reports*, *supra* note 175.

[353] *See* 17 U.S.C. § 512(c)(3) (stating that, instead of proof of similarity, a notice requires a statement of good-faith belief of unauthorized use).

[354] *See* Montano, *supra* 72, at 704 (discussing arguments against the legality of fanfiction).

[355] *See* Meyer-Schönberger & Wong, *supra* note 18, at 5 (discussing the uncertainty surrounding the legality of fanfiction).

[356] *See Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252, which does not provide legal remedies.

[357] *See* Fiesler, *supra* note 180, at 753 (discussing the norm against plagiarism).

[358] *See About the OTW*, *supra* note 61, within which there are already some consulting legal minds.

[359] *See id.*

[360] *See generally* Busse & Hellekson, *supra* note 1 (discussing the collaborative nature of fandom).

helpful.[361] Additionally, due to the sheer volume of websites that host fanfiction—and since there are always new ones popping up—opting into the best practices would have to be voluntary.[362] At the very least, the best practices would standardize the conduct of fanfiction writers based on the unspoken norms they already follow.[363]

Conclusion

Participation in the fanfiction community binds members to various norms, and these norms exist to protect the community members, including fanfiction authors.[364] The proposal of an enforceable set of best practices works only to solidify these norms and codify them as best practices that ISPs may opt into by joining an association that is responsible for codifying the notice-and-takedown procedure.[365] ISPs would join the association, thereby binding fanfiction writers to the best practices through the ISP's regular terms and conditions.[366] Best practices would be difficult to implement without the cooperation of the fandom communities and websites that host fanfiction, and the implementation would require the collaboration of the community and legal minds.[367] In creating best practices that are inspired by legal frameworks, fanfiction writers would be able to be proactive in protecting their creative works and continue self-regulating while still maintaining their position outside the legal arena.[368] The best practices are also not meant to impose regulations onto the community but rather to standardize its current practices and provide legal recourse to those who have been plagiarized.[369] Fanfiction writers generate creative works and deserve at least some protection for them; best practices will allow efficient implementation of the community's own social norms, facilitating the writers' ability to protect themselves from bad users who plagiarize.[370] With best practices, plagiarists can no longer remain immune from consequences of their theft.

[361] *See Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252.

[362] *See, e.g.*, *Category*, *supra* note 223 (enumerating more than a thousand websites that host fanfiction).

[363] Fiesler, *supra* note 180, at 753-54 (discussing how the fanfiction writers deal with plagiarism within the community).

[364] *See id.* at 748 ("In the same way that law not only commands behavior but expresses the values of a community, so too do social norms.").

[365] *See supra* Section III.B (discussing social norms that regulate the fanfiction community).

[366] *See supra* Part II (discussing current practices of ISPs).

[367] *See, e.g.*, *Documentary Filmmakers' Statement of Best Practices in Fair Use*, *supra* note 252; *Frequently Asked Questions*, *supra* note 61.

[368] *See* Fiesler, *supra* note 180, at 746 (discussing self-regulation in the fanfiction community).

[369] *See id.* (discussing the already present social norms in the fanfiction community).

[370] *See* Tushnet, *supra* note 32, at 686 ("When no lucrative market share is sought and productive use is made of copyrighted characters, fan fiction should be recognized as expressing a protected and valuable form of human creativity—if only in the margins.").

Preambles: Form over Substance

Roy Y. Yi*

Abstract

Patent claim preambles perplex and confound even the most seasoned patent practitioners. Ranging from inventors to Federal judges, understanding the purpose and meaning of a patent claim preamble is elusive; primarily in determining whether the preamble limits the scope of the patent claim. The Federal Circuit developed a framework to facilitate in determining a limiting preamble in *Catalina Marketing International v. Coolsavings.com*. The framework, however, does not recite any clear rules or tests for practitioners to performmaking preamble determination subjective in nature. This framework may leave a patent drafter feeling insecure that the preamble he writes will not be understood properly. Likewise, the USPTO also has difficulty in assessing the limiting or non-limiting nature of a claim preamble. Examiners use a non-legal authority manual during examination which is called the Manual of Patent Examining Procedure (MPEP). With the MPEP, the USPTO tries to describe and reduce legal principles into manageable and digestible pieces of legal information for the examiner. But like the *Catalina* framework, there are no clear rules or tests for the examiner to use; therefore, each examiner must determine the nature of preamble subjectively.

Because of the subjective nature in determining the limiting or non-limiting nature of a preamble, I assert that preambles should have a status of *per se non-limiting* during patent prosecution. Drafting costs would not substantially increase as well as improve the clarity of the patent application. Patent drafters will know that every limitation within the body of the claim which guarantees that a Federal court or an USPTO examiner will give the proper patentable weight to the limitation leaving no question as to the scope of the claim; ultimately, increasing the likeliness of a valid and enforceable patent.

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Contents

Introduction

Patent claim preambles have been causing confusion for nearly a 100 years.[1] The initial case that brings the preamble into the limelight is *Kropa v. Robie*[2] adjudicated before the U.S. Court of Customs and Patent Appeals (C.C.P.A.),[3] the predecessor to the current U.S. Court of Appeals for the Federal Circuit (C.A.F.C.). [4] In *Kropa v. Robie*, the dispute involved Kropa's invention date which was linked to whether or not his preamble statements "abrasive articles" or "abrasive products" were limitations.[5] Kropa argued that the terms "abrasive articles" or "abrasive products" could not be considered limitations making his invention date earlier than Robie's. The C.C.P.A. disagreed and ruled that Kropa's preamble was limiting.[6] In reaching their decision, the C.C.P.A

[1] Kirk M. Hartung, *Claim Preambles: Unnecessary Matters of Chance and Confusion*, 93 J. Pat. & Trademark Off. Soc'y 330 (2011) ("Whether a preamble of a patent claim constitutes a limitation to the claim has been an issue for more than 75 years. In the past 50 years, there has been much debate regarding claim preambles, and whether terminology in the preambles limits the scope of the claims.").

[2] Kropa v. Robie, 187 F.2d 150 (C.C.P.A. 1951)

[3] "In 1929, a congressional act (45 Stat. 1475) renamed the court the U.S. Court of Customs and Patent Appeals and expanded its jurisdiction to include appeals from the Patent Office in patent and trademark cases. Such cases previously had been the jurisdiction of the Court of Appeals for the District of Columbia." http://www.fjc.gov/history/home.nsf/page/courts_special_cpa.html

[4] *see* South Corp. v. United States, 690 F.2d 1368, 1369-70 (Fed. Cir. 1982) (The first published Federal Circuit decision, and more importantly, holding that all holdings by the predecessor courts—the United States Court of Claims and the United States Court of Customs and Patent Appeals—are "binding as precedent.").

[5] "Appellant contends that the words 'abrasive article' or 'abrasive products' in the counts should be given no weight. He states that any combination of abrasive grains and binder is inherently an abrasive article, and since the counts contain no limitations whatever as to the proportions of abrasive grains or binder, the counts should be read in the broadest possible manner." *Kropa*, 187 F.2d at 151.

[6] "In the case before us, the words 'An abrasive article' are essential to point out the invention defined by the counts. In our judgment those introductory words give life and meaning to the counts, for it is only by that

surveyed 37 previous cases where preambles were involved,[7] and laid the foundation for discerning whether a preamble is limiting or not. The C.C.P.A. held preambles to be limitations, as opposed to mere introductory phrases, when the preamble was absolutely essential in pointing out the invention or the "clause constituted an essential element in the novelty of the device."[8] Contrastingly, preambles are non-limiting in cases where all the limitations are recited in the body[9] or "a complete and definite invention irrespective of the intended use recited in the preamble."[10] The current methods and framework for determining preambles at its heart has not changed.

Generally, a patent claim[11] has three distinct parts and is written in a single sentence.[12] The three parts consist of a preamble, transitional phrase, and a body.[13] Simply, the preamble is the collection of words written before the transitional phrase[14]. Preamble uncertainty begins in attempting to ascertain its purpose. Is the purpose to confine and limit the claim or is the purpose only to give some pretext, a sort of title to the patent claim.[15] This is a source of the division among practitioners, litigators, and judges in deciding on the understanding or interpretation of the preamble.[16]

Although, Federal Circuit provided guidance to bring clarity and specificity

phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article." *Id.* at 152.

[7] "A. *Ex parte* cases in which preamble held not to express limitation in claim. (Appendix A) ... B. *Ex parte* cases in which the preamble either expressly or by necessary implication was considered to be a limitation upon the subject matter defined by the claim (Appendix B)." *Id.* at 155-157.

[8] "The preamble is a limitation where it specifies an article or composition in which there inheres a field of specific use" and is "not merely introductory for the purpose of explaining the environment in which the other structural elements of the count are designed to be used." *Id.* at 159.

[9] "Where the structure is completely defined independently of the preamble of the claim and can be constructed from the description given, the preamble does not constitute a limitation upon structure but merely states a purpose or intended use of the structure." *Id.* at 157.

[10] *Id.* at 158.

[11] 37 C.F.R. 1.75 ("(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery... (e) Where the nature of the case admits, as in the case of an improvement, any independent claim should contain in the following order: (1) A preamble comprising a general description of all the elements or steps of the claimed combination which are conventional or known, (2) A phrase such as "wherein the improvement comprises," and (3) Those elements, steps, and/or relationships which constitute that portion of the claimed combination which the applicant considers as the new or improved portion.")

