

Claiming Intellectual Property

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This Article explores the claiming systems of patent and copyright law with a view to how they affect innovation. It first develops a two-dimensional taxonomy: claiming can be either peripheral or central, and either by characteristic or by exemplar. Patent law has principally adopted a system of peripheral claiming, requiring patentees to articulate by the time of the patent grant their invention's bounds, usually by listing its necessary and sufficient characteristics. And copyright law has implicitly adopted a system of central claiming by exemplar, requiring the articulation only of a prototypical member of the set of protected works—namely, the copyrightable work itself fixed in a tangible form. Copyright protection then extends beyond the exemplar to substantially similar works, a set of works to be enumerated only down the road in case-by-case infringement litigation. Despite patent law's typical peripheral claims by characteristic and copyright law's typical central claims by exemplar, in practice, patent and copyright claiming are each heterogeneous, in that they rely on other forms of claiming. This Article explores which forms of claiming promote intellectual property's overarching constitutional goal: "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." It considers how each sort of claiming affects the costs of drafting claims, efficacy of notice to the public of the set of protected embodiments, ascertainment of protectability, breadth of the set of protected works, and the protectability of works grounded in after-developed technologies. With the goal of stimulating innovation, I suggest that patent law can be tweaked by adding claiming elements more reminiscent of copyright law, namely central claims and claims by exemplar. Claiming in copyright law is more complicated. Though its current claiming approach has flaws suggesting that central claiming by characteristic might be preferable, aspects integral to the copyright system—including its fine line between protecting expression but not ideas, grounded in the First Amendment; societal views on describing the artistic works copyright protects; and the ease of creating copyrightable works—give significant pause to any notion of adopting central claiming by characteristic in copyright.

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INTRODUCTION

By writing a series of James Bond novels, Ian Fleming qualified for American copyright protection, pursuant to which works created by others without license and found by courts to be substantially similar to the novels would generally infringe his copyright. Imagine instead that Fleming would have had to draft a claim setting out his novels' essential features, such as "a story featuring a suave male British spy, who frequently wears a tuxedo and has a strong sensual appetite, and detailing his adventures in international intrigue, in which he prevails through use of his quick wit and high-technology gadgets."¹ Dependent claims might further note that the spy introduces himself by his last name followed by his full name ("Bond, James Bond") and that he orders his martinis "shaken, not stirred."² Copyright protection would then be premised on the bounds delineated by these claims. Infringement litigation might then need to address how often is "frequently" or whether a film featuring a similar female British character ("Bond, Jane Bond") infringes the copyright.

This hypothetical claiming system looks like that of patent law, under which an invention's bounds must be demarcated as a prerequisite to patent protection. But envision for a moment that patent claiming would look more like that of copyright law. Alexander Graham Bell would receive a patent for his invention of the telephone³ after having fixed (or perhaps commercialized) it in some form. Assuming the invention complies with the threshold requirements of patent law, the set of protected embodiments would include all substantially similar implementations—a cordless telephone? a fax machine? Internet telephony?—a set to be enumerated on a case-by-case basis in any future infringement litigation, rather than at the time of patenting. This determination would require courts to ascertain the essential properties of a patented invention.

¹ This hypothetical claim conflates the treatment of James Bond in Fleming's novels and later in film. See *Metro-Goldwyn-Mayer, Inc v American Honda Motor Co*, 900 F Supp 1287, 1294–97 (CD Cal 1995) (adjudging James Bond to be a copyrightable character). And it would not be far off from recent claims in patent applications for storylines. See generally Andrew F. Knight, *A Patently Novel Plot: Fiction, Information, and Patents in the 21st Century*, 47 IDEA 203 (2006) (predicting that "storyline patents" will overcome the statutory hurdles and constitutional concerns that might inhibit the patentability of such claims).

² But see Josh Grossberg, Blog, *Don't Call Him Bond, James Bond*, E! Online (Sept 23, 2008), online at http://www.eonline.com/uberblog/b30472_Don_t_Call_Him_Bond__James_Bond.html (visited Apr 14, 2009) (noting that these two characteristics are not in the 2008 James Bond movie, *Quantum of Solace*).

³ But see Seth Shulman, *The Telephone Gambit: Chasing Alexander Graham Bell's Secret* 35 (Norton 2008) (suggesting that Bell might not have invented the telephone).

This thought experiment seems to indicate that claiming the set of protected embodiments under patent law looks very different than copyright law. And in a sense, it does. Patent law has adopted a system of peripheral claiming, requiring patentees to articulate their inventions' bounds by the time of the patent grant,⁴ usually by listing their necessary and sufficient characteristics. Peripheral claims in patent law are conventionally thought to give notice to the public of the extent of the set of protected embodiments so as to encourage efficient investment in innovation, thereby fostering patent law's overarching goal of stimulating useful innovation by maintaining "the delicate balance . . . between inventors, who rely on the promise of the law to bring the invention forth, and the public, which should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights."⁵ And copyright law has implicitly adopted a system of central claiming⁶ by exemplar, requiring the articulation only of a prototypical member of the set of protected works—namely, the copyrightable work itself fixed in a tangible form.⁷ Copyright protection then extends beyond the exemplar to substantially similar works,⁸ a set of works to be enumerated only down the road in case-by-case infringement litigation. Investigating the claiming practices of patent and copyright law side by side thus illuminates two salient axes for claiming intellectual property: peripheral versus central and characteristic versus exemplar. Though scholarship mentions patent law's peripheral claims⁹ and Clarisa Long and Henry Smith discuss patent law's claiming requirements and copyright law's lack thereof,¹⁰ until now these dual claiming dimensions have not been expressly appreciated.

Despite patent law's typical peripheral claims by characteristic and copyright law's typical central claims by exemplar, in practice, patent

⁴ Anthony W. Deller, 1 *Patent Claims* § 5 (Lawyers Cooperative 2d ed 1971) (analyzing the chief difference between central claiming and peripheral claiming).

⁵ *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co*, 535 US 722, 731 (2002).

⁶ See Deller, 1 *Patent Claims* at § 5 (cited in note 4) (tracing the historical roots of central claiming).

⁷ See 17 USC § 102(a) (describing the subject matter receiving valid copyright protection as "original works of authorship fixed in any tangible medium of expression").

⁸ See, for example, *Whitehead v Paramount Pictures Corp*, 53 F Supp 2d 38, 46 (DDC 1999) (indicating that an integral aspect of finding copyright infringement is substantial similarity between the protected and the accused works).

⁹ See, for example, Alan L. Durham, *Patent Symmetry*, 87 BU L Rev 969, 982–83 (2007) (defining "peripheral claiming" as the attempt to describe the outer bounds of the patent claim).

¹⁰ See Clarisa Long, *Information Costs in Patent and Copyright*, 90 Va L Rev 465, 499–501 (2004) (describing the differences between patent and copyright law with respect to how each handles the information asymmetry between owners and observers); Henry E. Smith, *Intellectual Property As Property: Delineating Entitlements in Information*, 116 Yale L J 1742, 1807 (2007) (contrasting copyright and patent claiming rights and the governance regimes generated as a result of those rights).

and copyright claiming are each heterogeneous. Patent law retains some vestiges of central claiming under which it used to operate, as evidenced by the doctrine of equivalents, statutory means-plus-function claiming, and dependent claims. And patent law, though usually claiming by characteristic, encourages some claiming by exemplar through its best-mode requirement and Markush claims. By contrast, copyright law, through the approved use of licenses to permit others to make substantially similar works, encourages expression of the bounds of works permissibly created under such licenses and the delineation of characteristic features of the set of protected works. These expressions in legally binding contracts incorporate forms of peripheral claiming and claiming by characteristic into copyright practice.

This Article explores which forms of claiming promote intellectual property's overarching constitutional goal: "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."¹¹ It considers how each sort of claiming affects the costs of drafting claims, efficacy of notice to the public of the set of protected embodiments ("content notice"¹²), ascertainment of protectability, breadth of the set of protected works, and ability to defer to the future the decision of whether certain works (typically those that are technologically, commercially, or intellectually unforeseeable) fall within the set of protected works. That the choice of claiming systems implicates in different ways the foregoing factors—factors essential to calibrating intellectual property law to stimulate innovation—underscores the importance of choosing a claiming system with care.

Though previous scholarship principally defends the typical claiming forms for both patent and copyright law,¹³ this Article undertakes a thought experiment to analyze whether they are ideal for either type of intellectual property. This task, in fact, is suggested by patent law's incorporation of not insignificant elements of central and exemplar claiming and copyright practice's use of peripheral and characteristic claiming. This Article explores whether claiming in copyright and patent law can learn from one another.

Though patent law admirably incorporates all four types of claiming flexibly, it can be tweaked to stimulate innovation by adding claim-

¹¹ US Const Art I, § 8, cl 8.

¹² Throughout this Article, rather than use "notice" in isolation, I use "content notice," to avoid confusion with a term of art in copyright law, "copyright notice," which has the distinct meaning of notice that a copyright exists, as opposed to what content the right protects.

¹³ See generally Long, 90 Va L Rev 465 (cited in note 10) (using information-cost theory to justify certain differences between copyright and patent law); Smith, 116 Yale L J 1742 (cited in note 10) (same).

ing elements more reminiscent of copyright law. I suggest that patent law's typical peripheral claims by characteristic, adopted principally to provide content notice of the set of embodiments protected by a patent, do not provide sufficient notice, which negatively affects assessments of protectability and the operational breadth of the set of protected works. To ameliorate these and other concerns, I propose—contrary to conventional wisdom¹⁴—that ex ante patent claim drafting be modified to include central claiming by characteristic. And claiming by exemplar ought to serve a role in patent law. Claims by characteristic can be supplemented by rules requiring the registration of certain exemplars—all commercial implementations by the patentee or licensee—claimed to be within the set of protected embodiments. Exemplar registration, which would be available to the public and linked to the associated patent, would help sharpen the understanding of the bounds of the set of protected embodiments. And it would occur in the situations in which exemplars are most useful, when the patented invention is commercialized and is therefore likely to be valuable—when content notice is important. These modifications to patent claiming would better serve patent law's purpose to stimulate innovation by making it easier for the public to distinguish between material that must be licensed to be used and material that can be used freely for follow-up innovation.

Claiming in copyright law is more complicated. On the one hand, the comparative analysis of claiming approaches might seem to suggest that claiming in copyright law would be vastly improved by incorporating aspects more evocative of patent claims. On the other hand, aspects particular to copyright law suggest that such borrowing might not make sense in the copyright system. As it stands, copyright's central claims by exemplar provide little content notice to the public, leading risk-averse third parties either to take licenses even as to works not protected by copyright or to avoid them completely, a situation that grants too heavy a copyright reward at the expense of generating further creativity. In that vein, it might seem far more productive to require or provide significant incentive to copyright claimants ex ante to claim their works centrally by characteristic. This claiming would entail a succinctly expressed pattern of the work at issue. On this view, such claims would provide better ex ante content notice in two ways. First, the enablement of feature-by-feature comparisons could help indicate those works that would be considered to be substantially similar to the created work and thus protected under the copyright. Second, such claims could help ex-

¹⁴ See, for example, Michael J. Meurer and Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 *Georgetown L J* 1947, 1948–56 (2005).

plicate which substantially similar works would nonetheless be permissible uses under the doctrine of fair use by encouraging straightforward determinations of works that borrow from the copyrighted work in ways that do not implicate too many of the claimed features or transform it significantly. On the other hand, aspects integral to the copyright system—including its fine line between protecting expression but not ideas, grounded in the First Amendment; societal views on describing the artistic works copyright protects; and the ease of creating copyrightable works—give significant pause to any notion of adopting central claiming by characteristic in copyright.

The Article proceeds as follows. Part I discusses the nature of intellectual property rights by exploring the interaction between the right at issue and the thing that is protected by the right. It proposes a taxonomy of claiming in intellectual property. Part II descriptively explores the ostensibly different approaches that patent law and copyright law have taken, by outlining patent law's path from central to peripheral claiming by characteristic and copyright law's reverse path from peripheral to central claiming by exemplar. It then suggests that patent law nonetheless retains aspects of central and exemplar claiming and copyright law encourages aspects of peripheral and characteristic claiming. Part III analyzes how the different types of claiming affect claim drafting, content notice to the public, ascertainment of protectability, breadth of the set of works, and protection of works based on after-developed technologies (technologies postdating claiming). The Part goes on to examine the claiming systems of patent and copyright law in light of this analysis and their underlying policies of encouraging innovation. The Conclusion sums up and invokes the application of the developed taxonomy to other forms of intellectual property, such as trademarks and design patents.

I. THE RIGHT AND THE THING

At its core, property law is viewed as relational, “establishing rights in property owners and correlative duties in observers,”¹⁵ typically through rules of exclusion but sometimes also through governance rules.¹⁶ A property exclusion rule requires delineation of a thing's boundaries—prototypically, a piece of land—upon which the property rela-

¹⁵ Long, 90 Va L Rev at 474 (cited in note 10), citing Richard A. Epstein, *Bargaining with the State* 14–15 (Princeton 1993).

¹⁶ See Henry E. Smith, *Exclusion versus Governance: Two Strategies for Delineating Property Rights*, 31 J Legal Stud 453, 453–54 (2002) (analyzing the respective costs of exclusionary and governance strategies).

tion operates.¹⁷ By contrast, a property governance rule (such as nuisance) approves specified actions, oftentimes as to demarcated things.¹⁸ Copyright and patent rights are commonly conceived as structurally similar to real property rights,¹⁹ usually on the ground that they are thought to exclude others from using certain inventive or creative works, as supplemented by the occasional governance rule permitting certain actions²⁰ (such as compulsory licensing of certain sound recordings²¹). There is some historical basis for analogizing copyright and patent rights to those conferred by real property under the Lockean theory of labor²² and—relatedly—copyright and patent rights are referred to as “intellectual property,” expressly linking the legal regimes.²³

With real property, the legal right usually operates on a thing that is physically enclosed within demarcated boundaries. With intellectual property, the thing upon which the legal right operates—the invention or the original work—is not typically a single unit. Rather, it is usually a set comprised of multiple embodiments.²⁴ For example, a patent in the field of reclined seating might exclude others from using without license a leather recliner, a microfiber recliner, a sofa recliner, a home-theater recliner, and many other reclining seats. These recliners are

¹⁷ See Smith, 116 Yale L J at 1745–46 (cited in note 10) (arguing that information costs play a significant role in the delineation of the boundaries of intellectual property rights).

¹⁸ See id (“[T]he relation of the core of property to adjacent areas such as torts reflects a shift from an exclusion to a governance strategy: examples would include the trespass-nuisance divide.”).

¹⁹ See, for example, *Motion Picture Patents Co v Universal Film Manufacturing Co*, 243 US 502, 510 (1917) (“[Patent claims] so mark where the progress claimed by the patent begins and where it ends that they have been aptly likened to the description in a deed, which sets the bounds to the grant which it contains.”); Wendy J. Gordon, *An Inquiry into the Merits of Copyright*, 41 Stan L Rev 1343, 1365–77 (1989) (proposing that copyright is structured like property in creating rights of exclusion and in allowing owners to transfer works and confer use privileges).

²⁰ See Smith, 116 Yale L J at 1811–14 (cited in note 10) (discussing limitations to copyrights).

²¹ See 17 USC § 114 (defining the scope of exclusive rights in sound recordings).

²² See Adam Mossoff, *Is Copyright Property?*, 42 San Diego L Rev 29, 36 (2005) (explaining that copyright has a historical basis in the natural rights theory of property entitlement); Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550–1800*, 52 Hastings L J 1255, 1257 (2001) (arguing that natural rights theory influenced the early development of patent law).