[12] MPEP 608.01(m) ("While there is no set statutory form for claims, the present Office practice is to insist that each claim must be the object of *a sentence starting with* 'I (or we) claim,' 'The invention claimed is' (or the equivalent).")

[13] *Cf.* MPEP 2111.03("The word 'comprising' *transitioning* from the *preamble* to the *body* signals that the entire claim is presumptively open-ended.") (*emphasis added*).

[14] Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1371 (Fed. Cir. 2005) ("The word "comprising" transitioning from the preamble to the body signals that the entire claim is presumptively open-ended. Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc., 246 F.3d 1336, 1347 (Fed.Cir.2001); Innovad Inc. v. Microsoft Corp., 260 F.3d 1326, 1333 (Fed.Cir.2001).") see also Anthony R. McFarlane , (FN2), A Question of Claim Interpretation: When Does the Preamble Limit the Scope of A Claim?, 85 J. Pat. & Trademark Off. Soc'y 693 (2003) ("The preamble is that introductory group of words that precedes the transitional term such as "comprising," "consisting of," etc.").

[15] John Gladstone Mills, III, Donald Cress Reiley, III & Robert Clare Highley, Patent Law Basics § 14:8 ("This phrase sets the stage for the recitations which follow, either by summarizing the invention expressed by the claims and/or by placing it in the perspective of the prior art. A preamble which merely summarizes the invention is, in essence, *a title for that invention*. It may state no more than the generic class into which the invention falls.").

[16] PTAB decisions are split 24 limiting / 34 non-limiting and Fed. Cir is split 5 limiting /5 non limiting in precedential decisions.

in determining the nature of preambles,[17] it still remains difficult to apply during patent prosecution. The examiner determines the meaning of the claim to begin the patent examining process. Unlike litigation where a stricter standard is used,[18] the examiner has a *relaxed* standard for claim interpretation called broadest reasonable interpretation (BRI).[19] The BRI standard allows for the Examiner and the practitioner, on record, to narrow or disavow scope through amendment or argumentation.[20] Through this negotiation, a patentee obtains a patent, presumably, narrow enough in scope as to avoid prior art, but broad enough to enforce against a potential infringer.[21]

The limiting or non-limiting nature of the preambles are important particularly during prosecution. If the applicant convinces the examiner that the preamble is limiting through drafting and argumentation, this narrows the field of search which excludes potential prior art. However, by not specifying the preamble's nature—whether limiting or non-limiting—, the Applicant may argue the opposite before the Patent Trial and Appeal Board (PTAB) or in Federal court.[22] Thus, there seems to be an incentive to keep the nature of the preamble uncertain.[23]

This writing intends to explore the current nature of the claim preambles and their limiting and non-limiting nature and asserts that a *per se* non-limiting approach better serves the entire patent system, specifically patent prosecution. In **Section I**, this writing will discusses the differences between claim construction standards under *Phillips* and BRI. Because the preambles are still part of the claim itself, this means that preambles are subject to claim construction standards. This section will also describe the current state of preamble analysis in light of recent Federal Circuit rulings and the effects that the current

[17] No litmus test defines when a preamble limits claim scope. Corning Glass Works v. Sumitomo Electric U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989). Some guideposts, however, have emerged from various cases discussing the preamble's effect on claim scope. Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002)

[18] James Stein, Jennifer Gupta, Hojung Cho, Stacy Lewis & Tom Irving, *Spotlight on Claim Construction Before PTAB*, 11b 73, 77-78 (2015) ("By contrast, a district court in litigation applies the *Phillips v. AWH Corp.* standard, which is considered potentially narrower than BRI [broadest reasonable interpertation] and should conform to the claim terms' ordinary and customary . . . .").

[19] MPEP 2111.

[20] J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 Nw. U. L. Rev. 1, 82 (2013) (citing *Phillips*, 415 F.3d at 1317 ("Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.")).

[21] Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction?*, 157 U. Pa. L. Rev. 1743, 1762-63 (2009) ("Overclaiming may or may not help the patentee; the risk is that a claim that is too broad will be held invalid. But the threat that the patent will be broadly construed will often be enough to prompt a settlement.").

[22] Lee Petherbridge, *On the Development of Patent Law*, 43 Loy. L.A. L. Rev. 893, 902-03 (2010) ("Perhaps the most obvious way to achieve interpretive flexibility is to seek vagueness when claiming and describing an invention. The use of vague claims increases flexibility because vagueness can enable various arguments for the meaning of claim terms–arguments that might be precluded if claims are drafted to be clear and definite. Avoiding detailed descriptions of embodiments complements this approach by diminishing the power of courts to use the descriptive part of the patent document to limit the legal scope of patent claims.").

[23] Harry Surden, *Efficient Uncertainty in Patent Interpretation*, 68 Wash. & Lee L. Rev. 1737, 1751-52 (2011) ("Precision of scope therefore refers to the degree to which the patent adequately conveys to third parties which technologies are, and which are not, covered by a given patent claim.").

claim construction standards have on preamble interpretation. **Section II** will address arguments that support a *per se* limiting approach to preambles; meaning that preambles should be given their plain ordinary meaning and limit the claim scope very time. The proponents of the *per se* limiting view believe that prosecution efficiency will increase and litigation costs will decreased because the confusion would be eliminated. Public policy arguments are also set forth, stating that the public notice function of the patent claim is better served. This writing will present an alternative view contrary this *per se* limiting idea. The ends that the *per se* limiting scholars' desire is actually achieved through a *per se* non-limiting regime.

Section III will discuss the cost to patent drafting, litigation, and licensing in view of a *per se* non-limiting regime and its benefits. The final conclusion in **Section IV** will discuss the possible implementation of a *per se* non-limiting standard and some possible implications for the USPTO, practitioners and the courts.

I. Claim Construction

This section will provide a brief overview of claim construction in the litigation and prosecution settings. Much has been analyzed and debated over the importance of claim construction at each particular stage, but this section will serve as only a summary of some pertinent issues of claim construction that affect claim preambles.

A. *Phillips:*

The *Phillips* standard is reserved for claim construction during litigation as a tool used to enforce a patentee's rights after his patent is issued by the USPTO. Formal claim construction is the process in which a practitioner or a judge undertakes to understand the words set forth in a claim; practically speaking, claim construction is claim interpretation.[24] The issue of understanding the claim arises since words are not designed to capture inventions or objects; however, words are the only tools available.[25] The inventor or applicant must endeavor to use words to the best of his ability to describe his invention. Though the words may be clear to the inventor or drafter in capturing what is believed to be the invention,[26] those same words may may not be as clear to others. As different individuals[27] read the claim language, different interpretations or understandings emerge.[28] The different understandings influence the scope or

[24] Greg Reilly, *Completing the Picture of Uncertain Patent Scope*, 91 Wash. U.L. Rev. 1353, 1353 (2014) (". . . addressing interpretation of patent claims (known as claim construction)").

[25] *Id.* at 1355 ("Since '[n]either written words nor the sounds that the written words represent have any inherent meaning,' words only acquire meaning from context. In patent law claim construction is the process of determining meaning from the relevant context including . . . .").

[26] *Id.*

[27] Herein, I define individuals to mean those persons who would read and find the patent relevant to their field of endeavor.

[28] *See* Peter S. Menell, Matthew D. Powers & Steven C. Carlson, *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 Berkeley Tech. L.J. 711, 737-39 (2010) ("Claim interpretation is highly context-

the breadth of protection the patentee has from the patent.[29] It is clear that there is an inherent disharmony in patent claim interpretation because of the inherent difference in all people, but to the Federal Circuit attempted to bring harmony and consistency to claim interpretation.

The clearest distillation of the Federal Circuit's methodology to bring harmony into claim construction is grounded in *Phillips v. AWH*.[30] In *Phillips*, the Federal Circuit provided the means to ascertain a claim's meaning and achieve proper interpretation, which should be derived from the knowledge of a hypothetical artisan in the particular field, the intrinsic evidence (e.g., specification, remaining claims, figures, and etc.), and extrinsic evidence (e.g., dictionaries, scientific journals, trade journals, and etc.).[31] In more practical terms, one assumes the knowledge of a person of a particular skill level by considering all the available evidence, first by intrinsic evidence followed by the extrinsic evidence, and the process concludes when every limitation of the claim is understood. Though this methodology is clear and gives practical steps in creating the proper claim construction, the implementation of these guidelines are difficult because uncertainty and unpredictability exist when individuals attribute the importance of words differently.[32] Patent claim interpretation appears to remain a demanding and difficult area to navigate, and does not seem to be the objective standard the Federal Circuit desires.

B. Broadest Reasonable Interpretation:

Patent prosecution is effectively the first official claim construction an applicant receives.[33] The examiner must interpret the claims first before determining if the statutory requirements are met.[34] Since examiners are not required to be lawyers, they are given a legal manual called the MPEP. In the MPEP, exam-

dependent. The person of ordinary skill in the art 'is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field."').

[29] "Claim language defines claim scope." SRI Int'l. v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc).

[30] Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005).

[31] Menell, Powers & Carlson, *supra* note 28, at 737-39 ("The meaning that this person would give to claim language, after having considered the intrinsic and extrinsic evidence, is the 'ordinary meaning' of the claim terms. This ordinary meaning is considered to be the 'objective baseline' for claim construction. Thus in interpreting patent claims, a court must consider 'the same resources as would [a person in the same field of technology] viz., the patent specification and the prosecution history.' The patent and its prosecution history 'usually provide[] the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention.' Thus, courts should interpret patent claims in light of this 'intrinsic' evidence (i.e., the patent specification and its prosecution history) as well as pertinent 'extrinsic' evidence (i.e., evidence showing the usage of the terms in the field of art).").

[32] Burk & Lemley, *supra* note 21, at 1745 ("Even after claim construction, the meaning of the claims remains uncertain, not only because of the very real prospect of reversal on appeal but also because lawyers immediately begin fighting about the meaning of the words used to construe the words of the claims.").

[33] *Cf.* Greg Reilly, *Judicial Capacities and Patent Claim Construction: An Ordinary Reader Standard*, 20 Mich. Telecomm. & Tech. L. Rev. 243, 257 ("Claims must be construed by a variety of actors outside of litigation: patent examiners deciding whether to grant a patent[.]").

[34] Kyle Petaja, *Claim Preambles and the Unassailable Patent Claim*, 5 J. Marshall Rev. Intell. Prop. L. 121, 123 (2005) ("Before a court can determine the limiting effect of a claim preamble, the entire patent must be reviewed in order 'to gain an understanding of what the inventors actually invented and intended to encompass by the claim.' The facts of each case help determine the extent of the limitation.").

iners are told that the standard for interpretation claims is the broadest reasonable interpretation.[35] This standard is markedly different from the *Phillips* standard because it is more relaxed allowing for the most maximal scope an applicant may reasonably receive.[36] The examiner is required to give the claims their "broadest reasonable interpretation consistent with the specification."[37] This means that the examiner reads the claim through a lens of someone who has ordinary skill in the art[38] and understands the definitions presented in the specification.[39] The BRI standard when patent applications are reviewed are said to be fair because it serves the public interest in not allowing a broader scope than is justified.[40] Further, the opportunity to amend is fairly easy and an applicant may amend to have the appropriate claim coverage.[41] The difference between the BRI and *Phillips* standards appears to hinge on this aspect; although the amendment process is closed during litigation,[42] but before the USPTO amendments and corrections are a matter of course and so a broader construction is justified.[43]

The policy and implementation of BRI are well understood, but the issue remains as to finding consistency or uniformity in BRI. There is no uniform definition of BRI for patent examiners, which leads to examiners applying their own understanding of BRI to the best of their ability. Because dealing with varied views of BRI is impractical, the PTAB may be a fair source in determining

[35] MPEP 2111

[36] Stein, Gupta, Cho, Lewis & Irving, *supra* note 36, at 77-78 (2015) ("By contrast, a district court in litigation applies the *Phillips v. AWH Corp.* standard, which is considered potentially narrower than BRI and should conform to the claim terms' ordinary and customary meaning, unless the patent applicant has acted as its own lexicographer or there is 'clear disavowal.'").

[37] *see* MPEP 2111 ("During patent examiniation, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'").

[38] *In re* Cortright, 165 F.3d 1353, 1358 (Fed.Cir.1999) ("Although the PTO must give claims their broadest reasonable interpretation, this interpretation must be consistent with the one that those skilled in the art would reach.").

[39] "[T]he PTO must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification." *Am. Acad. Of Sci. Tech Ctr.*, 367 F.3d at 1364 (citing *In re* Bass, 314 F.3d 575, 577 (Fed. Cir. 2002)).

[40] "Giving claims their broadest reasonable construction 'serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified.'" *In re* Yamamoto, 740 F.2d 1569, 1571 (Fed. Cir. 1984); *accord In re* Hyatt, 211 F.3d 1367, 1372 (Fed. Cir. 2000); *In re* Zletz, 893 F.2d 319, 322 (Fed.Cir.1989) ("An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process."); *see also*, *Am. Acad. Of Sci. Tech Ctr.*, 367 F.3d at 1364.

[41] Construing claims broadly during prosecution is not unfair to the applicant (or, in this case, the patentee), because the applicant has the opportunity to amend the claims to obtain more precise claim coverage. See *Yamamoto*, 740 F.2d at 1571–72 ("Applicants' interests are not impaired since they are not foreclosed from obtaining appropriate coverage for their invention with express claim language.").

[42] Although the amendment process is not closed during PTAB's post-grant proceedings, amending claims during PTAB's post-grant proceedings has been a source of frustration for many practitioners. *See e.g.*, Gene Quinn, *Patent Office Defends PTAB Denying Motions to Amend*, IPWatchDog.com (posting of May 10, 2016). *See also,* John Marlott, *PTAB Makes Precedential its Heightened Scrutiny of Amended Claims in IPRs*, JonesDay.com (posting of Mar. 22, 2019).

[43] *Yamamoto*, 740 F.2d at 1571 ("An applicant's ability to amend his claims to avoid cited prior art distinguishes proceedings before the PTO from proceedings in federal district courts on issued patents. When an application is pending in the PTO, the applicant has the ability to correct errors in claim language and adjust the scope of claim protection as needed."); *see also*, *Zletz*, 893 F.2d at 321 ("[D]uring patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.").

the USPTO's stance on BRI particularly because that stance was bolstered by Supreme Court's decision in *Cuozzo* to uphold USPTO's rulemaking to govern *inter partes* review under the BRI standard.[44] The Federal Circuit decision in *In re Cuozzo Speed Technologies*[45] may give some insight into how BRI is applied in general by the USPTO.[46]

At the time, Cuozzo believed they owned the rights to an interface that displays the speed limits determined through GPS positioning.[47] The interface would determine the legal speed limits displayed in green and if the user is above it the speed would displayed in red.[48] Garmin later filed a petition of IPR to the USPTO contending that the issue patent is invalid.[49] The PTAB issued a final decision construing the claims under broadest reasonable interpretation with regards to the limitation "integrally attached" and ruled that the claims at issue is invalid.[50] It appears that the PTAB used the plain ordinary meaning "integrally attached," because this group of words were not defined from Cuzzo's specification.[51] Moreover, the Court ruled that the PTAB's understanding of "integrally attached" comports with the specification.[52] Cuozzo appealed the PTAB's decision of invalidity to the Federal Circuit; specifically, arguing that the USPTO improperly used BRI in rendering its final decision.[53] The Federal Circuit refuted this argument by first citing the nearly one hundred year history of the USPTO using BRI.[54] After reviewing the history of BRI, the Federal Circuit upheld the PTAB's final decision *de novo*.[55]

[44] Cuozzo Speed Techs., LLC v. Lee, 136 S. Ct. 2131, 2144 (2016).

[45] *In re* Cuozzo Speed Techs., LLC, 793 F.3d 1268 (Fed. Cir. 2015).

[46] Bradley Olson, *Federal Circuit Affirms Broad PTAB Claim Construction Standard*, 21 Westlaw J. Intell. Prop. 2 (2015) (The court said the implicit authorization to apply the "broadest reasonable interpretation" standard is reflected in the language of the AIA itself, as Congress delegated rulemaking authority to the PTO and authorized it to promulgate rules, namely, 37 C.F.R. § 42.100(b). The court further buttressed it opinion by stating that the PTO and the courts have applied the "broadest reasonable interpretation" standard for more than 100 years in various proceedings.).

[47] "[t]he speed limit indicator as defined in claim 14, wherein said display controller rotates said colored filter independently of said speedometer to continuously update the delineation of which speed readings are in violation of the speed limit at a vehicle's present location. *Cuozzo*, 793 F.3d at 1272.

[48] The '074 patent discloses an interface which displays a vehicle's current speed as well as the speed limit. In one embodiment, a red filter is superimposed on a white speedometer so that "speeds above the legal speed limit are displayed in red . . . while the legal speeds are displayed in white . . . ." Id. col. 5 ll. 35–37. A global positioning system ("GPS") unit tracks the vehicle's location and identifies the speed limit at that location. The red filter automatically rotates when the speed limit changes, so that the speeds above the speed limit at that location are displayed in red. *Cuozzo*, 793 F.3d at 1271.

[49] *Id.* ("Garmin filed a petition with the PTO to institute IPR of, inter alia, claims 10, 14, and 17 the '074 patent. Garmin contended that claim 10 was invalid as anticipated.")

[50] *Id.*

[51] The phrase "integrally attached" was not included in either the specification or the claims as originally filed. The phrase was introduced by an amendment to claim 10 to overcome a rejection that the claim was anticipated under § 102(e) by Awada...The Board did not err in its claim construction. *Id.* at 1280.

[52] *Id.* "The specification further supports the Board's construction that the speedometer and the speed limit are independent..."

[53] Cuozzo contends in addition that the Board erred in finding the claims obvious, arguing initially that the Board should not have applied the broadest reasonable interpretation standard in claim construction. *Id.* at 1275.

[54] Nonetheless, the broadest reasonable interpretation standard has been applied by the PTO and its predecessor for more than 100 years in various types of PTO proceedings. *Id.* at 1276.

[55] The phrase "integrally attached" was not included in either the specification or the claims as originally filed. The phrase was introduced by an amendment to claim 10 to overcome a rejection that the claim was anticipated under § 102(e) by Awada...The Board did not err in its claim construction. *Id.* at 1280.

The Federal Circuit affirmed PTAB's use of BRI during *inter partes* review (IPR) of unexpired claims[56] as well as affirming USPTO's use of BRI during pre-IPR proceedings.[57] IPR proceedings operate like a court in that discovery and arguments are allowed, but IPRs do not necessarily have the same force of law as the Federal courts.[58] IPR rulings should not be considered *per se* precedential over USPTO proceedings since patents enforcement is done through the Article III courts and not through the agency.