²³ See Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 Tex L Rev 1031, 1033–37 (2005) (discussing the origins and importance of the term “intellectual property”). For analysis about whether this conceptual linkage is a sensible one, compare Smith, 116 Yale L J at 1777–82 (cited in note 10) (approving of it as a way of minimizing externalities), with Lemley, 83 Tex L Rev at 1031–32 (arguing that the linkage misguidedly leads to rules favoring full internalization by the rightsholder of intellectual property benefits, disturbing the overriding utilitarian purposes these laws should serve). See also James Bessen and Michael J. Meurer, *Patent Failure* 29–72 (Princeton 2008) (comparing real property and patent rights). This debate, however, is outside this Article’s scope.

²⁴ See generally Michael J. Madison, *Law As Design: Objects, Concepts, and Digital Things*, 56 Case W Res L Rev 381 (2005) (providing a wide-ranging discussion on the “things” in intellectual property law).

thus some of the many members of the set of embodiments protected by that patent.²⁵ Or by virtue of holding a copyright in the *Sesame Street* television series, the holder would control the right to make many substantially similar works, including a *Sesame Street* movie, a compilation of episode scenes teaching numeracy, and a *Sesame Street* character doll. These other works, along with the original creations, are some of the many members of the set of embodiments protected by the copyright. The rightsholder and third parties, in varying degrees, need to understand the contents of the set of embodiments constituting a protected thing in order to avoid infringement, to enter into negotiations regarding the right, and to innovate or create further.²⁶ The government also needs to have a sense of the set to ascertain protectability, either during pre-grant examination or post-grant adjudication.

Because the set of embodiments—the thing—involved in intellectual property is thus more abstract than the boundaries of the three-dimensional location—the thing—upon which a real-property right typically operates,²⁷ communicating the thing is more difficult in the intellectual property domain.²⁸ Moreover, as things protected by intellectual property rights are, by definition, new, it is harder to convey just what they are because they enter into the world perhaps unaccompanied by social meaning and without an understanding of their optimal use.²⁹

To claim the set of things protected by an intellectual property right, one might be required to delineate to the public the set's bounds so that a third party could determine whether any particular embodiment is a set member thus protected by the right. This sort of claiming is known as peripheral claiming.³⁰ Alternatively, one might publicly de-

²⁵ Compare *id.* at 411 (“All of patent law might plausibly be reduced to a single question: What is ‘the invention’ to be protected by the patent right?”).

²⁶ Gordon, 41 *Stan L Rev* at 1379–80 (cited in note 19) (discussing how boundaries in property law perform an important public-notice function); Long, 90 *Va L Rev* at 476 (cited in note 10).

²⁷ See John F. Duffy, *The Festo Decision and the Return of the Supreme Court to the Bar of Patents*, 2002 *S Ct Rev* 273, 306 (discussing the difficult task faced by the Supreme Court “to define accurately rights to incorporeal matters residing on the forefront of human knowledge”); Long, 90 *Va L Rev* at 482–84 (cited in note 10). But see Gordon, 41 *Stan L Rev* at 1380–81 (cited in note 19) (suggesting that copyright law approaches property law’s physicality of boundary-making through its fixation requirement).

²⁸ Bessen and Meurer, *Patent Failure* at 55–56 (cited in note 23); Sivaramjani Thambisetty, *Patents As Credence Goods*, 27 *Oxford J Legal Stud* 707, 708 (2007); Craig Allen Nard, *Certainty, Fence Building, and the Useful Arts*, 74 *Ind L J* 759, 760 (1999).

²⁹ Long, 90 *Va L Rev* at 484 (cited in note 10) (arguing that this problem is especially bad when there is only a thin market in the asset the intellectual property right protects).

³⁰ See Deller, 1 *Patent Claims* at § 5 (cited in note 4) (defining peripheral claiming and distinguishing it from central claiming); J. Dennis Malone and Richard L. Schmalz, Note, *Peripheral Definition Theory v. Central Definition Theory in Patent Claim Interpretation: A Survey of the Federal Circuits*, 32 *Geo Wash L Rev* 609, 610 (1963–1964) (describing peripheral claiming and noting that courts will occasionally deviate from the strict peripheral approach in certain fact situations).

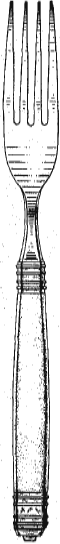
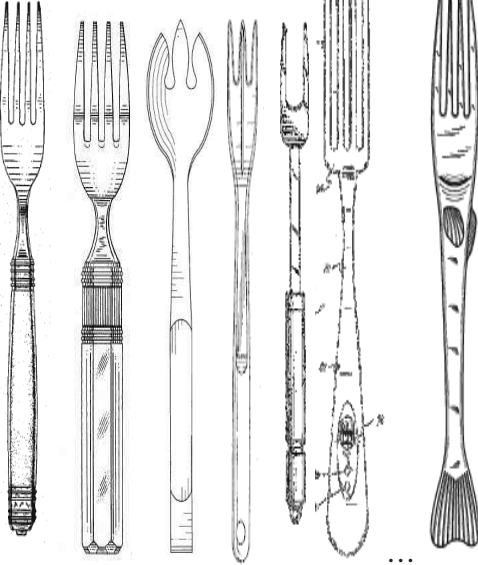
scribe only some members of the set, which are clearly protected under the right, and use them to determine whether other items are similar enough to the enumerated members to fall also within the same right. This sort of claiming is known as central claiming, in that the rightsholder describes the central, or prototypical, set members, but the right tends to cover a broader, similar set of items.³¹ Central and peripheral claiming might be seen as two points on a spectrum of how many members of the set must be described by the claim, with peripheral claims describing more members than central ones.

There is another important dimension on which claiming can vary, which until now has not been readily appreciated. Either peripheral or central claiming can be done by exemplar or by characteristic. Claiming by exemplar entails enumerating particular members of the set of protected embodiments. In the case of peripheral claiming by exemplar, one would enumerate each set member, while for central claiming by exemplar, one would catalog only some set members. Claiming by characteristic, on the other hand, requires a description of the essential properties of the set's members. For peripheral claiming by characteristic, one would describe the necessary and sufficient features common to all members of the set of protected embodiments. And for central claiming by characteristic, one would express the features common to at least some central members of the set of protected embodiments. Claiming by exemplar and by characteristic can be seen as opposing points on a spectrum of how much distillation of the actual works' characteristics is necessary.³²

³¹ See Deller, 1 *Patent Claims* at § 5 (cited in note 4); Malone and Schmalz, Note, 32 *Geo Wash L Rev* at 610 (cited in note 30) (“[U]nder the central definition approach, the claim defines a center of the monopolized territory like a savage community’s village defines its territory with no clearly defined bounds.”).

³² I omit discussion of a third potential dimension, that of time. The time at which claiming occurs can vary, from as early as the time the work is created to later on, perhaps during the context of infringement litigation. Moreover, the time at which the meaning of claims is fixed can also vary. See Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 *Mich L Rev* 101, 101–05 (2005).

TABLE 1
DIFFERENT WAYS TO CLAIM THE FORK

	Central Claiming	Peripheral Claiming
Claiming by Exemplar ³³		
Claiming by Characteristic	An instrument made out of sterling silver and having a handle attached to four prongs for piercing and carrying food	“An implement [having a handle attached to] two or more prongs,” used “for eating or serving food” or “for raising, carrying, piercing, or digging” ³⁴

There are thus two relevant dimensions on which claiming can vary: first, peripheral or central, and second, by exemplar or characteristic. To illustrate the four types of claims that can occur in this two-dimensional system, consider the claiming of the fork in Table 1. Pursuant to a system of peripheral claiming by exemplar, one would claim the set of forks by cataloging each possible fork in the set. In a system of central claiming by exemplar, by contrast, the set of forks might be claimed by

³³ This row's illustrations come from US Patent Nos D275068 (issued Aug 14, 1984), D278299 (issued Apr 9, 1985), D474658 S (issued May 20, 2003), D306116 (issued Feb 20, 1990), D272406 (issued Jan 31, 1984), 5421089 (issued June 6, 1995), and D474657 S (issued May 20, 2003).

³⁴ *The American Heritage Dictionary of the English Language* 690 (4th ed 2000) (defining fork and demonstrating usage).

enumerating at least one prototypical set member—here, one with four tines and some ornamental design on the handle. In either form of claiming by exemplar, the claim can be communicated using the actual work, drawings, writings, or other modes.³⁵ The set of forks in a system of peripheral claiming by characteristic would be claimed by describing the characteristics that each member of the set must possess, namely: that it have a handle, that the handle be attached to two or more tines, and that the tines be used for holding and lifting food or other items in agriculture. Compare a system of central claiming by characteristic, in which the set of works is claimed by outlining the characteristics of a prototypical subset of forks in the set—here, that they be made out of silver, that the fork have a handle, that the handle be attached to four tines, and that the tines be used for holding and lifting food.

The method of ascertaining the extent of the set of protected embodiments, for evaluating validity or infringement, depends on the type of claiming. For peripheral claiming by exemplar, one can determine whether a particular embodiment is protected by observing whether the embodiment matches any claimed exemplar. Does the fork in question match a fork in the pictured set? For peripheral claiming by characteristic, one must decide whether the embodiment possesses the claimed features. Central claiming by exemplar requires divination of the essential features of each claimed exemplar, followed by a determination whether the embodiment is sufficiently similar in those features to a claimed exemplar. And with central claiming by characteristic, one must decide whether the embodiment is sufficiently similar in its features to those claimed.³⁶

Before turning to the claiming approaches taken in patent and copyright law, it is worth mentioning some orthogonal recent work. In analyzing intellectual property rights, Henry Smith suggests that when it is costlier to ascertain or promulgate which third-party uses of members of a set of protected embodiments are beneficial than to delineate the protected thing, as with patent law, it is sensible to grant a right excluding all uses of the set, thus enabling the rightsholder to decide which uses to permit.³⁷ And when these relative costs are reversed, ac-

³⁵ Any description of exemplars other than with the actual work—using words, drawings, or other modes—moves toward claiming by characteristic, as condensed descriptions of the actual work using words, drawings, and the like choose to highlight some of the work's aspects.

³⁶ Despite these different claiming systems, the underlying intellectual property right might extend to identical, overlapping, or distinct sets of forks. See Part III.A.4.

³⁷ See Smith, 116 Yale L J at 1755, 1784–85, 1800 (cited in note 10) (noting that there are nonetheless governance rules in patent law, such as the doctrine of experimental use). Smith reasons that though information is nonrival, inputs to creating and commercializing information—such as inventions or art—are rival. *Id.* at 1747. Exclusion rights, on his analysis, permit protection of these rival inputs without needing the government to value these inputs. *Id.* at 1747–48.

ording to Smith, as with copyright law, it is appropriate to grant governance rights, particularly approving of or rejecting specified uses.³⁸ Without wading deeply into the merits of how intellectual property laws should ideally mix and match exclusionary and governance rights,³⁹ it must be emphasized that whichever approach is taken, it is almost always necessary to communicate the set of protected embodiments in some more-than-rudimentary form. When exclusion is employed, others must have the ability to comprehend the set of embodiments they cannot use.⁴⁰ And many governance rules specify permissible or impermissible actions but not the precise object or objects upon which they act. For example, copyright law grants the copyright holder the right to create derivative works,⁴¹ without defining such works exhaustively,⁴² thus requiring further definition by reference to the set of works protected under a particular copyright.⁴³ To the extent that Smith's approach is correct, the relative costs expended upon delineating the set of protected embodiments as compared with delineating the set of protected uses must be more fully explored. Though this Article touches upon the topic, a complete discussion is beyond this Article's scope.

II. CLAIMING INTELLECTUAL PROPERTY

In view of the presented taxonomy, I now describe and compare the approaches to claiming taken by patent and copyright law. Part II.A discusses patent law's historical move from central to peripheral claiming, the not insignificant vestiges of central claiming that remain in patent law, and the aspects of claiming by exemplar in patent law despite the typical claiming by characteristic. Part II.B sets forth copyright law's historical move from peripheral to central claiming, always by exemplar, and how copyright practice—in licensing—often involves peripheral or characteristic claiming. Part II.C then suggests that the current approaches to patent and copyright claiming are closer together in practice than is commonly conceived.

³⁸ See *id.* at 1785, 1800.

³⁹ Compare *id.* at 1742 (defending the rights delineated by patent and copyright law), with Mark A. Lemley and Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 *Tex L Rev* 783, 783–85 (2007) (arguing in favor of liability rules over property rules in varied intellectual property contexts).

⁴⁰ See Smith, 116 *Yale L J* at 1795 (cited in note 10).

⁴¹ 17 USC §§ 103(a), 106(2).

⁴² 17 USC § 101 (defining a “derivative work” in part as “a work based on one or more preexisting works” that can be in “any [] form in which a work may be recast, transformed, or adapted”).

⁴³ See notes 154–58 and accompanying text.

A. Patent Law

The principal goal of the American patent system is to stimulate innovation,⁴⁴ as manifested in the Constitution's articulation of Congress's power "[t]o promote the Progress of . . . useful Arts by securing for limited Times to . . . Inventors the exclusive Right to their . . . Writings and Discoveries."⁴⁵ This stimulation occurs by rewarding inventors with a time-limited exclusive patent right for taking two steps they likely would not otherwise take: to invent in the first instance⁴⁶ and to reveal information to the public about these inventions,⁴⁷ thereby enriching society with the invention and the ability to build on the invention. Claiming the set of embodiments protected by the patent right helps further both of these objectives. First, it ensures that the size of the protected set is just right to grant the appropriate incentive to invent in the first place.⁴⁸ Second, claiming communicates the set to the public to encourage efficient investment in the invention, by requiring licensing or abstinence from the set's embodiments and by permitting free use of embodiments not in the set.⁴⁹ In essence, claiming helps the public assess what remains in the public domain and what has been made private. The choice of claiming system therefore is essential in its impact on the overarching goals of the patent system.

Part II.A describes patent law's claiming system. Part II.A.1 surveys patent law's move in the nineteenth century from central to peripheral claiming to secure a patent. Part II.A.2 sets forth remnants of central claiming in current patent law—the doctrine of equivalents, means-plus-function claiming, and dependent claiming. And Part II.A.3 shows that despite the typical practice in patent law of claiming by characteristic, the law enables some claiming by exemplar.

1. A move from central to peripheral claiming.

The earliest national patent laws, enacted in 1790, required the patent applicant to describe his invention⁵⁰ in a form of central claiming so

⁴⁴ Dan L. Burk and Mark A. Lemley, *Policy Levers in Patent Law*, 89 Va L Rev 1575, 1597–99 (2003).

⁴⁵ US Const Art I, § 8, cl 8.

⁴⁶ See Burk and Lemley, 89 Va L Rev at 1581–82 (cited in note 44) (analyzing the costs of research and development across various industries).

⁴⁷ See *Kewanee Oil Co v Bicron Corp*, 416 US 470, 480–81 (1974) (discussing patent law's disclosure requirements and the policy concerns motivating such requirements).

⁴⁸ See Craig Allen Nard, *A Theory of Claim Interpretation*, 14 Harv J L & Tech 1, 3 (2000).

⁴⁹ See Jeanne C. Fromer, *Patent Disclosure*, 94 Iowa L Rev 539, 549 (2009) (arguing that disclosure of information stimulates “inventing around, improving upon, and inspiring both during and after the patent term”).

⁵⁰ This Part addresses utility, not design, patents. Design patents are discussed below. See text accompanying notes 390–94.

as loosely to distinguish it from other previous inventions and did not demand that he articulate the categorical boundaries of his invention.⁵¹ Applicants could accomplish this distinction by some combination of claiming by characteristic and exemplar: describing an embodiment of the invention and delineating its distinguishing characteristics or negatively by disclaiming that which was already known or used before the invention.⁵² One would infringe a patent by making or using an embodiment substantially similar in operation and underlying principles to that which was described in the patent.⁵³ Beginning in 1793, the newly created Patent Office would register each filed patent without scrutinizing its central claims.⁵⁴ Validity (on the basis of novelty, utility, and adequate disclosure) and patent scope would be assessed only if there were subsequent litigation.⁵⁵

Concerns arose that central claiming—especially without examination before granting a patent—led to difficulty in ascertaining validity and infringement because the full bounds of the set of protected embodiments were not set out in the patent. In 1822, the Supreme Court expressed its displeasure with central claiming on the basis that it does not “put the public in possession of what the party claims as his own invention so as . . . to guard against prejudice or injury from the use of an invention which the party may otherwise innocently suppose not to be patented.”⁵⁶

Congress responded in 1836 by requiring the patent applicant to “particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery”⁵⁷ and by instituting patent examination.⁵⁸ Nonetheless, these changes did not significantly move the patent system away from central claiming toward peripheral claiming.⁵⁹ Under the new regime, patents would typically contain a single claim, “a catalog of selected elements without explanation of how they interacted, merely followed by words such as ‘constructed

⁵¹ See Patent Act of 1790 § 2, 1 Stat 109, 110 (setting out format of the “specification” the inventor must provide to obtain a patent). See also Deller, 1 *Patent Claims* at § 5 (cited in note 4) (defining central claiming and tracing its history in American patent law).

⁵² See Karl B. Lutz, *Evolution of the Claims of U.S. Patents*, 20 *J Patent Office Socy* 134, 140–42 (1938) (discussing the historical development of the law surrounding improvement patents).

⁵³ See *Odiorne v Winkley*, 18 F Cases 581, 582 (CC D Mass 1814) (charging the jury with this patent infringement standard in a case involving a machine for “cutting and heading nails”).

⁵⁴ See Bruce W. Bugbee, *The Genesis of American Patent and Copyright Law* 150 (Public Affairs 1967).

⁵⁵ See *id.*

⁵⁶ *Evans v Eaton*, 20 US (7 Wheat) 356, 434 (1822).

⁵⁷ Patent Act of 1836 § 6, 5 Stat 117, 119.

⁵⁸ Patent Act of 1836 § 7, 5 Stat at 119–20.

⁵⁹ See William Redin Woodward, *Definiteness and Particularity in Patent Claims*, 46 *Mich L Rev* 755, 760–65 (1948).

and adapted to operate substantially as set forth.”⁶⁰ Though some courts wanted to construe the set of things upon which the patent right operates by reference only to the claim,⁶¹ the Supreme Court in 1853 concluded otherwise in *Winans v Denmead*.⁶² *Winans* involved a patent for a railroad car that would carry coal stably without deforming the body of the car, claimed in the patent as having “the form of a frustum of a cone” to distribute the car’s load equally throughout.⁶³ The alleged infringement was a railroad car with an octagonal shape, a shape not literally infringing the claim but relying on the related principle that a shape approximating a circle would tend to distribute the load equally.⁶⁴ The Court ruled that the octagonal car fell within the scope of the patent,⁶⁵ reasoning that infringement (and patent scope) would be determined by reference not exclusively to the patent claim but also with due weight given to the patent’s written description of the invention and its underlying principles.⁶⁶ Thus, in line with central claiming, the bounds of the set of protected embodiments would be determined by enumerating the set’s members on a case-by-case basis, by questioning whether the potential infringement was sufficiently similar in its essential characteristics to those prototypical members or underlying principles described in the patent. This determination required courts to ascertain the essential properties of a patented invention. If anything, a patent’s specification and claim helped courts focus on these essential properties but did not limit them.⁶⁷

⁶⁰ *Hilton Davis Chemical Co v Warner-Jenkinson Co*, 62 F3d 1512, 1564 & n 14 (Fed Cir 1995) (Plager dissenting), quoting Ridsdale Ellis, *Patent Claims* § 6 (Baker, Voorhis 1949). Alternatively, patent claims would refer to the specification and drawings, claiming the described embodiment and its equivalents, Deller, 1 *Patent Claims* at § 6 (cited in note 4), or would negatively claim aspects of the invention thought to be old and thus unclaimable, Duffy, 2002 S Ct Rev at 308–09 (cited in note 27).

⁶¹ See, for example, *Parker v Sears*, 18 F Cases 1159, 1162 (CC ED Pa 1850) (claiming that the patentee should not be allowed “to couch his specifications in such ambiguous terms, [such] that its claims may be contracted or expanded to suit the exigency”).

⁶² 56 US (15 How) 330 (1853).

⁶³ *Id* at 331.

⁶⁴ *Id* at 332, 340.

⁶⁵ See *id* at 344.

⁶⁶ See *Winans*, 56 US at 342–43. See also *Burr v Duryee*, 68 US (1 Wall) 531, 573 (1864) (“[T]he invention . . . will be infringed by . . . [a] mechanism which performs the same service or produces the same effect in the same way, or substantially the same way.”). Four justices in *Winans* dissented, reasoning that the statutory language and policy goals of clarity and minimization of costly litigation warranted peripheral claiming—the determination of infringement and patent scope solely by reference to the claim’s literal bounds. See 56 US at 347 (Campbell dissenting).

⁶⁷ See *Pennwalt Corp v Durand-Wayland, Inc.*, 833 F2d 931, 958–59 (Fed Cir 1987) (Newman dissenting). During the same term as *Winans*, in judging the validity of some of Samuel Morse’s patent claims for his telegraph, the Supreme Court held that the patent right associated with broad functional patent claims extends only to those embodiments whose means were described in the patent specification or its equivalents, rather than to every embodiment that accomplishes that

Despite the Supreme Court's defense, central claiming was waning. Not only were there considerable judicial murmurings expressing a preference for more structured peripheral claims to be determinative of patent scope,⁶⁸ but by 1869, the Patent Office was requiring patent applicants to recite in the claim the novel characteristics distinguishing the invention at issue from prior art (leading patentees to claim the parts of their inventions).⁶⁹ A statutory change in 1870—requiring a patent applicant to “particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery”⁷⁰—officially (though gradually⁷¹) brought peripheral claiming, almost always by characteristic, to American patent law.⁷² The Supreme Court held that, pursuant to this statutory language, the articulated bounds of the patent claim would govern the scope of the set of things protected by the patent right.⁷³ Validity and infringement would thus be measured by construing the claim's bounds and then determining whether particular embodiments fell within those bounds. Characteristic peripheral claiming—in contrast to central claiming (by characteristic or exemplar)—thus did not require courts to decide which of an invention's properties were essential, as the patentee would delineate these qualities in the patent claims. To maximize the probability of broad patent scope, patentees began drafting increasing numbers of claims per patent.⁷⁴

function. See *O'Reilly v Morse*, 56 US (15 How) 62, 118–20 (1853) (explaining that if a person is able to accomplish the same task as the patented thing by using different methods, tools, or machines, then the patent is not violated). This case is consistent with *Winans* because underlying both decisions is the notion that the invention's described embodiments and principles—rather than broad claims, as in *Morse*, or narrow ones, as in *Winans*—are central to the determination of the set of embodiments upon which the patent right operates.

⁶⁸ See text accompanying notes 61 and 66.

⁶⁹ Lutz, 20 J Patent Office Socy at 466–69 (cited in note 52) (noting that the Rules of Practice of 1862 specifically stated that the claim should “identify the parts separately or in combination”).

⁷⁰ An Act to Revise, Consolidate, and Amend the Statutes Relating to Patents and Copyrights § 26, 16 Stat 198, 201 (1870).

⁷¹ See John M. Golden, *Construing Patent Claims According to Their “Interpretive Community,”* 21 Harv J L & Tech 321, 348–63 (2008) (documenting the slow evolution of modern claims and claim interpretation). For some time after the 1870 statutory change, patentees would claim an invention “substantially as described” in the written description, thereby retaining a form of central claiming. See Charles W. Adams, *The Doctrine of Equivalents: Becoming a Derelict on the Waters of Patent Law*, 84 Neb L Rev 1113, 1118 (2006) (explaining that the practice died out after 1914 when various legal actors held these words to be without legal effect).

⁷² Deller, 1 *Patent Claims* at §§ 4–5 (cited in note 4).

⁷³ See *Union Water-Meter Co v Desper*, 101 US 332, 337 (1879).

⁷⁴ See Lutz, 20 J Patent Office Socy at 489 (cited in note 52) (noting the rapid increase in the number of claims between 1900 and 1927).

Although there have been major statutory changes to the patent system, particularly the 1952 Patent Act,⁷⁵ the requirement of peripheral claiming looks much as it did in 1870.⁷⁶

2. Vestiges of central claiming.

Despite the asserted move to peripheral claiming, even the Supreme Court has recognized that “the abandonment of ‘central’ claiming may be overstated.”⁷⁷ At least two vestiges of central claiming have remained in the patent system, namely the doctrine of equivalents and means-plus-function claims. And a rule allowing dependent claims, added subsequent to the so-called demise of central claiming, promotes communicating prototypical embodiments much like central claiming does. I consider each in turn.

a) *The doctrine of equivalents.* The doctrine of equivalents asks a limited form of the question a central claiming system would ask. In doctrinal terms, a patentee can “claim those insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes,”⁷⁸ so long as they do not intrude on the prior art.⁷⁹ Equivalence is determined flexibly with reference to

the purpose for which a [claim element] is used in a patent, the qualities it has when combined with the other [elements], . . . the function which it is intended to perform[, and] whether persons reasonably skilled in the art would have known of the interchangeability of an [element] not contained in the patent with one that was.⁸⁰

⁷⁵ Patent Act of 1952, Pub L No 593, 66 Stat 792, codified at 35 USC § 1 et seq.

⁷⁶ *Warner-Jenkinson Co v Hilton Davis Chemical Co*, 520 US 17, 26 (1997). That said, a 1964 survey of the federal circuits reveals that post-1952 courts would sometimes apply an approach of central—rather than peripheral—claiming for equitable reasons. Malone and Schmalz, Note, 32 Geo Wash L Rev at 611–33 (cited in note 30) (surveying all circuit court patent infringement cases between 1953 and 1963). Though there has been a trend toward peripheral claiming in other countries, their claiming approaches vary. Compare Toshiko Takenaka, *Interpreting Patent Claims: The United States, Germany and Japan* 3, 27–38 (VCH 1995) (tracking the development of central claiming in Germany), with *id* at 3–4 (describing how Japanese courts follow peripheral claiming more strictly than do American courts), with David J. Brennan, *The Evolution of English Patent Claims As Property Definers*, 4 Intel Prop Q 361, 396 (2005) (asserting that European Union member states enacted peripheral claims statutes to comply with the European Patent Convention of 1973), with Ruay Lian Ho, *Compliance and Challenges Faced by the Chinese Patent System under TRIPS*, 85 J PTO Socy 504, 513 (2003) (characterizing China’s patent system as a hybrid of central and peripheral claiming).

⁷⁷ *Warner-Jenkinson*, 520 US at 27 n 4.

⁷⁸ *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co*, 535 US 722, 733 (2002).

⁷⁹ *Stumbo v Eastman Outdoors, Inc*, 508 F3d 1358, 1361 (Fed Cir 2007). Equivalence is measured at the time of infringement, rather than at the time of patent issuance. See *Warner-Jenkinson*, 520 US at 37.

⁸⁰ *Graver Tank & Manufacturing Co v Linde Air Products Co*, 339 US 605, 609 (1950). See also *Warner-Jenkinson*, 520 US at 39–40 (emphasizing this test’s flexibility); John R. Allison and

Today's doctrine of equivalents can be traced back to *Winans*, the decision affirming central claiming.⁸¹ This lineage is unsurprising, given that the doctrine is an essential aspect of central claiming, in which the set of protected embodiments is expressly extended to unclaimed equivalents of that claimed in the patent.⁸² The doctrine of equivalents suggests, at least in theory, that a patent applicant need not expressly claim an exhaustive set of embodiments to get protection for that set.

Given its origins under another claiming approach, some attack the doctrine's vitality as a square peg in a round hole because patentees can and should draft broad or multiple peripheral claims covering a comprehensive set of embodiments.⁸³ Critics of the doctrine of equivalents assert—in an argument rejected by the Supreme Court—that by “exten[ding] . . . legal protection for a patented invention beyond the literal words of the claims, the public's right to notice of what conduct is forbidden by a patent is compromised.”⁸⁴ Pursuant to this doctrine, these critics say, courts must work out patent scope in the future and on a case-by-case basis,⁸⁵ with the potential to undermine the judgment of the Patent and Trademark Office (PTO)⁸⁶ and encourage opportunistic

Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 *Stan L Rev* 955, 959 (2007) (describing the different formulations of the equivalence test that courts use).

⁸¹ See *Graver Tank*, 339 US at 608. See also text accompanying notes 62–67.

⁸² See Adams, 84 Neb L Rev at 1123 (cited in note 71) (describing the origins of the doctrine in US patent law).

⁸³ See, for example, *id* at 1125, 1138; Meurer and Nard, 93 *Georgetown L J* at 1951–52, 1955, 1971–72 (cited in note 14) (arguing that many areas of the law require identification and incorporation of appropriate contingencies). Alternatively, it has been suggested that patentees, upon discovery that a subsequent alternative technology did not fall within the scope of the patent claims, should seek reissue of the patent with expansive claims. See *Graver Tank*, 339 US at 614–15 (Black dissenting) (noting that the Court has interpreted federal law to include the “privilege of reissue” for expanded claim, though it has done so reluctantly); Meurer and Nard, 93 *Georgetown L J* at 1955, 1968–69 (cited in note 14) (observing that the doctrine of equivalents substantially overlaps with the function of reissue proceedings, which is to correct mistakes made in good faith). But see Doug Lichtman, *Substitutes for the Doctrine of Equivalents: A Response to Meurer and Nard*, 93 *Georgetown L J* 2013, 2018–19 (2005) (positing, in contrast to the doctrine of equivalents, that the reissue proceeding will not open up a past infringer to liability and “can only be used to expand claim scope during the first two years after patent issuance,” thus requiring precise peripheral claiming early on).

⁸⁴ *Warner-Jenkinson*, 62 F3d at 1563 (Plager dissenting). See also *Festo*, 535 US at 732 (noting the persistent concerns with clarity and public notice in the context of the doctrine of equivalents); Adams, 84 Neb L Rev at 1156 (cited in note 71) (observing that the uncertainty associated with the doctrine of equivalents serves to significantly increase the costs of patent litigation); Meurer and Nard, 93 *Georgetown L J* at 1951 (cited in note 14) (claiming that the proponents of an expansive doctrine of equivalents are insufficiently attuned to the public notice function of patent claims).

⁸⁵ See *Graver Tank*, 339 US at 617 (Black dissenting) (arguing that the majority's approach will stymie progress because industry cannot easily predict how a court will apply the doctrine of equivalents).

⁸⁶ See Meurer and Nard, 93 *Georgetown L J* at 1953–54 (cited in note 14) (suggesting that the doctrine of equivalents displaces the judgment of the factfinder at trial regarding the scope of the patent rights). Patentees might get two bites at the apple, by drafting “sparsely worded” patent

lawsuits.⁸⁷ This uncertainty, they continue, upsets technological progress by undermining efficient investment in innovation.⁸⁸ An oft-invoked justification for the doctrine of equivalents in a peripheral claiming system, however, is that “[t]he language in the patent claims may not capture every nuance of the invention or describe with complete precision the range of its novelty.”⁸⁹ Or the patentee may be unable to foresee further technological development that would have led him to change the boundaries drawn in his patent claims.⁹⁰ With the goals of equity and encouraging the patent incentive, the doctrine thus disallows competitors from making insignificant variations to the protected invention to circumvent, and thereby to diminish, the value of the patent right.⁹¹

The legal system has absorbed the doctrine’s critique by cabining its breadth to maintain “the delicate balance . . . between inventors, who rely on the promise of the law to bring the invention forth, and the public, which should be encouraged to pursue innovations, creations, and new ideas beyond the inventor’s exclusive rights.”⁹² First, the patent right will not extend to equivalent embodiments disclosed in a patent but not claimed.⁹³ Second, the doctrine is applied to “individual elements of the claim, not to the invention as a whole,” such that each claim element or its equivalent must be found in an embodiment in order to constitute

claims to minimize costs and disclosure, see Fromer, 94 Iowa L Rev at 567 (cited in note 49), and later seeking broader protection under the doctrine in the context of a particular dispute. See Meurer and Nard, 93 Georgetown L J at 1974 (cited in note 14).