There are many argument that suggest it is improper for the PTAB to construe claims under BRI, but the most compelling *non-rule-based argument*[59] is that BRI exposes patent owners to broader analysis for prior art rejections, without any benefits in the infringement action because a narrow analysis would still be used for infringement, if their patents survive.[60] Perhaps, it is best the PTAB does not apply BRI during IPR proceedings because it is neither patent examination nor reexamination.[61] No matter the argument, the PTAB itself is not a court of law and is not endowed with the enforcement powers as the Federal courts are. No authority or evidence has been found at the time of this writing stating that any federal court will give adopt the PTAB's claim construction wholesale without review. Claim construction is a matter of law as Justice Souter points out in *Markman v. Westview Instruments, Inc*, and questions of law are always reviewed *de novo*.[62] This means Federal Courts are the final arbiters of claim construction, not the USPTO. Implying, applicants are currently not denied any Constitutional or other legal rights with regards to obtaining and

[56] *Id.*

[57] *Cuozzo*, 793 F.3d at 1279 ("The adopted standard is reasonable not just because of its pedigree but for context-specific reasons. As discussed above, the policy rationales for the broadest reasonable interpretation standard in pre-IPR examination proceedings apply as well in the IPR context. The statute also provides for the PTO to exercise discretion to consolidate an IPR with another proceeding before the PTO. See 35 U.S.C. § 315(d). The possibility of consolidating multiple types of proceedings suggests a single claim construction standard across proceedings is appropriate. 37 C.F.R. § 42.221(a) reflects a permissible construction of the statutory language in § 316(a). Even if approval of the broadest reasonable interpretation standard were not incorporated into the IPR provisions of the statute, the standard was properly adopted by PTO regulation.").

[58] IPRs provide for discovery including technical expert depositions, 35 U.S.C. § 316(a)(5)(A), and provide "the right to an oral hearing," 35 U.S.C. § 316(a)(10), which has been implemented by PTO regulation as a "trial." See 37 C.F.R. § 42 ("Trial Practice Before the Patent Trial and Appeal Board"). Cuozzo Speed Technologies, LLC v. Lee, 2016 WL 837070 (U.S. 2016), 5-6.

[59] 37 C.F.R. §§ 42.100, 42.200, 43.200, were changed last year to now require, during PTAB's IPR, PGR and CBM proceedings, patent claims to be construed using the same claim construction standard that would be used to construe the patent claims in Federal court. *see Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51340 (Oct. 11, 2018).

[60] Therefore, the patent owner receives the worst of both worlds an artificially broad invalidity analysis in an IPR proceeding, where the patent may be exposed to much more prior art than it would be at the district court, and an infringement analysis in district court conducted under a narrower claim construction standard than that used to determine the validity of the claim. These two adjudicatory processes, using different claim construction standards have clearly stacked the deck against patent owners. Cuozzo Speed Technologies, LLC v. Lee, 2016 WL 837070 (U.S. 2016), 16-17.

[61] The PTO itself recognized this change stating "[a]n inter partes review is neither a patent examination nor a patent reexamination. Rather, it is a trial, adjudicatory in nature and constitutes litigation." Google, Inc. v. Jongerius Panoramic Techs., LLC, IPR2013-00191, Paper No. 50, at 4 (P.T.A.B. Feb. 13, 2014). Cuozzo Speed Technologies, LLC v. Lee, 2016 WL 837070 (U.S. 2016), 14.

[62] "... a matter of law reserved entirely for the court, or subject to a Seventh Amendment guarantee that a jury will determine the meaning of any disputed term of art about which expert testimony is offered. We hold that the construction of a patent, including terms of art within its claim, is exclusively within the province of the court." Markman v. Westview Instruments, Inc., 517 U.S. 370, 372, 116 S. Ct. 1384, 1387, 134 L. Ed. 2d 577 (1996)

litigating patents.

Though contentious, a conclusion can be drawn from this decision specifically with regards to words that are not explicitly defined within the specification. As long as the terms are not inconsistent with the specification those words are given plain dictionary type meaning. More generally, BRI seems in practice to mean that claims can be understood as broadly as one chooses ("broadest") so long as the specific limitation construed is not explicitly contradictory to applicant's specification ("reasonable").[63] Because BRI is a significantly more flexible standard than *Phillips*, BRI's greater flexibility makes it possible to have even more alternate meanings for the claims.

C. Preamble:

As described earlier in the Introduction, the preamble is first third of the patent claim.[64] Because the preamble is an inextricable part of the claim, it is subject to the claim construction standards: *Phillips* during litigation and BRI during prosecution. This means the preamble also endures all the turmoil and difficulty of claim construction, but with the added difficulty of determining whether the preamble itself is a limitation.[65] Because of the mixture of issues of claim construction and limitation of scope, preambles have been called "an almost indecipherable mess."[66]

Traditionally, the preambles in law are an introduction statements made to describe the intended purpose, aims, or justifications of the statute.[67] The patent claim preamble may serve a similar purpose in that it describes the intended use, background or purpose.[68] The preamble in general could be viewed as a patent claim title.[69] But today, there are specific instances where the preamble is no longer viewed as just a title or offering pretext, but can be used to give structural or other substantive limitation to the scope of the patent claim.[70] The Federal Circuit creates a framework to determine if the preamble is a limitation in their ruling of *Catalina Marketing International, Inc v. Cool-*

[63] William R. Hubbard, *Efficient Definition and Communication of Patent Rights: The Importance of* Ex Post *Delineation*, 25 Santa Clara Computer & High Tech. L.J. 327, 344 (2009) ("2. Patent terms should have consistent meaning throughout a patent . . . Claims should be construed in light of the specification.").

[64] Kyle Petaja, *Claim Preambles and the Unassailable Patent Claim*, 5 J. Marshall Rev. Intell. Prop. L. 121, 122 (2005) ("The first section is a claim preamble, which sets out the context of the invention, or explains the type of invention being claimed.").

[65] Anthony R. McFarlane, *A Question of Claim Interpretation: When Does the Preamble Limit the Scope of A Claim?*, 85 J. Pat. & Trademark Off. Soc'y 693 (2003) ("Before the meaning of the claim can be established, it must first be determined whether a claim term appearing in the preamble should be considered a limitation on the scope of that claim.").

[66] Petaja, *supra* note 64, at 122 ("[C]laim's preamble evolved out of a series of court decisions that have gradually intertwined themselves into an almost indecipherable mess.").

[67] *Id.* at 123 (citing Black Law's dictionary) ("The dictionary defines a traditional preamble as an introduction to a statute or deed stating its purpose, aims, justifications, bases, and objectives.").

[68] Mills, Reiley & Highley, Patent Law Basics § 14:8, *supra* note 15. ("This may be coupled with a statement of intended use, or the overall or ultimate object or purpose, or motivation for the invention, its salient properties or characteristics. ").

[69] *Id.* ("A preamble which merely summarizes the invention is, in essence, a title for that invention. It may state no more than the generic class into which the invention falls.").

[70] *Id.* ("A claim preamble may limit the scope of claimed invention where it recites a structural limitation, rather than a statement of purpose or intended use.").

savings.com, Inc.[71] In *Catalina*, the Federal Circuit implied that it is difficult to determine when a preamble is limiting or not.[72]

The Federal Circuit set their framework with the famed phrase that the preamble limits "if it is 'necessary to give life, meaning and vitality' to the claim" and if it does not then the preamble is not limiting.[73] The ruling continues by reciting that the preamble limit if it is "essential to understand limitations or terms in the claim body, the preamble limits claim scope."[74] Preambles limit the scope of the claim if there is clear disavow or reliance of the preamble in the prosecution history to limit the claim scope, presumably to avoid infringement or to distinguish the claimed invention from the prior art.[75] This means that preambles will most likely be found to be limiting in case where an antecedent basis is found or if there is an essential or critical component located in the preamble.[76] The Court further recites that if the patentee defines a complete invention in the body then the only purpose of the preamble is to state an intended use and therefore not limiting.[77] Meaning, if the preambles are statements of asserted benefits or laudatory comments or if the claim is left unaffected with the preamble's deletion, then the preambles must be non-limiting.[78]

[71] Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801 (Fed. Cir. 2002).

[72] *Id.* at 808 ("No litmus test defines when a preamble limits claim scope.") (citing *Corning Glass*, 868 F.2d at 1257.).

[73] In general, a preamble limits the invention if it recites essential structure or steps, or if it is "necessary to give life, meaning, and vitality" to the claim. Pitney Bowes v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). Conversely, a preamble is not limiting "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." Rowe v. Dror, 112 F.3d 473, 478 (Fed.Cir.1997); *Catalina Mktg. Int'l*, 289 F.3d at 808.

[74] Likewise, when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope. Citing *Pitney Bowes*, 182 F.3d at 1306. *Catalina Mktg. Int'l*, 289 F.3d at 808.

[75] Moreover, clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention. See generally, Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1375, (Fed. Cir. 2001); *Catalina Mktg. Int'l*, 289 F.3d at 808-09.