⁸⁷ See Meurer and Nard, 93 Georgetown L J at 1974 (cited in note 14) (noting that the doctrine of equivalents encourages anticompetitive lawsuits).

⁸⁸ *Festo*, 535 US at 730–31 (“If competitors cannot be certain about a patent’s extent, they may be deterred from engaging in legitimate manufactures outside its limits, or they may invest by mistake in competing products that the patent secures.”).

⁸⁹ *Id.* at 731. See also Meurer and Nard, 93 Georgetown L J at 1969–70 (cited in note 14) (noting that the *Festo* Court paid particular attention to the limitations of language in describing new inventions). Even under strict peripheral claiming, courts routinely uphold patent claims containing approximation words, such as “substantially” or “approximately,” which injects into a peripheral claiming system upfront protection, similar to that provided on the back end by the doctrine of equivalents. See, for example, *Playtex Products, Inc v Procter & Gamble Co*, 400 F3d 901, 906–10 (Fed Cir 2005) (“substantially”); *Lenoco Racing Co v Jolliffe*, 10 Fed Appx 865, 869 (Fed Cir 2001) (“approximately”).

⁹⁰ See Meurer and Nard, 93 Georgetown L J at 1970 (cited in note 14) (discussing the difficulty in foreseeing technical developments related to the patented technology).

⁹¹ See *Festo*, 535 US at 730–32; *Graver Tank*, 339 US at 607; Meurer and Nard, 93 Georgetown L J at 1949–50 (cited in note 14). The Supreme Court reasoned that such diminishment would ultimately discourage innovation by leading to concealment rather than disclosure. See *Graver Tank*, 339 US at 607. Critics of a broad doctrine respond that a profit-maximizing patent applicant stops claim refinement when the marginal costs of refinement equals the marginal benefit from stronger patent claims. See Meurer and Nard, 93 Georgetown L J at 1952–53 (cited in note 14).

⁹² *Festo*, 535 US at 731–32.

⁹³ *Johnson & Johnson Associates, Inc v R.E. Service Co*, 285 F3d 1046, 1054 (Fed Cir 2002) (en banc) (interpreting a portion of *Warner-Jenkinson* to mean that disclosed but unclaimed information in a patent is not protected).

infringement.⁹⁴ As such, a narrower range of equivalences is found.⁹⁵ Third, according to the rule of prosecution history estoppel, “[w]here the original [patent] application once embraced the purported equivalent but the patentee narrowed his claims to obtain the patent or to protect its validity,” the patentee cannot avail himself of the doctrine of equivalents.⁹⁶ Prosecution history estoppel’s limitation is premised on a peripheral claiming system because it “gives proper deference to the role of claims in defining an invention and providing public notice, and to the primacy of the PTO in ensuring that the claims allowed cover only subject matter that is properly patentable in a proffered patent application.”⁹⁷ All in all, these limitations have sought to rein in the doctrine so as not to “conflict[] with the definitional and public-notice functions of the statutory claiming requirement.”⁹⁸ The doctrine of equivalents thus does not represent a full return to a central claiming system.⁹⁹

b) Means-plus-function limitations. Patent law retains another aspect of central claiming: the ability to use means-plus-function claim language,¹⁰⁰ which permits a patentee to describe his invention in terms of the functions it typically performs rather than the parts of the invention that carry out those functions.¹⁰¹ With these claims, protection

⁹⁴ *Warner-Jenkinson*, 520 US at 29–30.

⁹⁵ See *Meurer and Nard*, 93 *Georgetown L J* at 1956 (cited in note 14) (arguing that the all-elements rule desirably keeps the scope of patents narrow in fields crowded with prior art). Of course, there are line-drawing difficulties in figuring out whether part of a claim is a distinct element, affecting how narrow the set of equivalences will be assessed. See Dan L. Burk and Mark A. Lemley, *Quantum Patent Mechanics*, 9 *Lewis & Clark L Rev* 29, 41–46 (2005) (suggesting that courts actually do not have a good definition of “element” and therefore the all-elements rule is of limited functionality).

⁹⁶ *Festo*, 535 US at 734–35.

⁹⁷ *Warner-Jenkinson*, 520 US at 33–34.

⁹⁸ *Id.* at 28–29.

⁹⁹ There is also a seemingly unintentional limitation on the practical reach of the doctrine of equivalents, likely owing to claim construction conducted pursuant to the Supreme Court’s decision in *Markman v Westview Instruments, Inc.*, 517 US 370 (1996). *Markman* held that “the construction of a patent, including terms of art within its claim, is exclusively within the province of the court,” *id.* at 372, unlike the doctrine of equivalents, which is a jury question, see *U.S. Philips Corp v Iwasaki Electric Co, Ltd.*, 505 F3d 1371, 1375 (Fed Cir 2007). John Allison and Mark Lemley hypothesize that because claim construction post-*Markman* would typically happen pretrial—as a legal question—and would often encompass within it other infringement questions including those raised under the doctrine of equivalents, the judge would later be reluctant to have a jury revisit the equivalence question, especially when the case had otherwise been disposed of pretrial. See Allison and Lemley, 59 *Stan L Rev* at 958, 977–78 (cited in note 80) (citing statistical evidence for *Markman*’s weakening of the doctrine of equivalents).

¹⁰⁰ *Adams*, 84 *Neb L Rev* at 1121 (cited in note 71).

¹⁰¹ See 35 USC § 112, ¶ 6 (“[A]n element of a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.”). See also Mark D. Janis, *Who’s Afraid of Functional Claims?: Reforming the Patent Law’s § 112, ¶ 6 Jurisprudence*, 15 *Santa Clara Computer & High Tech L J* 231, 233 n 1 (1999) (explaining that a functional patent claim describes what an invention does, rather than what an invention is). This statutory provision overruled a 1946 Supreme Court decision that had

is statutorily extended beyond the inventions described in the patent's specification that carry out the claimed function to any equivalents of those inventions.¹⁰² Means-plus-function claiming is thus a form of central claiming in a way that is similar to the doctrine of equivalents.¹⁰³

c) *Dependent claims.* Until now unobserved, dependent claiming shares traits with central claiming. In the early years of peripheral claiming, patentees' claims had to be complete, in the sense that they could not refer to one another.¹⁰⁴ By 1917, however, the Patent Office approved the use of dependent claims, which are claims incorporating an independent claim in the patent, further limiting the independent claim.¹⁰⁵ For example, in addition to a broadly worded independent claim describing the steps performed by an invention of a computer graphics system, the inventor might provide two dependent claims, one for the system rendering a two-dimensional image and one for it rendering a three-dimensional image. From the logician's perspective, dependent claims are not warranted because the matter they claim falls necessarily within the broader independent claim.¹⁰⁶ That is, the independent claim in the example covers a system rendering images of any dimension, including the two and three dimensions described in the dependent claims. But the Patent Office approved dependent claims on the basis that they eased patent examination by reducing the clutter of claims.¹⁰⁷ In 1965, dependent claims were legislatively approved.¹⁰⁸ They

determined that such claim language did not sufficiently point out and claim the invention. See *Halliburton Oil Well Cementing Co v Walker*, 329 US 1, 6 (1946). See also Janis, 15 Santa Clara Computer & High Tech L J at 238–48 (describing the circumstances leading up to *Halliburton*).

¹⁰² See 35 USC § 112, ¶ 6 (“[S]uch claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof.”).

¹⁰³ The test for equivalents under § 112, ¶ 6 is narrower than the test under the doctrine of equivalents. See *Hewlett-Packard Co v Mustek Systems, Inc*, 340 F3d 1314, 1321 (Fed Cir 2003) (requiring that there be equivalence of function under § 112, ¶ 6, though equivalence is broader under the doctrine of equivalents); *Al-Site Corp v VSI International, Inc*, 174 F3d 1308, 1320 (Fed Cir 1999) (measuring equivalence under § 112, ¶ 6 at the earlier time of the patent's issuance rather than at the later time of infringement). Compare Janis, 15 Santa Clara Computer & High Tech L J at 263, 265, 290 (cited in note 100) (arguing that the two tests for equivalence should be brought into accordance).

¹⁰⁴ See *In re Sexton*, 1873 CD 66, 69–70 (Commissioner of Patents) (indicating that a patent application for an improvement of a stove needed to specify the improved stove).

¹⁰⁵ See *Ex parte Brown*, 1917 CD 22, 22 (Commissioner of Patents) (holding that interdependent claims meet the legal requirement to “point out” the invention).

¹⁰⁶ See *Honeywell International Inc v Universal Avionics Systems Corp*, 488 F3d 982, 995 (Fed Cir 2007) (“Of course, infringement of a dependent claim also entails infringement of its associated independent claim.”).

¹⁰⁷ See *Brown*, 1917 CD at 22, 27 (“The difficulties both in examining claims for novelty and in appraising them for the purposes of litigation have greatly increased as inventions have become more numerous and more complicated.”).

¹⁰⁸ See Act to Fix the Fees Payable to the Patent Office, Pub L No 89-83, 79 Stat 259 (1965), codified as amended at 35 USC § 112 (“[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A

have come to be seen by patentees as a form of insurance; should a broad independent claim be held invalid, the narrower dependent claims would still stand, so long as they are independently valid.¹⁰⁹ This fallback protection has led to an abundance of dependent claims.

Though dependent claims did not officially come into existence until after central claiming's demise, they share traits with central claiming. Even though dependent claims have no "central claim"-like legal effect of extending protection beyond the described characteristics, they have a "central claim"-like communicative effect of highlighting prototypes of the associated independent claim. A dependent claim typically describes a subset of the inventions communicated by the associated independent claim¹¹⁰—prototypical instantiations—providing unique insight into the patentee's conception of central examples or characteristics of his invention. Returning to the example of the computer graphics system patent, the dependent claims for two- and three-dimensional renderings do not mean that four-, five-, and one-thousand-dimensional renderings are not protected by the associated independent claim. Rather, the two- and three-dimensional renderings are the prototypical instantiations of the invention, so much so that should the broader independent claim be struck down, the patentee is content to have only those more limited instantiations protected via the dependent claims. Even when the independent claim is valid, the logically unnecessary dependent claim is valuable, as it highlights the central, or essential, embodiments of the patented invention.¹¹¹

These three aspects of central claiming in patent law's system of peripheral claiming indicate that peripheral claiming is somewhat diluted. I now turn to the other dimension of claiming introduced in Part I, claim-

claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”).

¹⁰⁹ See Christopher M. Holman, *Protein Similarity Score: A Simplified Version of the Blast Score As a Superior Alternative to Percent Identity for Claiming Genuses of Related Protein Sequences*, 21 Santa Clara Computer & High Tech L J 55, 83 (2004) (suggesting that multiple dependent claims with increasing protein similarity scores could be used as insurance against the finding of obviousness). Another reason for patentees to include dependent claims is that they benefit from the doctrine of claim differentiation, pursuant to which “the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.” *Liebel-Flarsheim Co v Medrad, Inc.*, 358 F3d 898, 910 (Fed Cir 2004).

¹¹⁰ Not every dependent claim describes a subset. For example, gene patents sometimes claim kits—devices using an independently claimed gene—in dependent claims. See, for example, Christopher Jackson, *Learning from the Mistakes of the Past: Disclosure of Financial Conflicts of Interest and Genetic Research*, 11 Richmond J L & Tech 4, 21 (2004).

¹¹¹ Compare Dennis Crouch, *Theory of Dependent Claims: Survey Results*, Patent Law Blog (Patently-O), online at <http://www.patentlyo.com/patent/2008/05/theory-of-depen.html> (visited Apr 14, 2009) (finding in a survey of over 1,000 readers that 73 percent of respondents strongly or mostly agree that “[d]ependent claims focus on particular commercial embodiments to make infringement easier to explain to a jury”).

ing by exemplar versus claiming by characteristic, and its manifestation in the patent system.

3. Aspects of claiming by exemplar.

Most current patent claiming is by characteristic. In a system requiring peripheral claiming, it is usually significantly harder or costlier to enumerate each and every exemplar of an invention than to identify the common characteristics of all of the invention's embodiments.¹¹² In fact, claiming by exemplar has been discouraged by the patent system out of concern that the claims would be impermissibly indefinite.¹¹³ Thus, a patent applicant would not be allowed to claim a "pencil, pen, or crayon" performing some task when he could instead claim a "writing implement." Claiming more than one embodiment by exemplar would not be permitted, then, unless each exemplar was independently claimed.

There are, though, aspects of claiming by exemplar that permissibly occur in the patent system, principally the employment of Markush claims and, though not in the patent claims themselves, the fulfillment in the specification of the best-mode requirement. Markush claims are those that contain a coined category for exemplars (or subcategories) stating that members are "selected from the group consisting of A, B, and C."¹¹⁴ For example, for the seemingly disparate group of carrots, ducks, and construction paper, rather than come up with a unifying description of the three, one might claim "material selected from the group consisting of carrots, ducks, and construction paper." Such claims allow the grouping of exemplars so long as they possess a "community of chemical and physical characteristics which justify their inclusion in a common group, and such inclusion is not repugnant to the principles of scientific classification."¹¹⁵ That is, when it is difficult to come up with a label that encompasses various exemplars, they can be named separately instead.

Another aspect of claiming by exemplar appears in the best-mode requirement. To secure a patent, its specification must "set forth the best mode contemplated by the inventor of carrying out his invention."¹¹⁶ To satisfy this requirement, the patent applicant must objectively disclose

¹¹² See Part III.A.1.

¹¹³ See Donald S. Chisum, 3 *Chisum on Patents* § 8.06[2] (Matthew Bender 2005) (discussing how alternative claims were historically viewed as too uncertain to qualify for patent protection); Robert C. Faber, *Landis on Mechanics of Patent Claim Drafting* § 3:13 (PLI 5th ed 2005).

¹¹⁴ Faber, *Landis on Mechanics of Patent Claim Drafting* at § 6:2 (cited in note 113).

¹¹⁵ *In re Schechter*, 205 F2d 185, 189 (CCPA 1953).

¹¹⁶ 35 USC § 112, ¶ 1. Congress might be taking steps toward eliminating the best-mode requirement. See, for example, Patent Reform Act of 2009 § 5(h), S 515, 111th Cong, 1st Sess (Mar 3, 2009), in 155 Cong Rec S 2707 (Mar 3, 2009) (retaining the best-mode requirement, but not allowing its absence to invalidate a patent in a post-grant review proceeding).

the best mode the inventor subjectively conceived by the time the patent application was filed.¹¹⁷ The best mode is thus the best exemplar, or embodiment, of the claimed invention of all of the possible ones the inventor conceives.¹¹⁸ By including the best mode, the patent applicant thus effectively claims¹¹⁹ one superior exemplar of the invention.¹²⁰

In conclusion, as Part II.A.1 demonstrates, patent law has evolved to require peripheral claiming, principally by characteristic. But not insignificant aspects of central claiming and claiming by exemplar are present in the current patent system, as Parts II.A.2 and II.A.3 show. Table 2 reviews the categorization of the different types of patent claiming.

TABLE 2
PATENT CLAIMING TYPES

	Central	Peripheral
Characteristic	Old patent Doctrine of equivalents Means-plus-function limitations Dependent claims	Current patent
Exemplar	Old patent Markush claims Best mode	_____

¹¹⁷ See *Eli Lilly and Co v Barr Laboratories, Inc.*, 251 F3d 955, 963 (Fed Cir 2001).

¹¹⁸ See *Bayer AG v Schein Pharmaceuticals, Inc.*, 301 F3d 1306, 1320 (Fed Cir 2002):

[T]he “invention” referred to in the best mode requirement is the invention defined by the claims. . . . Defining the invention by analyzing the claim language is [] crucial . . . because it ensures that the finder of fact looks only for preferences pertaining to carrying out the claimed invention.

¹¹⁹ See *AllVoice Computing PLC v Nuance Communications, Inc.*, 504 F3d 1236, 1246 (Fed Cir 2007) (“Only the claimed invention is subject to the best mode requirement.”).

¹²⁰ Though not altogether aspects of patent claiming, exemplars play a role in patenting in two other ways. First, patent lawyers not infrequently place sample biological strains in depositories in the course of securing a patent for an invention encompassing unique biological materials, which cannot be replicated solely based on a written description. See 37 CFR § 1.802(a) (permitting reference to deposited biological material in a patent disclosure). See also Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 Yale L J 177, 208 (1987) (“[W]here a new or rare strain was involved, the only way to enable others to make or use . . . the invention was to supply the strain.”). These exemplary materials can be used to reconstruct the invention. Second, patent examiners have the authority to require a patent applicant to provide a physical model demonstrating the parts of a claimed invention. See 35 USC § 114; 37 CFR § 1.91(a)(2), (b). For a history of the model’s place in patent law, see Fromer, 94 Iowa L Rev at 574–75 (cited in note 49).

With this descriptive exploration of claiming practice within the patent system, this Article now turns to an explication of claiming in the copyright system.

B. Copyright Law

Similar to patent law, the principal goal of the American copyright system is to stimulate artistic creation,¹²¹ as reflected in Congress's constitutional power "[t]o promote the Progress of Science . . . by securing for limited Times to Authors . . . the exclusive Right to their . . . Writings and Discoveries."¹²² A time-limited copyright stimulates creation as a reward for taking two steps authors likely would not otherwise take: first, to create in the first instance;¹²³ and second, to share these creations with the public so that it might learn from them and build on them.¹²⁴ For the same reasons as with patent law, then, claiming the set of creations protected by copyright can advance both goals by ensuring that the size of the protected set is calibrated to the appropriate incentive to create and by communicating the set to the public so as to encourage efficient investment in both creations within and outside of the set.¹²⁵ That is, the public ought to be able to judge what remains in the public domain and what has been made private. The choice of claiming system therefore has a material impact on achieving copyright law's goals.

This Part describes copyright law's claiming system. Part II.B.1 explores how copyright law has moved from peripheral claiming by exemplar to central claiming by exemplar. Part II.B.2 then sets out that copyright law, in licensing practice, encourages contractual delineations of peripheral and characteristic claims, suggesting that claiming is neither all central nor all peripheral, neither all exemplar nor all characteristic.

1. A move from peripheral to central claiming.

American copyright law has, in one sense, taken the opposite route as patent law by moving from peripheral to central claiming. Under early American copyright law, which started in 1790, only a limited set

¹²¹ See *Harper & Row, Publishers, Inc v Nation Enterprises*, 471 US 539, 558 (1985) (reviewing the policy justifications and the social purposes of copyright law).

¹²² US Const Art I, § 8, cl 8.

¹²³ See *Harper & Row*, 471 US at 558 (“[C]opyright supplies the economic incentive to create . . . ideas.”).

¹²⁴ See Derek E. Bambauer, *Faulty Math: The Economics of Legalizing The Grey Album*, 59 Ala L Rev 345, 353 (2008) (discussing the expiration of copyrights and the entrance of important “starter” material into the public domain).

¹²⁵ See text accompanying notes 48–49.

of creative works, such as books and maps, were protected.¹²⁶ Copyright protection in these works did not extend very far: until 1870,¹²⁷ only reproduction and distribution of copyrighted works were prohibited.¹²⁸ Derivative works, even translations of a work into another language,¹²⁹ were not prohibited as copyright infringement during this time.¹³⁰ Courts did, however, recognize that forbidding only verbatim copying would encourage copiers to introduce insignificant changes to avoid infringement liability and thus also prohibited some very “close imitation[s].”¹³¹ In essence, then, the copyrighted work itself served as a peripheral claim by exemplar, its existence articulating the boundaries of protection by notifying the public not to pirate the work (or extremely trivial variations thereof).¹³² To get protection beyond the created work, then, the author would actually have to create related works, in which a separate copyright—and associated narrow peripheral claim by exemplar—would obtain.

The copyrighted work has over time moved to serving as a central claim by exemplar. Currently, rather than protect particular categories of works, copyright law now protects “original works of authorship fixed in any tangible medium of expression, now known or later developed,”¹³³ including literary works, sound recordings, movies, and computer software code.¹³⁴ To obtain copyright protection, copyright

¹²⁶ Copyright Act of 1790 § 1, 1 Stat 124, 124 (protecting books, charts, and maps). Copyrightable subject matter continued to expand over time. See, for example, Rev Stat § 4952 (1873). See also text accompanying notes 133–34.

¹²⁷ Copyright Act of 1870 § 86, 16 Stat 198, 212 (expanding protection to translating and performing, among other things).

¹²⁸ See Copyright Act of 1790 § 1, 1 Stat at 124 (protecting printing, reprinting, vending, and publishing); Act of April 29, 1802 § 2, 2 Stat 171, 171 (same); Act of February 8, 1831 § 1, 4 Stat 436, 436; R. Anthony Reese, *Innocent Infringement in U.S. Copyright Law: A History*, 30 Colum J L & Arts 133, 140–41 (2007) (discussing the historical term and subject matter limitations for copyright in the United States). But see Act of February 8, 1831 § 7, 4 Stat 436, 438 (prohibiting certain imitations of visual and musical works).

¹²⁹ *Stowe v Thomas*, 23 F Cases 201, 206 (CC ED Pa 1853) (holding that a translation is not a “copy” and therefore the translation does not infringe the copyright).

¹³⁰ See Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J Copyright Socy USA 209, 211–13 (1983) (summarizing English and later American treatment of derivative works from 1720 to 1870). The derivative right expanded slowly over time from, in 1870, the right to “dramatize or to translate [an author’s] own works,” see Copyright Act of 1870 § 86, 16 Stat at 212, to its current state in 1976. See text accompanying notes 155–58.

¹³¹ Reese, 30 Colum J L & Arts at 160 (cited in note 128) (noting that the courts applying the copyright statutes realized the futility of such protections if someone could change a few words of the original and reprint essentially the same work).

¹³² See id at 145.

¹³³ 17 USC § 102(a).

¹³⁴ 17 USC §§ 101 (defining a “literary work” as “works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects”), 102 (stating that copyright protection extends to “literary works”). See also 17 USC § 117 (establishing limited exceptions to the general prohibition on copying computer programs).

holders need do no more than create an original¹³⁵ work.¹³⁶ The copyright holder then has the exclusive right to reproduce the work and sell copies of it, among other things.¹³⁷

Copyright protection extends to the expression of particular ideas rather than the ideas themselves.¹³⁸ According to the Supreme Court, the idea-expression dichotomy “strikes a definitional balance between the First Amendment and the Copyright Act by permitting free communication of facts [and opinions] while still protecting an author’s expression.”¹³⁹ Yet protection actually reaches well beyond the literal work, “else a plagiarist would escape by immaterial variations.”¹⁴⁰ The question is how far. Fixing the boundary between idea and expression can be difficult,¹⁴¹ not only because of the line drawing required to determine which abstractions of the expression are still protected enough to be more of an expression than an idea,¹⁴² but also because there is no sharp ex ante sense of what the copyright protects beyond the copyrighted work itself.

¹³⁵ A work is original so long as it is independently created, regardless of how novel it is, and has at least a minimal amount of creativity. See *Feist Publications, Inc v Rural Telephone Service Co, Inc*, 499 US 340, 345 (1991).

¹³⁶ There is no longer a requirement that a work be published to be protected. See 17 USC § 102 (requiring only that a work be fixed in “any tangible medium of expression” to be copyrightable). Should the work be published domestically, the copyright holder must deposit copies with the Copyright Office for use by the Library of Congress. See 17 USC § 407(b). Until 1989, one was required to put on any published work a copyright notice with the owner’s name and year of initial publication as a prerequisite to copyright protection. See Berne Convention Implementation Act of 1988, Pub L No 100-568, 102 Stat 2853, 2857, codified at 17 USC § 401(b); Melville B. Nimmer and David Nimmer, 2 *Nimmer on Copyright* § 7.02[A] (Matthew Bender 2006). To bring the United States into accordance with the Berne Convention, Congress in 1988 prospectively eliminated fixation of notice as a condition of copyright protection. 17 USC § 401(a); Nimmer and Nimmer, 2 *Nimmer on Copyright* at § 7.02[B]. Congress, however, retained an incentive to affix notice, namely the ability to bar innocent copying as a defense to infringement. See 17 USC § 401(d). Until 1978, a copyright holder in a published work was required to file a registration claim with the Copyright Office, including a deposit of copies of the work for the Library of Congress. See Nimmer and Nimmer, 2 *Nimmer on Copyright* at §§ 7.16[A][2][b], 7.17[A] (citing § 13 of the 1909 Act). Registration is now permissive. See 17 USC § 408. To bring an infringement action, a copyright holder must in the ordinary case first have registered the copyright with the Copyright Office. See 17 USC § 411(a). To register, an applicant must complete a form with information about the applicant and the work’s title, completion date, and publication date (if any), see 17 USC § 408(b), but nothing about the work’s content or the set of works protected by the copyright.

¹³⁷ 17 USC § 106 (granting the right to prepare derivative works; rent, lease, or lend works; perform works publicly; display works; and digitally transmit works).

¹³⁸ See 17 USC § 102(b) (“In no case does copyright protection . . . extend to any idea . . . regardless of the form in which it is described.”); *Nichols v Universal Picture Corp*, 45 F2d 119, 121 (2d Cir 1930) (holding that the copyright in a play does not extend to the play’s ideas).

¹³⁹ *Harper & Row*, 471 US at 556.

¹⁴⁰ *Nichols*, 45 F2d at 121.

¹⁴¹ See *id* (“But when the plagiarist [takes] an abstract of the whole, [the] decision is more troublesome.”).

¹⁴² See Zechariah Chafee, Jr, *Reflections on the Law of Copyright: I*, 45 Colum L Rev 503, 513–14 (1945) (suggesting that copyright should extend to the pattern of the work).

Of course, the created work is a member of the set of protected embodiments. Enumeration of this set's members—and the set's extensiveness—tends to happen during copyright-infringement litigation.

To prevail in infringement litigation, a plaintiff must establish ownership of the copyright in the relevant work, the defendant's access to the work, and the defendant's copying of elements protected by the copyright¹⁴³ to make a work that is substantially similar.¹⁴⁴ Application of the test of "substantial similarity" to allegedly infringing works is how members of the set of protected works are enumerated. The copyrighted work, in essence, serves as a central exemplar of that which is protected by the copyright, implicitly a central claim for works that are substantially similar.

Substantial similarity in copyright law has traditionally been measured by asking "whether an average lay observer would recognize the alleged copy as having been appropriated from the copyrighted work."¹⁴⁵ As Judge Learned Hand aptly observed, adjudging substantial similarity is fact- and context-driven, such that it cannot rely much on previous case law.¹⁴⁶ A work's characteristics that must be present in an accused work to find substantial similarity thus vary according to the particulars.¹⁴⁷ Testing for infringement of Margaret Mitchell's novel, *Gone with the Wind*,¹⁴⁸ for example, will look very different from testing of Roy Orbison's song, *Pretty Woman*,¹⁴⁹ a rag doll,¹⁵⁰ or, for that matter, another

¹⁴³ See *Whitehead v Paramount Pictures Corp.*, 53 F Supp 2d 38, 46 (DDC 1999) (noting that when the plaintiff provides no direct evidence of copying, the plaintiff bears the burden of demonstrating substantial similarity and access).

¹⁴⁴ See *Corwin v Walt Disney Co.*, 475 F3d 1239, 1253 (11th Cir 2007) (using the term "striking similarity"). See also Laura G. Lape, *The Metaphysics of the Law: Bringing Substantial Similarity Down to Earth*, 98 Dickinson L Rev 181, 185–88 (1994) (relaying the legal evolution of the "substantial similarity" standard).

¹⁴⁵ *Warner Brothers Inc v American Broadcasting Cos.*, 654 F2d 204, 208 (2d Cir 1981). It does not matter if the original and accused works are dissimilar in many ways, so long as the accused work contains a substantial similarity to the original work. But see *Attia v Society of New York Hospitals*, 201 F3d 50, 57–58 (2d Cir 1999) (suggesting that dissimilarity can be important in determining whether there is substantial similarity).

¹⁴⁶ See *Nichols*, 45 F2d at 121. See also Amy B. Cohen, *Masking Copyright Decisionmaking: The Meaninglessness of Substantial Similarity*, 20 UC Davis L Rev 719, 722–23 (1987) ("It is a phrase that, instead of becoming more understood with each judicial interpretation, has become more ambiguous.").

¹⁴⁷ Cohen, 20 UC Davis L Rev at 744 (cited in note 146) (noting that in some cases, a small similarity may be infringement, but in others, a small similarity would not be substantial enough to be infringing).

¹⁴⁸ See *Suntrust Bank v Houghton Mifflin Co.*, 268 F3d 1257, 1259 (11th Cir 2001) (holding that the plaintiff would be unlikely to overcome the defendant's fair use defense where plaintiff claimed a copyright infringement of the novel *Gone with the Wind*).

¹⁴⁹ See *Campbell v Acuff-Rose Music, Inc.*, 510 US 569, 569 (1994) (holding that 2 Live Crew's commercial parody of *Pretty Woman* constituted fair use).

novel. Inherent in this determination is an assessment of the level of generality on the idea-expression spectrum at which to assess the work's characteristics: the higher the degree of generality, the more abstract the characteristics become and the more likely that similarity will be found, and vice versa.¹⁵¹ Additionally varying is the degree of similarity rising to the level of substantiality: works with little originality tend to require a more substantial degree of similarity before infringement is found than works dense in originality.¹⁵² Because of the high degree of context sensitivity in determining substantial similarity, the test has been criticized for leading to "unpredictable, impressionistic" judgments.¹⁵³

Since 1870, the set of protected works has statutorily included derivative works,¹⁵⁴ currently defined as "a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted."¹⁵⁵ Though a significant number of works derive in some sense from preexisting ones,¹⁵⁶ only those that are substantially derived from a preexisting work are classified as derivative, a restriction that courts have generally equated to the "substantially similar" standard used to ascertain copyright infringement.¹⁵⁷ Therefore, the set of derivative works and works that would be adjudged substantially similar are principally the same.¹⁵⁸

¹⁵⁰ See *Well-Made Toy Manufacturing Corp v Goffa International Corp*, 354 F3d 112, 114 (2d Cir 2003) (holding that the competitor's doll was not substantially similar to, and thus not derivative of, the toymaker's copyrighted doll).

¹⁵¹ See *Nichols*, 45 F2d at 121 ("[T]here is a point in this series of abstractions where they are no longer protected.").

¹⁵² See *Jacobsen v Deseret Book Co*, 287 F3d 936, 943–44 (10th Cir 2002) (noting the different substantiality requirements for infringement of fact-intensive works, like a map, and creativity-intensive works, like an "elegantly written biography"); Cohen, 20 UC Davis L Rev at 759 (cited in note 146) ("[S]imilarities in a photograph of a famous subject need to be extremely numerous On the other hand, verbatim similarities between two literary works need not be as extensive.").