[76] *See* McFarlane, *supra* note 65, at 713-714 (" Generally, the preamble of a claim may be a limitation on the scope of that claim if:

1. the claim is drafted in the form of a *Jepson* format;
2. the claim preamble provides an antecedent basis for terms appearing in the body of the claim;
3. the preamble breathes life, meaning and vitality to the claim;
4. the specification and prosecution history emphasize the preamble as being an essential structure or step of the inventive concept; or
5. applicant, during prosecution, relied on the preamble to distinguish the claimed invention from the prior art.").

[77] Conversely, a preamble is not limiting "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." Rowe v. Dror, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed.Cir.1997). Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002)

[78] Without such reliance, however, a preamble generally is not limiting when the claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention... Preamble language merely extolling benefits or features of the claimed invention does not limit the claim scope without clear reliance on those benefits or features as patentably significant. STX, LLC v. Brine, Inc., 211 F.3d 588, 591 (Fed.Cir.2000) Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 809 (Fed. Cir. 2002) Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 809 (Fed. Cir. 2002)

It is clear that analyzing preambles entails a two part approach, both grounded in the principles of claim construction. *First*, the words in the preamble must be understood in light of the specification[79] and, *second*, that understanding is applied to the body of the claim itself to see if the understanding of the preamble is necessary to make sense of the invention.[80] To a novice or even a skilled practitioner in this area, this preamble methodology appears to be difficult to apply consistently.

II. Battle over "*per se*"

A. *Per se* limiting:

The confusion surrounding patent claim preambles is clear and evident. The current framework for understanding preambles still suffers from issue resulting from claim construction.[81] The confusing and almost subjective[82] nature of claim construction combined with the traditional nature of preambles created an issue where a component of a claim is limiting only some of the time.[83] This has led some practitioner to believe that preambles should be pre se limiting to solve the confusion.[84] They also conjectured that the *per se* limiting standard will be better prosecution in several aspects.[85] The patentee will draft a better claim because the patentee can give the proper context to the body of the claim. The examiner will be directed specifically to the proper field of invention, and aid in classification of patent applications.[86] In fact, a drafting option exists for Applicants to have a *per se* limiting preamble: namely, the *Jepson* claim format.[87]

[79] Hartung, *supra* note 1, at 332 ("The Federal Circuit has repeatedly emphasized that words in a claim are generally to be given their ordinary and customary meanings. The ordinary and customary meaning of a claim term is 'the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.'").

[80] McFarlane, *supra* note 65, at 713 ("As stated earlier, claim construction is a highly contextual. A determination of whether the preamble is a limitation on the scope of a claim requires consultation with the specification as well as the prosecution history to establish whether applicant intended the preamble to be a limitation on the scope of her claim. The specification is a good guide to use in the evaluation of whether the preamble is a limitation on the scope of a claim.").

[81] Hartung, *supra* note 1, at 335 ("Since the claim defines the invention, and the preamble is part of the claim, how can the preamble, and any intended use terminology, fail to contribute to the definition of the invention?").

[82] Petherbridge, *supra* note 22, at 938 ("Confirming the idea that the central message of *Phillips* is that there is no 'right' analytical framework for construing claims, the Federal Circuit has sought to discourage language in subsequent opinions suggesting that there might be a definable process for construing claims.").

[83] Hartung, *supra* note 1, at 333 ("How can the preamble be part of the claim, but not part of the claim limitations? This mystical double-speak cannot be reconciled.").

[84] Heather Kliebenstein & Daniel McDonald, *Does* Phillips v. AWH Corp. *Take the Life Out of the "Life and Meaning" Test for Whether Claim Preambles Are Limitations?*, 35 AIPLA Q.J. 301, 323 (2007) ("All of these shortcomings would be eliminated if the test was replaced with a rule finding all preambles to be limiting.").

[85] Petaja, *supra* note 64, at 138 ("Because the claim preamble can lead to a more concise claim, it will improve the overall efficiency of the patent process. Every practitioner must fully appreciate the impact a claim preamble has on the path his patent application will take through the USPTO.").

[86] *Id.* ("A claim preamble can concisely place an invention into its proper context more efficiently than the body of the claim. The claim preamble is also capable of quickly guiding the claim interpreter to the proper field of invention while laying out some basic parameters of the invention . . . the patentee can rely on the claim preamble to aid the examiner in classifying and assigning a newly filed application to the correct Examining Art Unit.").

[87] "Drafting a claim in *Jepson* format (i.e., the format described in 37 CFR 1.75(e); see MPEP § 608.01(m)) is taken as an implied admission that the subject matter of the preamble is the prior art work of another. *In re*

This format ensures that the drafter writes the body of the claim to distinguish or explicitly claim the alleged improvement to the prior art. However, this option does not appear to be a popular option.

Some practitioners submit that the *Phillips* standard is to promote the public notice function of a patent, but that the current framework for preambles are undermining this goal.[88] Because an intricate test is used on only the preamble during claim construction and not on the body, practitioners are concerned with the inconsistency and uncertainty in preamble understanding amongst other practitioners, the examiners, and the courts.[89] These practitioners also believe that the courts are incorrectly viewing the role of a patent preamble as the same as the traditional preamble.[90] These practitioners assert that the claim from the beginning should be treated as a single unified object, and would be a better methodology and will cease the confusion regarding the preamble.[91] The thinking is that patent drafters are choosing the best words he possibly can to describe his novel feature; therefore he intends to be bound by every word and the claim as a whole should be treated by one claim construction standard.[92] Also practically during prosecution, because the examiner does not explicitly state or mention his analysis of the preamble, patentees are left in a position where he does not know if the preamble is considered a limitation or not.[93] It logically follows, that greater clarity and uniformity during prosecution can be achieved by having a *per se* limiting regime.

B. *Per se* non-limiting:

The *per se* limiting regime does sound tempting. This approach, however, still neglects that two different bodies of law must apply to the preamble. So, the inherent flaws of claim constructions are not removed and thus all the theoretical benefits cannot be achieved. The *per se* limiting ideology, in fact encourages applicants, practitioners, and examiner to apply two bodies of law (BRI and *Catalina*) with inherent interpretative uncertainties to every application. Be-

Fout, 675 F.2d 297, 301, 213 USPQ 532, 534 (CCPA 1982) (holding preamble of *Jepson*-type claim to be admitted prior art where applicant's specification credited another as the inventor of the subject matter of the preamble)." MPEP 2129 III. *Jepson* Claim; *See also*, *Catalina Mktg. Int'l*, 289 F.3d at 807 ("For example, this court has held that Jepson claiming generally indicates intent to use the preamble to define the claimed invention, thereby limiting claim scope.").

[88] Kliebenstein & McDonald, *supra* note 84, at 322 ("*Phillips* promotes the policy of providing clear notice of a claim's scope.").

[89] *Id.* ("The multi-factored and multi-faceted 'Life and Meaning' test creates inconsistency and uncertainty. The factors used in the case law have little or no relation to the statutory mandate of the purpose of claims and specifications.").

[90] Petaja, *supra* note 64, at 126 ("Influenced by the traditional preamble's role, some courts have erroneously applied the traditional definition of a preamble to claim preambles.").

[91] *Id.* at 137 ("Viewing the claim preamble as a part of a unified claim is consistent with both case law as well as scholarly comment, while eliminating much of the confusion. The ways in which case law will be affected, coupled with the reasons why this approach should be adopted, demonstrates the advantages of such an approach.").

[92] Hartung, *supra* note 1, at 337 ("Any doubt as to the limiting effect of preamble terminology should be resolved against the patentee, as drafter of the claims, since no one else has input to the preamble terminology. This rule would be consistent with conventional contract interpretation, wherein doubts are resolved against the drafter.").

[93] Kliebenstein & McDonald, *supra* note 84, at 322 ("Examiners rarely make a record of their analysis of whether a preamble breathes 'life and meaning' into a claim, so there is no way of knowing in most cases.").

cause the issue of claim construction is not addressed, the end goals of a more efficient patent process, clearer claim scope are frustrated. In addition to not meeting the desired end goals, more fundamental questions arise from a *per se* limiting regime. *First*, how should the preamble be treated if it is redundant to other limitations? *Second*, how much patentable weight should the preamble be given? *Third*, does the practitioner need file multiple applications in multiple fields on the same inventive feature to ensure broad enough coverage?

A redundant claim limitation is nearly useless in determining the scope.[94] A *per se* limiting scheme would not be any better than our current system for preambles. If all the essential structure the patentee defines a complete invention in the body then the only purpose for the preamble is to state an intended use and therefore not limiting.[95] Moreover, greater confusion might arise when applying BRI during prosecution. When applying BRI under a *per se* limiting standard, duplicative language could render claims nonsensical, which could be contrary to the applicant's specification or, more generally, contrary to the art. Likewise, when examiners must determine the patentable weight of the preamble in a *per se* limiting standard, it may detract from their ability in applying BRI because a limiting interpretation may unduly narrow the prior art search. Once that occurs there is no way to ensure that an optimal patent scope can be reached.[96] A domino effect occurs. Since an optimal patent scope cannot be reached, the patentee is left to wonder how many more patent applications must be filed with his inventive feature[97] to have the broadest protection. The patentee may also question the value of their patent and perhaps wonder if they are a potential infringer because the examiner did not perform a broad enough search, for another may have received a patent for a level of breadth not searched. All of this together seems to undermine the patent's function of public notice.[98] Considering these ramification, it appears that a *per se* limiting standard may not be desirable.

During patent prosecution, a *per se* non-limiting standard will offer the best results. As stated earlier, patent prosecution uses the BRI standard, a more flexible standard than *Phillips*. Because BRI, in practice, allows an examiner to give every portion of the claim the broadest meaning within the limits of the Specification, the preamble can be deemed introductory so as to be non-limiting,

[94] *Id.* at 306 ("If the preamble merely 'recited a property inherent' in the remainder of the claim, it would appear that whether the preamble is a limitation would be a redundant issue because the limitation would be 'inherent' in the body of the claim. Also, although the analysis notes that courts attempt to draw a line between those preambles that limit the claim scope and those that do not, it does not explain why the listed reasons should determine whether words that are part of a claim should be treated as if they do not exist.").

[95] See *supra* note 73, for discussion of a preamble limiting an invention when it recites essential structure, but not limiting where the body of the claim sets forth a structurally complete invention and the preamble is merely introductory.

[96] Burk & Lemley, *supra* note 21, at 1765 ("[T]he key policy lever courts can use to ensure that patents encourage innovation . . . . And the cost of getting the scope decision wrong is high.").

[97] Petaja, *supra* note 64, at 124 ("Such statements may be interpreted as a claim limitation not contemplated by the patentee. Therefore, claim drafters must be vigilant when writing claim preambles in order to prevent unintentionally inserting structural or functional language.").

[98] A central theme has been public notice, suggesting that the court's focus has been on improving the efficiency of innovation and competition where patents are implicated. The targets of doctrinal developments have been information externalities that affect not only the patent-granting process but also post-grant transactions around patents. Lee Petherbridge, On the Development of Patent Law, 43 Loy. L.A. L. Rev. 893, 920 (2010)

which may be consistent with general rules of the Federal Circuit for handling claim preambles.[99] Under a non-limiting standard, the confusion between the traditional preamble and the patent preamble disappears because only preamble's common use remains.[100] The preamble effectively becomes a footnote referring back to the specification which examiner refer to when applying BRI. Patent drafters will have greater incentive to write every limitation within the body of the claim bringing greater uniformity to claim drafting. Patentee's will not be plagued with uncertainty in applicationn of a *per se* non-limiting rule because the preamble would not be subject to various interpretations or questions as to whether it is or is not limiting because it would merely be introductory and non-limiting. A *per se* non-limiting rule actually benefits examiners, who are already working under tight time constraints, because neither additional legal training, nor additional legal research would be required to apply a rule that deems the preamble as non-limiting.

More importantly, in the past ten years the Federal Circuit issued fifteen precedential decisions regarding preambles. The results were seven limiting preambles and eight non-limiting.[101] Preambles were ruled limiting for the following reasons:[102]

- a limitation in the body finds its antecedent basis; or
- clear disavowal of scope through prosecution history; or
- the specification explicitly discloses that the language present in the preamble is essential to the present invention.

Litigators take a nearly fifty-fifty chance at the Federal Circuit on issues over preambles where there is no opportunity to amend after final judgement under the current preamble analysis. A more risk adverse patentee would not take the chance and would draft the limitation in either both the preamble and the body or just in the body.

The *per se* non-limiting can properly avoid the issues that arise from claim construction of the current preamble regime. At the prosecution stage, BRI allows for broad interpretation and allows for the applicant to amend as a matter of course. If the examiner states or if the applicant understand that preambles are *per se* non-limiting, then the drafter will always write all the claim limitations within the body of the claim. This in turn gives drafters more freedom and respect to write words that they choose to be binding. In doing so, the patentee is also ensured to have the broadest coverage with potentially reduced need to file multiple application for protection. The *per se* non-limiting standard even

[99] Arctic Cat Inc. v. GEP Power Prod., Inc., 919 F.3d 1320, 1327 (Fed. Cir. 2019) ("And this court has recognized that as a general rule preamble language is not treated as limiting.").

[100] Petaja, *supra* note 64, at 123 ("The dictionary defines a traditional preamble as an introduction to a statute or deed stating its purpose, aims, justifications, bases, and objectives. A common definition of a claim preamble is "an introductory phrase that may summarize the invention, its relation to the prior art, or its intended use or properties.").

[101] 1 Annotated Patent Digest §§ 5:25 (cases from 2010-2019 finding preamble was a claim limitation), 5:26 (cases from 2010-2019 finding preamble did not act as a claim limitation).

[102] Pacing Technologies, LLC v. Garmin Inter., Inc., 778 F.3d 1021, 1024 (Fed. Cir. 2015); *See also* Proveris Scientific Corp. v. Innovasystems, Inc., 739 F.3d 1367, 1372-73 (Fed. Cir. 2014).

treats the entire claim as a single entity with a consistent claim construction standard. Even if litigated, the preamble would not be at issue because the limiting features would be in the body of the claim as the patentee and drafter intended. In a *per se* non-limiting standard before the USPTO, patentees will not be facing any preamble issues either in prosecution or litigation. The results that the proponents of *per se* limiting desire are actually met in the *per se* non-limiting standard; greater clarity of scope is achieved, consistent claim construction application, and clearer prosecution history.

III. The benefit of non-limiting

A *per se* non-limiting standard would be a cost benefit than our current system or *per se* limiting standard. The cost benefits include lowering litigation costs while keeping drafting costs relatively the same,[103] lowering information costs,[104] improve prosecution efficiency[105] without hindering the public notice function of the patent.[106] For this section, arguments will be restricted to patent prosecution. It is well known that patent litigation costs are increasing[107] and uncertainty in claim construction contribute to rising costs.[108] This implies that misconstruing preambles are an avoidable cost and may reduce overall litigation cost. A more efficient prosecution system can alleviate much of the preamble issues since the percentage of patents being litigated is low; meaning most disagreements are either during prosecution or during negotiations outside of litigation.[109]

A *per se* non-limiting policy during prosecution enhances USPTO efficiency in at least three ways. First, efficiency within the USPTO because it removes a step for the examination process thus improving § 112 compliance. Second, patentee is not restricted to a single field of invention resulting in a broader field of search that would yield pertinent prior art potentially. Third, there is

[103] Burk & Lemley, *supra* note 21, at 1761 ("First, and most obviously, the claim-construction process raises the cost of litigation.").

[104] Peter Lee, *Patent Law and the Two Cultures*, 120 Yale L.J. 2, 22 (2010) ("Conditions favor the adoption of cognitive shortcuts to streamline information processing. Two mechanisms by which laypersons commonly economize on information costs are heuristics and deference to expert authority.").

[105] Burk & Lemley, *supra* note 21, at 1786 ("Much of the time and cost of the prosecution process—and much of the backlog occasioned by continuation applications—result from drafting, evaluating, and arguing over patent claims. Patent lawyers spend far more time and money drafting patent claims than they do tinkering with the actual disclosure of the patent. While the PTO does not expressly engage in a process of claim construction, it does need to implicitly determine what patent claims mean in order to decide whether they are anticipated by or obvious in view of the prior art.").

[106] *Id.* at 1780 ("The idea that patent language could offer public notice comparable to the 'metes and bounds' of real property is an appealing, and as we have seen, pervasive trope.").

[107] Hubbard, *supra* note 63, at 338 ("[H]ere it is unclear whether a patentee has construed a patent too broadly or whether an alleged infringer has construed it too narrowly, this uncertainty often leads to expensive litigation.").

[108] John M. Golden, *Construing Patent Claims According to Their "Interpretive Community": A Call for an Attorney-Plus-Artisan Perspective*, 21 Harv. J.L. & Tech. 321, 329-30 (2008) ("[M]inimization of the transaction costs associated with drafting and construing claims would commonly be expected to improve overall economic efficiency.").

[109] Peter Lee, *supra* note 104, at 16 (2010) ("However, the 'average' district judge receives only a few patent cases per year and handles a patent trial only once every seven years.68 As noted, many district judges express discomfort with complex technologies, and district courts misinterpret claims in a third of cases appealed to the Federal Circuit.").

a standard expectation amongst all practitioners which promotes clarity and stability in patent prosecution.

A. *Ex Ante* vs. *Ex Post*

Patent prosecution is the first stage in which a patentee will evaluate his claim scope, and if the patent application is issued, the patent gives public notice of his invention.[110] The Supreme Court acknowledged nearly one hundred fifty years ago that patents must perform a public notice function because patent rights create a *quid pro quo*: public disclosure for temporary monopoly in that particular technology.[111] Patentees struggle in understand how to achieve the *quid pro quo*, and as a result two differing approaches exist: *ex ante* and *ex post*. An *ex ante* approach of claim scope is to clarify the claims and disclosure in an effort to predict or forecast competitor's future behavior (e.g. litigation, infringement, or licensing).[112] Patentees and the public may think that greater clarity of their patent scope would avoid future issues and avoid enforcement costs.[113] The predominate approach, however, is ex post – that is using the court system to determine the patent scope after issuance during litigation – because so few patents are valuable enough for litigation that it is more efficient for the courts to determine the claim scope after issuance of a patent from the USPTO.[114] Prosecution, as explained earlier, is a type of negotiation between the patentee and the USPTO. The processes of prosecution under BRI does not specifically limit the claims to one construction, but determines a range of claim construction; meaning, an *ex ante* approach to drafting is not effective because it is nearly impossible for the patentee to know the exact scope of his claims after prosecution.[115] This is to the patentee's benefit because it gives him the

[110] *Phillips*, 415 F.3d at 1312 (Fed. Cir. 2005) ("Because the patentee is required to 'define precisely what his invention is,' the Court explained, it is 'unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.' White v. Dunbar, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886); see also Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) ('the claims measure the invention'); McCarty v. Lehigh Valley R.R. Co., 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895) ('if we once begin to include elements not mentioned in the claim, in order to limit such claim ..., we should never know where to stop'); Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) ('the claims made in the patent are the sole measure of the grant').").