¹⁵³ Cohen, 20 UC Davis L Rev at 732 (cited in note 146) (contrasting the test with one based on an objective standard—for instance, economic impact). See Part III.C.

¹⁵⁴ 17 USC §§ 103(a), 106(2).

¹⁵⁵ 17 USC § 101. The definition also includes "[a] work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship." *Id.*

¹⁵⁶ See *Emerson v Davies*, 8 F Cases 615, 619 (CC D Mass 1845).

¹⁵⁷ See, for example, *Well-Made Toy*, 354 F3d at 117. But see *Warner Brothers Entertainment Inc v RDR Books*, 575 F Supp 2d 513, 535–38, (SDNY 2008) (finding that an encyclopedia about Harry Potter is substantially similar to the Harry Potter books but is not a derivative work).

¹⁵⁸ See Melville B. Nimmer and David Nimmer, 1 *Nimmer on Copyright* § 3.01 (Matthew Bender 2006) ("A work is not derivative unless it has *substantially* copied from a prior work."). While one might think to characterize derivative works as a separate set of protected original works, it is preferable, at least for current purposes, to see them as members of the same set of the preexisting copyrighted work, so long as the preexisting copyright subsists. Though more originality must be added to create the derivative work, which is then separately copyrightable, see

As compared with the limited scope of early copyright law, then, copyright law now protects a vaster set of works for each created work—the set of all works that are substantially similar to the copyrighted work or that are derivative of it. In early copyright law, the copyrighted work stood in as a peripheral claim by exemplar, forbidding the work’s piracy. Though copyright protection now emanates from a work to encompass a broader swath of works, the copyright holder is not required to draft any claim describing the characteristics of some or all members of the set of protected embodiments. Rather, the copyrighted work stands in as a central claim by exemplar for the set of works that are substantially similar or derivative.

Carved out from this set are two subsets of works. First are those works deemed to be a defensible fair use of the copyrighted work.¹⁵⁹ The statutory (and factbound) factors that must be analyzed to determine whether a particular use is fair include “the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes,”¹⁶⁰ “the nature of the copyrighted work,”¹⁶¹ “the amount and substantiality of the portion used in relation to the copyrighted work as a whole,”¹⁶² and “the effect of the use upon the potential market for or value of the copyrighted work.”¹⁶³ The justification offered for a “fair use” carve-out is that such works stimulate creative works for public consumption without undercutting the value of the original copyrighted work.¹⁶⁴ As with the test for substantial similarity, the four central factors of the “fair use” standard are thought to have “infinite elasticity,”¹⁶⁵ possibly suggesting “their concomitant inability to resolve difficult questions.”¹⁶⁶

Mulcahy v Cheetah Learning LLC, 386 F3d 849, 852 (8th Cir 2004), the right exists in the holder of the preexisting copyright. Therefore, derivative works are logically protected by virtue of the initial work and the copyright bestowed upon it.

¹⁵⁹ See *Campbell*, 510 US at 575, 594.

¹⁶⁰ 17 USC § 107(1).

¹⁶¹ 17 USC § 107(2). This factor typically looks to how creative or factual the copyrighted work is and the public availability of the work. See Melville B. Nimmer and David Nimmer, 4 *Nimmer on Copyright* § 13.05[A][2] (Matthew Bender 2006).

¹⁶² 17 USC § 107(3). This factor is both quantitative and qualitative. See *Harper & Row*, 471 US at 564–66 (1985) (focusing on *The Nation*’s publication of limited but key passages of Gerald Ford’s memoir).

¹⁶³ 17 USC § 107(4).

¹⁶⁴ See *Campbell*, 510 US at 577.

¹⁶⁵ Nimmer and Nimmer, 4 *Nimmer on Copyright* at § 13.05[A][5] (cited in note 161).

¹⁶⁶ Id. See also Michael W. Carroll, *Fixing Fair Use*, 85 NC L Rev 1087, 1094–95 (2007) (referencing the judicial frustration with the four-factor test); Pierre N. Leval, *Toward a Fair Use Standard*, 103 Harv L Rev 1105, 1106–07 (1990) (“Decisions are not governed by consistent principles, but seem rather to result from intuitive reactions to individual fact patterns.”). But see Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U Pa L Rev 549, 564–81 (2008) (suggesting, after an empirical review of fair use doctrine in the courts, that it is somewhat more predictable than is typically thought); Michael J. Madison, *A Pattern-oriented*

The second carved-out subset is those works created independently of the copyrighted work. Even identical works will be excused from copyright infringement so long as they are independently created.¹⁶⁷ That said, subconscious copies—liberally found to exist except under “circumstances when the possibility of the [alleged infringer] having access to the [copyrighted] work was increasingly remote”¹⁶⁸—are not considered to be independently created.¹⁶⁹ Therefore, mere plausible access to copyrighted work combined with substantial similarity can add up to an inference of copying and thus infringement.¹⁷⁰

With this description of copyright claiming, I turn now to the sorts of “claims” observed in copyright licenses.

2. Contracting all sorts of claims.

Despite the lack of legal requirement to delineate the bounds or characteristics of the set of works protected by a particular copyright—that is, to claim peripherally or by characteristic—copyright holders regularly think about bounds and characteristics.¹⁷¹ In licensing agreements,¹⁷² they often set out the bounds—either by exemplar or charac-

Approach to Fair Use, 45 Wm & Mary L Rev 1525, 1533 (2004) (maintaining that “social and cultural patterns underlying case-by-case adjudication of fair use problems may have achieved . . . a framework . . . that is both stable and relatively predictable in the context of legal doctrine”).

¹⁶⁷ See, for example, *Calhoun v Lillenas Publishing*, 298 F3d 1228, 1232–33 (11th Cir 2002) (holding that a piece of music did not infringe on a nearly identical piece because a simple and short composition could easily have been originally created by more than one composer). For one scholar’s justification of why this rule exists and a criticism of that justification, see text accompanying notes 198–99.

¹⁶⁸ Carissa L. Alden, Note, *A Proposal to Replace the Subconscious Copying Doctrine*, 29 Cardozo L Rev 1729, 1731 (2008).

¹⁶⁹ See *Harold Lloyd Corp v Witwer*, 65 F2d 1, 17 (9th Cir 1933) (ruling that the unintentional copying of a copyrighted story by producers of play as result of subconscious memory may constitute infringement).

¹⁷⁰ See Dennis S. Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 Conn L Rev 439, 453 n 58 (2003) (warning that it is easy to overstate independent creation as a limit on copyright protection when substantial similarity can lead to a determination of “subconscious” copying). Jessica Litman argues that systematically differentiating independently created works from subconsciously copied ones is impracticable. See Jessica Litman, *Copyright As Myth*, 53 U Pitt L Rev 235, 240 (1991):

The metaphysical question of differentiating independently created expression from subconsciously copied expression deserves a literature of its own; for present purposes, let me simply assert that the system is not up to the task. We cannot tell the difference, but the copyright law asks us all to behave as if we could.

¹⁷¹ Compare, for example, *Emerson v Davies*, 8 F Cases 615, 620 (CC D Mass 1845) (Story) (articulating an arithmetic textbook’s characteristics in the course of adjudicating a copyright dispute over the book).

¹⁷² See James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 Yale L J 882, 887–95 (2007) (discussing the rationales for and frequency of taking copyright licenses).

teristically—to which they think the copyright extends or the central characteristics of the set of works protected by that copyright.¹⁷³

A striking example of such claiming is NBC Universal's recent license to a French television company to create a French version of the criminal procedural television series, *Law & Order: Criminal Intent*.¹⁷⁴ Rather than directly translate the English scripts—and owing to a burgeoning market in acquiring formats of American television series to make a local version—the French producers wanted to “Francify” the show's details, be it the appearance of police stations or the different contours of the criminal law.¹⁷⁵ To maintain the *Law & Order* brand in the face of these changes and loss of production control, Dick Wolf, the creator of the American series, composed a one-thousand-page manual detailing essential characteristics of a *Law & Order* production that must be followed.¹⁷⁶ Among them are regulating the use of the show's characteristic “ching-ching” sound, to be used no more than two times per act and only to indicate a change in the storytelling, and how to make blood and police offices look realistic.¹⁷⁷ In fact, according to the president of the French production company, “Absolutely nothing has been left to interpretation.”¹⁷⁸ This example shows that copyright holders are thinking about (their understanding of) essential elements of their work and are sometimes documenting them in licensing arrangements.

Of course, this is not to say that the *Law & Order* manual delineates the copyright's precise legal bounds, but rather it reflects its essential characteristics from the holder's viewpoint.¹⁷⁹ Such licenses indicate that

¹⁷³ By virtue of statutory recordation, these agreements might be available to the public through the Copyright Office. See 17 USC § 205(a) (explaining the conditions for recordation in the Copyright Office); Melville B. Nimmer and David Nimmer, 3 *Nimmer on Copyright* § 10.02[B][3] (Matthew Bender 2006). Licenses might be recorded in a short form so as not to reveal their full details. See *id.* at § 10.07 (specifying the consideration paid as an oft-omitted detail). Upon payment of a fee, the Copyright Office will locate the recorded licenses associated with a particular copyright. See 17 USC §§ 705(c), 708(a)(9).

¹⁷⁴ See Brooks Barnes, *NBC Faces Trials Bringing 'Law & Order' to France*, Wall St J A1 (Mar 1, 2007). It is far from certain that American copyright law (alone) would have prohibited the television company in France from making this television series. See Melissa Feeney Wasserman, Note, *Divided Infringement: Expanding the Extraterritorial Scope of Patent Law*, 82 NYU L Rev 281, 297–98 (2007) (discussing the current status of the extraterritorial application of American copyright law). This example is useful to show how a copyright holder envisions the bounds of his copyrighted work.

¹⁷⁵ See Barnes, *NBC Faces Trials Bringing 'Law & Order' to France*, Wall St J at A1 (cited in note 174).

¹⁷⁶ *Id.* (noting Wolf's tight control over the French version).

¹⁷⁷ *Id.* (“[F]lour is a key.”) (quotation marks omitted).

¹⁷⁸ *Id.*

¹⁷⁹ An additional purpose of this license is to ensure brand uniformity for the “Law & Order” franchise, which relates to trademark law. That, however, does not negate its copyright function.

copyright holders, even when they do not have to specify the right's extent, are thinking about it (or at least how far they will assert it).

Through licensing, copyright holders—as with owners of other intellectual property—might be profiting by reaching beyond the “true” extent of the copyright. A substantial number of risk-averse users of works that might—or might not—be construed to fall within the legal scope of a copyright will tend to license the work to avoid the costly possibility of litigation.¹⁸⁰ As licensing principally substitutes for litigation, license terms—and the “claims” therein—will concomitantly establish the scope of the set of protected works.¹⁸¹

In any subsequent judicial proceedings alleging copyright infringement of *Law & Order*, the manual will not be the absolute baseline for determining whether an alleged infringing work is substantially similar to the NBC series. That said, it will provide considerable input into determining copyright infringement in two senses. First, to the extent that substantial similarity is measured beyond a lay audience's views by objective criteria,¹⁸² the manual would prove to be relevant evidence. Second, as James Gibson suggests, when an allegedly infringing work is determined to be substantially similar to a copyrighted work, it likely will not be deemed to be a permissible fair use when licenses like those based on the manual cover the allegedly infringing work.¹⁸³

Putting aside the effect of these licenses on the operational and legal breadth of copyright, it ought to be apparent that copyright holders and licensees see value in communicating about the extent of a set of protected works using characteristic and peripheral claims, despite the fact that copyright law requires no such claiming.

In sum, though copyright law has moved from peripheral claiming to central claiming by exemplar, copyright holders are thinking about the scope and characteristics of their rights by laying claims—centrally or peripherally, often by characteristic—in their licenses. These license

¹⁸⁰ See Gibson, 116 Yale L J at 889–95 (cited in note 172) (explaining that injunctions are issued as a matter of course in copyright litigation, thus making licensing more attractive).

¹⁸¹ Licensing is, for similar reasons, widely encouraged and used in patent practice. Though patent licenses might establish a broader set of protected embodiments through broader peripheral claims, license claiming is usually not different than the type of claims that patent law requires.

¹⁸² See *Shaw v Lindheim*, 919 F2d 1353, 1357 (9th Cir 1990) (analyzing substantial similarity both objectively and subjectively).

¹⁸³ See Gibson, 116 Yale L J at 884, 895–98 (cited in note 172) (reasoning that the licenses indicate that the allegedly infringing work impinges on “the potential market for or value of the copyrighted work” under 17 USC § 107(4)). See also Goldstein, 30 J Copyright Socy USA at 220–21 (cited in note 130). Gibson argues that it is dangerous to use contractual delineations of the right to determine the doctrinal extent of the right because there is often legal uncertainty about a copyright's extent and thus aversion to the risk of infringement liability leads to licensing arrangements with a copyright holder, creating an unfortunate feedback loop. See Gibson, 116 Yale L J at 887–906 (cited in note 172).

claims can sometimes affect the doctrinal breadth of the copyright in subsequent proceedings. Table 3 summarizes the categorization of the different types of copyright claiming.

TABLE 3
COPYRIGHT CLAIMING TYPES

	Central	Peripheral
Characteristic	Licensing	Licensing
Exemplar	Current copyright Licensing	Old copyright Licensing

C. Different Approaches?

Most descriptions of patent and copyright law would seem to indicate that their claiming approaches are very different.¹⁸⁴ Patent law has officially moved from central claiming to peripheral claiming, typically by characteristic, while copyright law has moved from implicit peripheral claiming to central claiming, always by exemplar. However, patent law retains, at least theoretically, both significant elements of central claiming in the doctrine of equivalents, means-plus-function limitations, and dependent claiming; and aspects of claiming by exemplar with Markush claims and the best-mode requirement. And copyright law permits and can adopt peripheral and central claiming by characteristic in licensing arrangements. By no means, however, are claiming in patent and copyright law the same. For one thing, the doctrine of equivalents, one of patent law's principal vestiges of central claiming, has been cabined doctrinally and in practice in recent years.¹⁸⁵ That said, the mixtures of peripheral and central claiming and of characteristic and exemplar claiming in both patent and copyright law make them more similar than is conventionally believed.

Before turning in the next Part to an analysis of the claiming systems for copyright and patent, it is useful first to sample others' justifications for the two intellectual property claiming systems currently thought to be in opposition. John Duffy speculates about the patent system's move from central to peripheral claiming. He suggests that crafty patent attorneys sought and were granted the peripheral patent

¹⁸⁴ See, for example, Duffy, 2002 S Ct Rev at 307–08 (cited in note 27). See also Long, 90 Va L Rev at 469–70 (cited in note 10) (contrasting the claiming systems in patent and copyright law and noting how each system works to limit information costs); Smith, 116 Yale L J at 1800, 1807 (cited in note 10) (discussing how copyright law is more of a governance regime than patent law).