[111] Hartung, *supra* note 1, at 331 ("More than 150 years ago, the U.S. Supreme Court recognized the public notice function of patent claims.7 In 1854, the Court acknowledged the 1835 Patent Act required an inventor to particularly specify ...one who seeks a patent monopoly has the burden to describe with precision and clearness the invention.").

[112] Burk & Lemley, *supra* note 21, at 1781 ("It is virtually impossible for any institution to make sensible predictions about a particular patentable innovation: about the applications that will emerge for the patentee's invention, the variations of the invention that might develop, the competing or substitute technologies that will arise, or the dependence or independence of complementary technologies to the given invention.").

[113] Hubbard, *supra* note 63, at 327 ("First, courts should recognize that patents often cannot communicate *ex ante* the scope of patent rights and should adjust certain patent law doctrines accordingly. Second, an administrative procedure should be established to cheaply clarify patent scope after a patent has issued.").

[114] Surden, *supra* note 23, at 1813 ("The resources expended refining the remaining 95% appear to be a social loss and would not be efficient if that cost outweighs the scope improvement benefits gained for the 5% of consequential patents. If patent rules require too much additional *ex ante* information, the net costs may outweigh the net benefits from a society-wide perspective."); *see also*, Hubbard, *supra* note 63, at 327 ("In addition, *ex ante* clarification often would be wasteful because so few patents are valuable enough to be contested.").

[115] Surden, *supra* note 23, at 1751 ("In other words, the legally authoritative meanings of most of the words of the claim are not definitively knowable *ex ante*, but rather, exist in a probabilistic range of possible scopes. Patent

most opportunities to use his patent offensively or defensively. A *per se* limiting regime would cause an over limiting of patentee's claims because a *per se* limiting standard forces every word to limit the claim. The result is the USPTO cannot give the broadest reasonable interpretation because the inventive claim is restricted to a specific field of invention. A *per se* non-limiting may have an *ex ante* benefit to the patentee in that it does not limit the claim too narrowly while not hindering the patentee *ex post* claim interpretation.

Below are two examples to illustrate concretely the benefits of a *per se* non-limiting regime.

An example can be found in *Pacing Techs., LLC v. Garmin Int'l, Inc*.[116] The Federal Circuit ruled the preamble limits the claim scope because it gives antecedent basis to two claim elements within the claim body. The claim in dispute is reproduced:

> "A *repetitive motion* pacing system for pacing a *user* comprising:
> a web site adapted to allowing *the user* to preselect from a set of user-selectable activity types an activity they wish to perform and entering one or more target tempo or target pace values corresponding to the activity;
> a data storage and playback device; and
> a communications device adapted to transferring data related to the pre-selected activity or the target tempo or the target pace values between the web site and the data storage and playback device." *Pacing Techs., LLC v. Garmin Int'l, Inc., 778 F.3d 1021, 1022-23* (*Fed. Cir. 2015*).

The Court states that "a repetitive motion" and "a user" in the preamble gives antecedent basis to the user in the body of the independent claim and the repetitive motion in a later dependent claim.[117] Under a *per se* limiting regime the §112 issues are resolved, but the patentee may be improperly restricted to a singular field of invention even though the inventive feature could have broader applications. If the preamble were evaluated under a *per se* non-limiting standard, the examiner would be able to approach the recitation to "the user" in the body of the claim by issuing a § 112(b) definiteness rejection for lack of antecedent basis for "the user" because "a user" would need to be in the body instead of the preamble to be limiting. The applicant could then respond in two ways that would be recorded in prosecution history:

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claims with a wide range of interpretive variability often create scope uncertainty because it is difficult to know objectively, and *ex ante*, which is the legally determinative scope.").

[116] Pacing Techs., LLC v. Garmin Int'l, Inc., 778 F.3d 1021, 1023 (Fed. Cir. 2015) ("We hold that the preamble to claim 25, which reads '[a] repetitive motion pacing system for pacing a user ...,' is limiting.").

[117] *Id.* at 1024 ("The term 'user' in the preamble of claim 25 provides antecedent basis for the term 'user' in the body of that claim. The body of claim 25 recites 'a web site adapted to allowing *the user* to preselect from a set of user-selectable activity types an activity they wish to perform and entering one or more target tempo or target pace values corresponding to the activity.' The term 'repetitive motion pacing system' in the preamble of claim 25 similarly provides antecedent basis for the term 'repetitive motion pacing system' recited as a positive limitation in the body of claim 28, which depends from claim 25. Claim 28 of the '843 patent reads: '[t]he repetitive motion pacing system of claim 25, wherein the repetitive motion pacing system can determine a geographic location of the data storage and playback device.' Because the preamble terms 'user' and 'repetitive motion pacing system' provide antecedent basis for and are necessary to understand positive limitations in the body of claims in the '843 patent, we hold that the preamble to claim 25 is limiting.") (internal citations omitted).

1. persuasively argue that the preamble is limiting, thereby resolving the §112 issue; or

2. redraft the claim such that the body of the claim includes "a user" for carrying out the steps required.

Practically, because the amendment process during prosecution is a matter of course, drafting or redrafting a claim to account for a non-limiting preamble is easy.[118] A possible redrafted of the claim, for treatment under a *per se* non-limiting standard, could be:

> "A pacing system comprising:
> a web site adapted to allowing a user to preselect from a set of user-selectable activity types an activity they wish to perform and entering one or more target tempo or target pace values corresponding to *a repetitive motion to pace the user to the activity*;
> a data storage and playback device; and
> a communications device adapted to transferring data related to the pre-selected activity or the target tempo or the target pace values between the web site and the data storage and playback device."

Again, post amendment the §112 issue is resolved bringing greater *ex ante* clarity to the claims, but without limiting the patentee to a specific field of invention allowing for proper *ex post* claim construction. The *ex ante* benefit is manifested in two forms:

1. The patentee's confidence that the claim contains only intended limitations; and

2. All other parties reading the claim will focus on the body of the claim to determine scope.

The patentee has better chances to receiving a favorable *ex post* claim scope interpretation from the courts because the preamble cannot be construed in any way to improperly limit the claim.

The *per se* non-limiting rule can apply also to preambles where the Federal Circuit rules the preamble to be non-limiting. In *TomTom, Inc. v. Adolph*,[119] the Federal Circuit ruled that the following claim is not limited by its preamble because it did not "recite essential structure or steps, or gives necessary life, meaning and vitality to the claim.[120]

> "1. A method for generating and updating data *for use in a destination tracking system of at least one mobile unit* comprising:

[118] David L. Schwartz, *Retroactivity at the Federal Circuit*, 89 Ind. L.J. 1547, 1553 (2014) ("The claims have already been drafted, *frequently amended during prosecution*, and examined.").

[119] TomTom, Inc. v. Adolph, 790 F.3d 1315 (Fed. Cir. 2015).

[120] *Id.* at 1324 ("The phrase 'generating and updating data for use in' does not recite essential structure or steps, or give necessary life, meaning, and vitality to the claim. It was therefore error for the district court to use an antecedent basis rationale to justify converting this independent part of the preamble into a new claim limitation.").

> generating and storing traveled distance data in at least one storage device provided in said mobile unit at least at predetermined time intervals, wherein the traveled distance data represent traveled sections by at least a series of nodes P_i and to each node P_i geographical coordinates x_i and y_i are assigned;
>
> generating and storing section data in the storage device provided in the mobile unit, said section data being generated by selecting, from the traveled distance data, nodes P_j and P_k, which define contiguous sections P_jP_k, to which at least their geographical starting point and end point are assigned; and
>
> generating a section data file from the section data and storing the section data file in the storage device provided in the mobile unit, said section data file being continuously supplemented and/or updated with section data newly generated by the mobile unit." *TomTom, Inc. v. Adolph, 790 F.3d 1315, 1318* (*Fed. Cir. 2015*).

Both parties believed that the recitation of "a destination tracking system of at least one mobile unit" were limiting especially after a district court ruling,[121] but the Federal Circuit overturned the district court decision. The Federal Circuit reasoned even if part of the preamble provided for limiting structure, it does not convert the entire preamble into a limitation.[122] The Court remanded the case back to the district court for the claim construction to proceed with a non-limiting preamble.[123] The inconsistency in applying the preamble framework between the district court and the Federal Circuit caused issues for both parties' *ex ante* and *ex post*. They were expecting the preamble to be limiting, and expected a narrower claim construction before litigation. Because the Court ruled the opposite, the patentee's claim can now have a broader scope than was otherwise expected, which could result in possible invalidation—a broader set of prior art can now be introduced to rebut the validity of patentee's claims.

The patentee could have avoided this pitfall if the preambles were considered *per se* non-limiting during prosecution. As stated earlier, the patentee could have stated in writing to the Examiner and recorded in the prosecution history, serving as a "clear and unambiguous disclaimer,"[124] that the preamble is a limitation or the patentee redrafts his claim. A potential redraft is as follows:

> 1. A method for generating and updating data comprising:
>
> generating and storing traveled distance data *for use in a destination tracking system of at least one mobile unit* in at least one storage device provided in the mobile unit at least at predetermined time

[121] *Id.*

[122] *Id.* at 1323 ("That the phrase in the preamble 'destination tracking system of at least one mobile unit' provides a necessary structure for claim 1 does not necessarily convert the entire preamble into a limitation, particularly one that only states the intended use of the invention.").