¹⁸⁵ See Part II.A.2.a.

claim “to protect and to expand the rights of patentees.”¹⁸⁶ According to him, clever claim drafters would benefit from peripheral claiming.¹⁸⁷ Duffy’s hypothesis assumes that carefully constructed peripheral claims naturally lead to a broader set of embodiments protected by the patent right, an assumption I do not think is necessarily justified, as explained in the next Part.¹⁸⁸ Moreover, assuming he is correct, Duffy does not explain why copyright lawyers did not also advocate for peripheral claiming of copyrighted works to maximize protection. Yet he implicitly provides a possible explanation. Duffy asserts that patentees under a central claiming system worried about the scope of their patent right being decided by juries needing “to divine the abstract principles underlying the invention from the drawings and technical description in the patent specification,” a task difficult and error-prone for a lay jury.¹⁸⁹ That would imply, perhaps, that there is less worry about lay juries’ determinations of a copyright’s scope under a central claiming system because copyrighted works are more accessible to them than are patented technical works. This implied distinction, however, seems to be too simplistic for both patent and copyright law. As to patent law, it overstates the difference in difficulty faced by juries in deciding patent infringement under the different claiming systems. Under a system of central claiming by characteristic, relying on the claims in conjunction with information in the patent about the novelty and background of the invention enables—without much more difficulty than peripheral claiming by characteristic—the divination of abstract principles about the patent right.¹⁹⁰ This is particularly true as compared with copyright law’s central claiming by exemplar where no characteristics are delineated by the copyright holder. The difference between claiming by exemplar and by characteristic is an important dimension neglected by this possible analysis. Moreover, that the jury might feel more at home comparing two works in a copyright infringement action than two technical products or processes in a patent infringement suit does not ensure more predictable (and favorable) outcomes for the copyright holder than the patentee. Divergent conclusions from plaintiffs’ and defendants’ experts on the same matter in

¹⁸⁶ Duffy, 2002 S Ct Rev at 308 (cited in note 27).

¹⁸⁷ See *id.* at 309–10.

¹⁸⁸ See Part III.A.4. This is not to say, however, that patent attorneys advocating for peripheral claims do not link it to broad patent protection.

¹⁸⁹ Duffy, 2002 S Ct Rev at 309 (cited in note 27).

¹⁹⁰ See Part III.A.2.

every area of the law indicate that expertise or even familiarity with a subject matter does not ensure predictable opinions.¹⁹¹

Clarisa Long offers a different explanation, framed in terms of information costs. She suggests that the patentable inventions' characteristics are objective and easily describable and are geared to a specialized audience, particularly as compared with the subjective, hard-to-describe expressive characteristics of copyrightable works, which are directed at a broader audience.¹⁹² Long also proposes that patentable inventions are hard to create, particularly given the strict patentability requirements, so there tend to be fewer of them, as compared with copyrightable works that are easy to create given copyright's weak originality requirement.¹⁹³ Relying on these distinctions, Long reasons that patent law justifiably requires peripheral claiming, coupled with an exclusionary right placing the duty to avoid using the patented invention without permission on a smaller group of people, which copyright law properly does not.¹⁹⁴

There is much to be said for Long's approach, but some of her own factors point away from the distinctions she asserts. Take copyright law. That a large number of easily created copyrightable goods is created for a broad audience indicates that comprehending the extent of the set of works protected by a copyright is likely to be important—which, to provide better content notice, would seem to point in favor of more detailed claims than a central claim by exemplar, as discussed in the next Part.¹⁹⁵ That the characteristics of copyrightable works are idiosyncratic would seem to suggest that characteristic claims by the copyright holder would help convey each work's key features according to its creator—quite the useful measuring stick.¹⁹⁶ And to the extent claiming practice hangs on descriptiveness, many copyrightable works are easily describable by characteristic, as illustrated by the James Bond and *Law & Order* examples.¹⁹⁷ Long nonetheless justifies copyright law's economization of claiming costs through its defense of independent creation,¹⁹⁸ reasoning that one can independently create something substantially similar (or even identical) to copyrighted work without infringing, so there is no need to impose the cost of peripheral claiming

¹⁹¹ See generally Neil Vidmar and Shari Seidman Diamond, *Juries and Expert Evidence*, 66 Brooklyn L Rev 1121 (2001).

¹⁹² See Long, 90 Va L Rev at 469–70, 487–89 (cited in note 10).

¹⁹³ *Id.*

¹⁹⁴ *Id.*

¹⁹⁵ See Part III.A.2, C.

¹⁹⁶ See Part III.C.

¹⁹⁷ See note 345. But see text accompanying note 371 (suggesting that numerous artistic works might not be easily characterized).

¹⁹⁸ For a discussion of the defense of independent creation, see text accompanying notes 167–70.

(probably by characteristic).¹⁹⁹ This explanation has a chicken-and-egg quality to it. The primary reason for providing the independent-creation defense is that there are not good claims, but if there were good claims, would there be a need? Moreover, this justification neglects that this defense is useful only for, obviously, independent creators, but not for the large category of creators of works that are derivative in reliance on (even subconscious) knowledge of the original work. While these subsequent authors might justify their uses either as not substantially similar or as fair use, they cannot rely on the independent-creation defense and would benefit from some delineation for the reasons just described.²⁰⁰

Now consider patent law. Despite Long's comparative assertion that patentable inventions are easy to describe as their qualities are objective, that is not always the case. Patentable inventions are often difficult or expensive to describe clearly,²⁰¹ as the obtuseness of many a patent claim and claim proliferation suggests. Moreover, choosing which of the many "objective" features of an invention to describe as essential to the invention is dependent on subjective determinations of each feature's relative importance. These deviations of patented and copyrighted works from Long's theory do not mean that Long's analysis is wrong. Quite to the contrary, much is sensible. But it is not the complete story of the claiming differences in patent and copyright law.

Henry Smith offers another rationale for the prevalence of peripheral claiming in patent law and central claiming in copyright law.²⁰² Smith proposes that peripheral claiming is beneficial when it is easier to delineate the protected thing—in patent law, the set of embodiments of an invention—than it is to specify the uses to which the invention or creation can be put.²⁰³ In this way, all uses of the claimed invention are then forbidden, as in patent law with the right of exclusion.²⁰⁴ But when it is easier to specify the uses of the protected thing than to delineate

¹⁹⁹ See Long, 90 Va L Rev at 525–33 (cited in note 10) (suggesting that copyright's independent-creation exception may be justified because of the prohibitively high information costs if potential creators were responsible for searching through all copyrighted works).

²⁰⁰ I return to a discussion of independent creation in analyzing copyright claiming. See text accompanying notes 381–86.

²⁰¹ See Kristen Osenga, *Linguistics and Patent Claim Construction*, 38 Rutgers L J 61, 65–66 (2006) (demonstrating how even a peanut butter and jelly sandwich is difficult to describe in a single sentence). See also Smith, 116 Yale L J at 1799 (cited in note 10) (noting that, for example, processes are much harder to define than chemicals); Part III.A.1–2, B (describing the purposeful obfuscation in patent claims to achieve broader patent scope).

²⁰² See text accompanying notes 37–43.

²⁰³ See Smith, 116 Yale L J at 1807 (cited in note 10).

²⁰⁴ Id at 1800, 1807 (suggesting that the costs associated with policing serve to push patent law in the direction of the exclusion strategy for delineating rights).

the thing itself, one needs only a central claim and a list of the uses.²⁰⁵ Smith suggests this to be the case with copyright law, which allows exclusive use by the rightsholder of the copyrighted work “to reproduce, to prepare derivative works, and to distribute, perform, and display the work,”²⁰⁶ thus requiring only a central claim. Though Smith’s approach has many advantages, it does not capture the full range of patent and copyright law. Most critically, it overlooks the importance and amorphousness of the right in copyright to create derivative works.²⁰⁷ Though Smith denominates the derivative right as a use, the derivative right requires a rather rich delineation of the thing—that is, the set of works—protected by the copyright, as the derivative right principally equates to those works that are substantially similar to the copyrighted work.²⁰⁸ Without understanding at least an approximation of the set of works protected by copyright beyond the originally created work, one cannot have much insight into the derivative-right use. Smith’s approach also overlooks the dimensionality of claiming practice by comparing peripheral to central claiming. A more nuanced approach ought to acknowledge that it might be easier or harder, depending on the circumstances, to claim peripherally by exemplar than centrally by characteristic.

With this sample of prominent justifications as background,²⁰⁹ I now turn to an analysis of the systemic features affected by each type of claiming as a prelude to scrutinizing claiming for patent and copyright law.

III. CLAIMS ANALYSIS

This Part examines the effects on intellectual property systems of adopting different types of claims followed by suggested claims analysis for patent and copyright law. Part III.A analyzes why the choice of

²⁰⁵ Id at 1807.

²⁰⁶ Id.

²⁰⁷ See text accompanying notes 41–43.

²⁰⁸ See text accompanying notes 154–58.

²⁰⁹ One might also attribute the claiming differences to the larger administrative role for patent law than copyright law. The reasoning would go that there is something intrinsically different between why the government grants copyrights and why it grants patents, in that both the former and the latter are occupied with an incentive to create, but only the latter is concerned with disclosing the creation in exchange for the right. For that reason, administrative involvement for patent law is necessary, which is why we observe differences in the claiming systems. But such an explanation is an oversimplification of both history and copyright law. Historically, as the previous two Parts show, there have been varying degrees of administrative involvement for both patent and copyright law. And at the heart of copyright law, just like patent law, lie both the immediate incentive to create and the rationale that one ought to disclose the creation so that others can build upon it. Copyright law therefore has built-in notions of fair use and a limited term to use the work and derivative works. Moreover, until recently, federal copyright law did not protect unpublished works. See R. Anthony Reese, *Public but Private: Copyright’s New Unpublished Public Domain*, 85 *Tex L Rev* 585, 588–95 (2007) (discussing how, until 1978, unpublished works were generally protected by state, not federal, law).

claiming system matters. Part III.B then applies this analysis to patent law. Part III.C does the same for copyright law.

A. Breaking Down the Claim

This Part examines the effects that the four different claiming types have on relevant aspects of an intellectual property system. I address claim drafting in Part III.A.1, the content notice given to the public in Part III.A.2, the ascertainment of protectability in Part III.A.3, the breadth of the set of protected works in Part III.A.4, and the ability of the claim to cover works grounded in after-developed technologies in Part III.A.5.

1. Claim drafting.

Peripheral claims are similar to rules. Though peripheral claims describe a set of objects, rather than the “norm mandating or guiding conduct or action” typically associated with a rule,²¹⁰ their parameters are specified *ex ante*. That is, before anyone can take any action with regard to the associated intellectual property right, the set’s bounds have been delineated.²¹¹ As Michael Meurer and Craig Nard observe, in a peripheral claiming system, “the applicant has to enumerate and claim all the possible ways of practicing the [creation], but the competitor only has to find one unclaimed way to practice [it].”²¹² For this reason, a peripheral claiming system, like rule writing generally,²¹³ leads to a significant *ex ante* expenditure in drafting claims to capture—thereby protecting—all of the invention’s possible manifestations. A claimant must think globally about the range of applications that are similar enough to his actual creation and that might be profitable enough to include within the scope of the protected right. By definition, this process requires thinking beyond the particular creation—be it invention or work of authorship—to abstract principles or patterns underlying the creation and a range of potential commercial possibilities. For example, an inventor that has created a new metal doorstop will have to think about whether doorstops in other materials embody the same concept and whether the invention can be used for other purposes. This process of conceptual and commercial abstraction imposes a cost on peripheral claimants.

²¹⁰ *Black’s Law Dictionary* 1357 (West 8th ed 2004).

²¹¹ The right associated with the set—what sorts of things owners can do or prevent from happening to that set—can independently operate either as a rule or as a standard.

²¹² Meurer and Nard, 93 *Georgetown L J* at 1975 (cited in note 14).

²¹³ See Louis Kaplow, *Rules versus Standards: An Economic Analysis*, 42 *Duke L J* 557, 562–63 (1992) (arguing that rules are more costly to promulgate but easier to apply than standards).

The imprecision of language extends these costs in a peripheral claiming system further, as Cass Sunstein observes with respect to rules generally.²¹⁴ As noted by the Supreme Court, “[T]he nature of language makes it impossible to capture the essence of a thing.”²¹⁵ And as cogently perceived by one court with regard to invention:

An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law. This conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled. Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things.²¹⁶

A system of peripheral claiming will therefore omit some—possibly key—aspects of a creation. To minimize such omissions in a system of peripheral claiming, patentees tend to include in each patent a great number of peripheral claims, sometimes more than one hundred.²¹⁷ Typically, many of the claims are minor variations on one another, written for the purpose of obtaining maximal protection by extending the periphery of the set of embodiments protected by the patent right,²¹⁸ as the patent right covers the union of the sets delineated by each of the patent’s claims.²¹⁹

Ensuring that claims comport with the threshold requirements of the intellectual property laws compounds the cost of peripheral claim drafting. To take patent law’s peripheral claiming as an example, the

²¹⁴ See Cass R. Sunstein, *Problems with Rules*, 83 Cal L Rev 953, 984–85 (1995) (maintaining that ex ante rules generally require ex post judging).

²¹⁵ *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co, Ltd*, 535 US 722, 731 (2002).

²¹⁶ *Autogiro Co of America v United States*, 384 F2d 391, 397 (Ct Cl 1967). Doug Lichtman suggests how hard it is to draft a patent claim to cover all variations of the pencil, despite our familiarity with it. See Lichtman, 93 Georgetown L J at 2016 (cited in note 83).

²¹⁷ See Deller, 1 *Patent Claims* at § 7 (cited in note 4) (suggesting that it was less important to claim an invention in a variety of ways under the central definition method due to its flexibility); Woodward, 46 Mich L Rev at 757, 764 (cited in note 59) (noting that the Patent Office was forced to impose some limits “where the multiplicity of claims appeared to be clearly unreasonable”). In 2007, the PTO promulgated a rule effectively limiting the number of independent claims to five and total claims to twenty-five, which a court recently upheld as falling within the PTO’s rule-making authority. See PTO, *Changes to Practice for Continued Examination Filings, Patent Applications Containing Patentably Indistinct Claims, and Examination of Claims in Patent Applications*, 72 Fed Reg 46716, 46836–37 (Aug 21, 2007). See also *Tafas v Doll*, 559 F3d 1345, 1357–59 (Fed Cir 2009).

²¹⁸ See Woodward, 46 Mich L Rev at 757 (cited in note 59) (discussing the great efforts taken to ensure that there is no conceivable embodiment of the invention not covered by at least one of the claims).

²¹⁹ See *Jones v Hardy*, 727 F2d 1524, 1528 (Fed Cir 1984).

PTO and the patent applicant must ensure that the drafted claims are definite, in that they are amenable to construction,²²⁰ and that each member of the set of embodiments claimed is novel, nonobvious, and has utility.²²¹ This examination makes claim drafting costlier. Even if claim investigation will be deferred until potential later adjudication, as under a registration system,²²² the rightsholder must expend resources to ensure his claims meet the legal requirements because future adjudication—not to mention third-party negotiations over rights—will turn on claim validity. Thus, as with rule promulgation generally, the desire to obtain broad coverage under a peripheral claiming system leads to a significant *ex ante* expenditure.

Conversely, postponing delineation of the extent of the set of protected works under a central claiming regime until adjudication—as with standards in general²²³—typically means less expenditure on claim drafting (in both the number of claims²²⁴ and thinking through all implications of word choice²²⁵). Nonetheless, potential rightsholders in a central claiming system might expend resources to describe many of their work's exemplars or characteristics in order to provide greater assurance of broader protection in the future, unless some limitation on claiming is implemented.²²⁶ Or, even more, rational central claimants might expend resources to locate the prototype most conducive to positive judgments of similarity—and thus a broad set of protected embodiments—to serve as a central claim. Using the example mentioned above, is a metal, plastic, or some other doorstop the best example for ensuring broad protection down the road? In this sense, even central claimants must think globally about the innovative and commercial implications of their creations.

Turning to the effects of claiming by exemplar and by characteristic on claim drafting, much depends on the other dimension of claiming—peripheral versus central. If claiming is peripheral, it is costly to enumerate every exemplar of a set when the set is large. Recall the set of forks referenced in Table 1. Imagine the great cost of enumerating

²²⁰ See 35 USC § 112, ¶ 2 (stating that claims should distinctly claim the subject matter which the applicant regards as the invention); *Aero Products International, Inc v Intex Recreation Corp*, 466 F3d 1000, 1015–16 (Fed Cir 2006).

²²¹ 35 USC §§ 101–03.

²²² See F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-obtaining Rules*, 45 BC L Rev 55, 70–74 (2003) (discussing a hypothetical registration model where patent applications would be registered but not examined).