[123] *Id.* at 1329 ("For the reasons set forth above, the appealed constructions of the district court are reversed, and the case is remanded for proceedings not inconsistent with this opinion.").

[124] *Id.* at 1325 ("Because there is no 'clear and unambiguous' disclaimer that the tracking system does not contain an initial map database, we reverse the district court's construction.").

> intervals, wherein the traveled distance data represent traveled sections by at least a series of nodes P_i and to each node P_i geographical coordinates x_i and y_i are assigned;
>
> generating and storing section data in the storage device provided in the mobile unit, said section data being generated by selecting, from the traveled distance data, nodes P_j and P_k, which define contiguous sections P_jP_k, to which at least their geographical starting point and end point are assigned; and
>
> generating a section data file from the section data and storing the section data file in the storage device provided in the mobile unit, said section data file being continuously supplemented and/or updated with section data newly generated by the mobile unit.

It can be seen again, that the patentee has both *ex ante* and *ex post* benefits. The patentee knows in advance that his preamble will not limit him and can anticipate that if there were litigation the claim construction will involve with only the body of the claim. The patentee also benefits because the patent examiner will explore the largest breadth of prior art because his claim is not restricted to a specific field of search. A *per se* non-limiting approach in patent prosecution benefits both the public and patentee. The clarity that *per se* limiting proponents desire are achieved in a non-limiting regime both *ex ante* and *ex post*.[125]

B. USPTO

A bright-line standard rule could create administrative easy in most cases.[126] A *per se* limiting regime may increase cost to both drafter and USPTO. The applicant would be required to draft disclosures and claims more carefully resulting in increasing the amount of resources applicants must spend. The USPTO would face an increase in their already substantial backlog[127] while also introducing a new legal standard to the all patent examiners. New trainings would will take time away from examination and increase cost to re-train patent examiners to understand and implement the new legal standard. Even with proper administrative training, there is no guarantee that the whole examination core will apply the legal standard uniformly or correctly. The overall cost to the applicants and USPTO would increase in some form as a consequence.

In contrast, a *per se* non-limiting rule is easy to apply for both drafters and USPTO. The cost to the drafter would be minimal because he may choose to

[125] Kliebenstein & McDonald, *supra* note 84, at 323 ("Common sense and fairness would seem to require *a patentee to be bound to all the language* they select for their claims. The patent system gains nothing from allowing a patentee to choose whether to invoke the 'Life and Meaning' test during litigation to avoid or modify the plain meaning of their own claims.").

[126] *Id.* at 324 ("Lack of a uniform rule wastes time and resources in litigation. The current rules create enormous risk for litigants and more revenue for patent litigators. Both plaintiffs and defendants are affected when claim scope is uncertain under the 'Life and Meaning' test.").

[127] Jared Robert Clark, Promoting the Progress for Some: Why Independent Inventors Are the First to Suffer As the Doctrine of Equivalents Fades Away, 52 S.D. L. Rev. 355, 381 (2007) ("[B]acklog of applications awaiting a first review, 600,000. Without a change in the system, current levels are expected to grow to over 1,000,000 backlog by the year 2010.") (statement of Rep. Berman, Member, House Comm. on the Judiciary).

either amend the claim, which the USPTO gives as a matter of course, or explicitly document in the prosecution history that the preamble is to limit the claim scope. These options are currently available to applicants when they file their complete Rule 111 reply to an outstanding Office action.

Those opposed to a *per se* non-limiting standard may argue it is contrary to statutory requirements set forth in § 112: namely, is the claim may not particularly point out and distinctly claim the what applicant regards as the invention.[128] This opposing view finds more support in a non-limiting regime because this argument operates on the assumption that the patentee and his counsel's sophistication varies.[129] If the drafter understands that examiners will deem the preamble non-limiting at the outset of examination, drafters will focus on placing the proper limiting limitations within the body of the claim and satisfy the § 112 requirements.[130]

Patent prosecution is the best opportunity a patentee has to discover the widest breadth his claims could have, but having a *per se* limiting regime demands the examiner to narrow the prior art search, thus denying the patentee's broadest reasonable interpretation. A *per se* limiting standard is in actuality contrary to BRI. A non-limiting standard embraces BRI because it allows a patent examiner to search a variety of arts that are analogous through functionality. The applicant, through amendment or argumentation, can avoid the prior art and have more confidence that looked in all possible areas. It would seem that a broader search facilitates a better negotiation between the applicant and the examiner. A non-limiting standard would truly be objective that brings the clarity that those who espouse *per se* limiting regime desire.[131]

C. Implementation:

Bright-line rules are typically easily applied, but at times their use is discouraged depending on the context.[132] A USPTO bright-line rule regarding pream-

[128] Kliebenstein & McDonald, *supra* note 84, at 318 ("Section 112 mandates that an inventor particularly and distinctly describe in his or her patent the invention being patented.111 The court noted that its precedent emphasized the important relationship between the specification and claims.").

[129] *Id.* at 324 ("Moreover, it seems reasonable to assume that even the unsophisticated claim drafter would draft the claims with no basis to believe that the preamble language was any more or less important than any other language in the claims. Section 112 gives neither lawyer nor layperson any reason to rank the import of claim language depending on the language's proximity to the claim's first word.").

[130] "Those two paragraphs of section 112 frame the issue of claim interpretation for us. The second paragraph requires us to look to the language of the claims to determine what 'the applicant regards as his invention.' On the other hand, the first paragraph requires that the specification describe the invention set forth in the claims. The principal question that this case presents to us is the extent to which we should resort to and rely on a patent's specification in seeking to ascertain the proper scope of its claims." *Phillips*, 415 F.3d at 1312.

[131] Kliebenstein & McDonald, *supra* note 84, at 323 ("The Supreme Court and *Phillips* have emphasized the importance of giving clear notice of a claim's scope to the public. This notice function would be best served by a requirement that the preamble is always a limitation. Patentees, patent prosecutors, parties to litigation, courts, and the PTO would benefit from abandoning the 'Life and Meaning' test in favor of a uniform rule.").

[132] Burk & Lemley, *supra* note 21, at 1781 ("Bright-line rules work best where an institution is able to determine the optimal legal imperative *ex ante*. Standards work best where an institution is able to determine the optimal legal imperative *ex post*. The patent system entails one of each type of institution: an administrative agency, of the sort that is probably best suited to *ex ante* rulemaking, and a court system, that is probably best suited to *ex post* adjudication. Claims are formed in the first institution but interpreted in the second. And the selection of a bright-line peripheral-claiming approach for judicial claim-construction confounds this allocation of authority.").

bles would work best since the claims are first interpreted there.[133] Concerns that a bright-line USPTO rule would confound or interfere with any Federal Court precedent are unfounded if properly implemented.[134] The USPTO has authority to administer any rule to facilitate proceedings that is in accord with governing laws.[135] Implementing a general *per se* non-limiting standard must leave the option for practitioners to state or allow claims to be drafted with limiting preambles because legally binding construction can only be made through the litigation process.[136] A USPTO rule, if implemented, would not interfere with the Federal Circuit or Supreme Court decisions, giving applicants a clear claim drafting alternative, thus avoiding the preamble's legal mine field.

Conclusion

The *per se* non limiting preamble standard alleviates one set of confusion in claim construction. Instead of multiple standards for determining the scope of a claim for the preamble and the body, we should use one standard for the entire claim. The preamble should serve its traditional role as non-limiting and as merely background for a claimed invention. Over its history, the preamble appears elevated to carry patentable weight, when historically it didn't. Perhaps a change to the MPEP, or an interpretative notice in the Federal Register, would be in order.

The USPTO can institute rules and policies about claim interpretation unless they are contrary to the powers given to them through Congress or contrary to the established patent laws. A *per se* non-limiting standard is not contrary to the established laws especially since the USPTO needs not apply the *Phillips* standard for claim construction during prosecution. The negotiation abilities given under BRI allow for the USPTO put the claims into a form that would comport with all the standards of *Phillips*. Applicants will be able to interact with examiners to discuss patent scope in light of prior art and establish that the body of the claim contains all pertinent limitations for the claimed inventive feature. If litigation is to arise post issuance, the Federal courts would see from prosecution history that the preamble was not relied upon to limit the scope of the claim and that all limitations reside inside the body of the claim. Although *per se* non-limiting standard would not be binding upon courts, over time the preamble would have little consequence since drafters would place all claim limitations within the body. Judicial review would be stream lined because all necessary limitations would be recited in the body of the claim, not its preamble. The preamble would no longer be a source of strife.

[133] *Id.* ("[A]n administrative agency, of the sort that is probably best suited to *ex ante* rulemaking, and a court system, that is probably best suited to *ex post* adjudication. Claims are formed in the first institution but interpreted in the second.").

[134] *Id.* ("And the selection of a bright-line peripheral-claiming approach for judicial claim-construction confounds this allocation of authority.").

[135] 35 U.S.C. § 2(b)(2)(A)

[136] Burk & Lemley, *supra* note 21, at 1750 ("In *Markman*, the Court held that the construction of patent documents, like the construction of other legal documents, was to be done as a matter of law by judges, not juries.").

colophon

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