²²³ See Kaplow, 42 Duke L J at 562–63 (cited in note 213).

²²⁴ See Deller, 1 *Patent Claims* at § 7 (cited in note 4) (noting the increase in the number of patent claims as compared to the past).

²²⁵ See Malone and Schmalz, Note, 32 Geo Wash L Rev at 634 (cited in note 30) (stating that patentees and draftsmen would prefer a central claiming system for ease of drafting claims).

²²⁶ See Adams, 84 Neb L Rev at 1117 (cited in note 71).

each possible fork under a system of peripheral claiming because of the vast number of variations. But for a small set, perhaps consisting of two items, peripheral claiming by exemplar is straightforward. Peripheral claiming by exemplar for a small set can also be cheaper than determining and specifying the set's common characteristics. But as the set grows in size, under peripheral claiming, claiming by characteristic appears to become more attractive to describe the set broadly (and accurately) at a cheaper cost than exemplar claiming.

The analysis differs under central claiming. When one need only enumerate the heart of the set of things protected by an intellectual property right, both claiming by exemplar and by characteristic are relatively cheap, with claiming by exemplar probably being somewhat easier than ascertaining and describing salient characteristics. The preference for exemplar claiming over characteristic claiming becomes more pronounced in a system of central claiming if an exemplar must be physically created to obtain intellectual property protection. For example, if to receive copyright protection William Shakespeare must have created *Romeo and Juliet*, it is straightforward under a system of central claiming for Shakespeare to claim the exemplar of *Romeo and Juliet* to protect it and substantially similar works.

All in all, the actual costs of claim drafting affect the likelihood that an innovator will seek intellectual property protection. Looking at this factor alone, innovators are more likely to seek protection under central claiming than peripheral claiming.²²⁷ And the larger the set of embodiments to be protected, the more likely innovators are to prefer peripheral claiming by characteristic to peripheral claiming by exemplar. And they are likely to slightly prefer central claiming by exemplar to central claiming by characteristic, unless already required to create an exemplar to obtain protection in the first instance, in which case the preference intensifies.

To the extent, then, that it is thought that more innovation will come from a greater incentive to seek intellectual property rights,²²⁸ it is important to keep down the cost of claim drafting. But if the fear is that too many claims to intellectual property rights will be made, thereby clamping down on the incentive and ability to innovate,²²⁹ the relevant system ought to make claim drafting more expensive.

²²⁷ See Lichtman, 93 Georgetown L J at 2020 (cited in note 83) ("If the doctrine of equivalents reduces the costs of claim drafting, . . . would not that reduction in cost lead to an increase in the number of patent applications filed?").

²²⁸ See Fromer, 94 Iowa L Rev at 547–51 (cited in note 49).

²²⁹ See Jeanne C. Fromer, *The Layers of Obviousness in Patent Law*, 22 Harv J L & Tech 75, 77 (2008).

2. Content notice to the public.

Another way in which claiming systems differ is in how well they provide content notice to the public of the set of embodiments protected by the intellectual property right. Clear content notice to the public of this set is valuable so that the public can avoid improper use of the set's members without permission and can, concomitantly, understand what is free for the taking, thereby furthering innovation.²³⁰ Third parties wishing to use some subset of the protected set will—with clear content notice—understand the extent of their negotiation with the rightsholder, ensuring that they bargain for the precise coverage they need.²³¹ But rightsholders might have conflicting thoughts about clear content notice. On the one hand, they might value it because third parties will realize when to negotiate with the rightsholder for a license and avoid costly infringement.²³² On the other hand, fuzzy content notice might lead risk-averse third parties to negotiate more readily with the rightsholder so as to reach a successful deal (sometimes even as to embodiments not covered by his right).²³³ Rightsholders' views notwithstanding, clear content notice is preferable for furthering innovation because it ensures that the rightsholder does not exercise dominion over things outside the right's scope, thereby upsetting the delicate balance of intellectual property laws.²³⁴

The general view is that “mechanisms that reduce the costs of drafting [a claim] often increase the costs of reading and interpreting it” and vice versa.²³⁵ It would therefore seem that, in light of the previous analysis, peripheral claiming provides better up-front content notice to the public than does central claiming. In fact, the switch from central to peripheral claiming in patent law has principally been defended as providing the public with better content notice of the set of protected

²³⁰ See Long, 90 Va L Rev at 489–95 (cited in note 10) (classifying third-party observers as avoiders, transactors, or builders); Nard, 74 Ind L J at 785–95 (cited in note 28) (extolling the virtues of certainty in patent law).

²³¹ See Nard, 74 Ind L J at 785–95 (cited in note 28). Notice of the embodiments is also useful to effectuate disclosure so that the public can build on the innovative work to yield further innovation. See Fromer, 94 Iowa L Rev at 548–51 (cited in note 49).

²³² See Meurer and Nard, 93 Georgetown L J at 1992 (cited in note 14).

²³³ See Gibson, 116 Yale L J at 887–95 (cited in note 172) (noting the risk aversion that stems from the ambiguity of fair use and the high cost of litigation).

²³⁴ See Bessen and Meurer, *Patent Failure* at 46 (cited in note 23); John R. Thomas, *Claim Reconstruction*, 87 J PTO Socy 781, 782 (2005) (noting the doctrinal consequences of the public notice function of patents); Norman Siebrasse, *A Property Rights Theory of the Limits of Copyright*, 51 U Toronto L J 1, 59–60 (2001) (arguing that the key role of intellectual property law is to provide notice to the public of ownership interests).

²³⁵ See Lichtman, 93 Georgetown L J at 2015 (cited in note 83).

embodiments.²³⁶ If true, central claiming would not provide as clear content notice to the public because much of the thing protected by the intellectual property right would not be enumerated unless it were to become the subject of litigation, in which case the protected set's boundaries would be sharpened only on a case-by-case basis.²³⁷

But despite the assertion that peripheral claims provide clear ex ante content notice to the public, there is a robust stream of criticism undermining this conclusion. For one thing, ambiguities inherent in language can render claim construction unpredictable²³⁸ (as with statutory or contract interpretation). As discussed in Part III.A.4, courts can give a broader or narrower meaning to peripheral claims depending on how large a claim segment the court decides to interpret as a single element. Thus, content notice at the outset is undermined by the indeterminacy of how broadly the claim will be construed down the judicial road.²³⁹ Uncertainty is evidenced by the facts that parties to patent litigation typically will wait to settle their case until after the court has construed the patent claims and that the Federal Circuit reverses approximately one-third of claim constructions it reviews on appeal.²⁴⁰ Moreover, there is frequently inadvertent infringement despite sophisticated parties' best efforts to avoid it.²⁴¹ Additionally, because peripheral claiming tends to lead to a large number of claims,²⁴² the multiplicity undermines content notice, as one must ascertain the bounds of many, rather than a few, claims.²⁴³ Peripheral claims also tend to contain highly abstract formulations, rather than colloquial terms, to ensure that a broader set of embodiments is protected. As Doug Lichtman observes, a reader "might find it easier to read simple, concrete claim language ('shoelace') rather than more abstract expressions ('mechanism by which to bind tightly around the foot') that are in fact technically superior."²⁴⁴ Central claimants, by contrast, need not resort to obfuscatio-

²³⁶ See Deller, 1 *Patent Claims* at § 4 (cited in note 4) (tracing the historical development of patent claims from the Act of 1836 through the Patent Act of 1870); Malone and Schmalz, Note, 32 *Geo Wash L Rev* at 634 (cited in note 30). See also Part II.A.1.

²³⁷ Consider Kaplow, 42 *Duke L J* at 562–63 (cited in note 213) (suggesting that it is costlier to predict a standard's case-by-case application).

²³⁸ See Lutz, 20 *J Patent Office Socy* at 134 (cited in note 52). But see Bessen and Meurer, *Patent Failure* at 18 (recognizing that chemical inventions can be clearly claimed peripherally because of their "well-defined boundaries").

²³⁹ See Burk and Lemley, 9 *Lewis & Clark L Rev* at 31–32, 49–52 (cited in note 95).

²⁴⁰ *Id.* at 53 (noting that the Federal Circuit's reversal rate for claim construction is much higher than its overall reversal rate).

²⁴¹ See Bessen and Meurer, *Patent Failure* at 47–51, 147–64 (cited in note 23) (detailing Kodak's infringement of Polaroid's patents on instant photography despite Kodak's concerted efforts to design around Polaroid's inventions).

²⁴² See text accompanying notes 217–19.

²⁴³ See Lutz, 20 *J Patent Office Socy* at 134 (cited in note 52).

²⁴⁴ Lichtman, 93 *Georgetown L J* at 2015 (cited in note 83).

ry language because their protection is not limited to that described in their claims.

That is not to say that central claims provide perfectly clear content notice of the set of protected embodiments, as infringement of central claims can, by definition, be found even when the infringing creation is not literally within claim bounds.²⁴⁵ In fact, central claims in copyright law are traditionally thought to provide poor content notice of the set of protected works.²⁴⁶ That said, in the American precedent-based judicial system, each adjudication of an infringement claim gives increasingly better content notice as to the extent of the set of works protected by a particular copyright by providing new data points adjudged either to be in or out of the set. Moreover, well-designed central claims can communicate a considerable portion of the set of protected embodiments, leaving only fringe elements to be deduced *ex post*.²⁴⁷ In any event, the unpredictability of content notice under the two claiming systems is different: peripheral claims' unpredictability relates to the interpretation of claim words, while for central claims, it relates to the extent and shape of similarity to the claimed embodiments.

Until now, I have been addressing the traditional view of content notice provided by central and peripheral claims. Research in cognitive science suggests that this view might be too simplistic for failing to account for how people process, comprehend, and construct categories and for neglecting the other dimension of claiming (exemplar or characteristic). According to this research, people's categories are formed and comprehended not with a list of necessary and sufficient criteria to test for membership, as the classical Aristotelian view would suggest,²⁴⁸ but rather with prototypes against which to compare potential category members for sufficient similarity. Consider Ludwig Wittgenstein's explication of the category of games:

I mean board-games, card-games, ball-games, Olympic games, and so on. What is common to them all?—Don't say: "There *must* be

²⁴⁵ See Malone and Schmalz, Note, 32 *Geo Wash L Rev* at 634 (cited in note 30).

²⁴⁶ See Nimmer and Nimmer, 4 *Nimmer on Copyright* at § 13.03 (cited in note 161) ("The determination of the extent of similarity that will constitute a substantial, and hence infringing, similarity presents one of the most difficult questions in copyright law."). See also Part II.B.1.

²⁴⁷ It is also possible to diminish uncertainty by enunciating an objective, well-developed standard to measure substantial similarity of potential infringing products to the central claims. One could spell out the factors that must be evaluated for any particular class of creation to determine similarity, rather than leaving the decisive factors to be revealed differentially in different cases. See Jeanette Rene Busek, Comment, *Copyright Infringement: A Proposal for a New Standard for Substantial Similarity Based on the Degree of Possible Expressive Variation*, 45 *UCLA L Rev* 1777, 1795–1803 (1998).

²⁴⁸ See Aristotle, *Categories and De Interpretatione* ch 8 at 24–31 (Oxford 1975) (J.L. Ackrill, trans).

something common, or they would not be called ‘games’—but *look and see* whether there is anything common at all.—For if you look at them you will not see something that is common to *all*, but similarities, relationships, and a whole series of them at that.²⁴⁹

One might instinctively think that all games involve winning and losing, and many games do. But, for example, a group of children can play a roleplaying game, such as “Cowboys and Indians,” for which there will be no winner or loser.²⁵⁰ And games—compare, say, bingo and soccer—rely on skill and luck in varying measures.²⁵¹ Wittgenstein’s example succinctly shows what cognitive scientists and linguists have since shown systematically, that categories are not formed or understood as a list of necessary and sufficient properties common to all members (as such a list would be both under- and overinclusive)²⁵² but in a radial form.²⁵³ A radial category

consists of a central model or case with various extensions that, though related to the central case in some fashion, nevertheless cannot be generated by rule. Because they may derive from the central case in different ways, the extensions may have little or nothing in common with each other beyond their shared connection to the central case.²⁵⁴

Cognitive science research demonstrates that we categorize radially. Studies show that certain members of a category seem more central, or typical, than others. According to one classic study, people consistently think robins are better examples of the “bird” category than penguins, though all are judged to be birds.²⁵⁵ Other experiments show that subjects will list prototypical examples of a category before less cen-

²⁴⁹ Ludwig Wittgenstein, *Philosophical Investigations* § 66 at 27 (Oxford 1953) (G.E.M. Anscombe, trans).

²⁵⁰ See id. (“In ball games there is winning and losing; but when a child throws his ball at the wall and catches it again, this feature has disappeared.”).

²⁵¹ See id.

²⁵² In fact, lexicographers appreciate that “definitions that try to be exhaustive . . . are self-defeating, because they can never hope to explore all the limits of the concept.” Henri Béjoint, *Modern Lexicography: An Introduction* 23, 52 (Oxford 2d ed 2000).

²⁵³ See Wittgenstein, *Philosophical Investigations* at § 66 (cited in note 249) (“[W]e see a complicated network of similarities overlapping and criss-crossing: sometimes overall similarities, sometimes similarities of detail.”).

²⁵⁴ Steven L. Winter, *A Clearing in the Forest: Law, Life, and Mind* 71 (Chicago 2001). See generally George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind* (Chicago 1987) (summoning a variety of evidence to show that categorization is a significantly more complex cognitive process than the objectivist view suggests).

²⁵⁵ See Eleanor Rosch, *Cognitive Representations of Semantic Categories*, 104 *J Exp Psych: General* 192, 232 (1975) (finding that out of fifty-four types of bird, experimental subjects considered robins to be the most prototypical example while penguins were second-to-worst after bats).

tral ones²⁵⁶ and that people learn prototypical examples as category members before other examples.²⁵⁷ Perhaps most pertinent to this Article's examination of artificially created categories of protected embodiments, people comprehend prototypical examples of even artificial or ad hoc categories more easily than less central category members.²⁵⁸ In sum, the prototype effect is pervasive in forming and understanding categories.

Though these studies were done in other contexts, they are valuable in suggesting how to communicate categorical information successfully.²⁵⁹ To the extent this research generalizes to categories of inventions or artistic creations in intellectual property law,²⁶⁰ the necessary and sufficient features set forth by peripheral claiming by characteristic do not accord with the way people learn categories. Thus, content notice might be better—or just as good—with (well-constructed) central claims conveying prototypes or exemplars, or even peripheral claims by exemplar. Even if central claims do not provide perfect content notice of categorical boundaries, the evidence indicates that it might do a good job at communicating the crux of the protected embodiments.

There might also be differences in the effectiveness of content notice depending on whether claiming by exemplar or characteristic is used. Until recently, there had been some debate whether people build categories by modeling a prototype of the average salient features of the exemplars they have experienced or by modeling a series of experienced exemplars against which new objects can be compared

²⁵⁶ See Eleanor Rosch, *Principles of Categorization*, in Eleanor Rosch and Barbara B. Lloyd, eds, *Cognition and Categorization* 27 (Lawrence Erlbaum 1978).

²⁵⁷ See Eleanor Rosch Heider and Donald C. Olivier, *The Structure of the Color Space in Naming and Memory for Two Languages*, in *Cognitive Psychology* 337 (Academic 1972) (demonstrating that the more prototypical a particular color, the better the mind remembers that color).

²⁵⁸ See generally Lawrence W. Barsalou, *Ad Hoc Categories*, 11 *Memory & Cog* 211 (1983).

²⁵⁹ Legal scholarship relies on similar research to examine other issues, such as discrimination. See Gary Blasi, *Advocacy against the Stereotype: Lessons from Cognitive Social Psychology*, 49 *UCLA L Rev* 1241, 1255–57, 1267–70 (2002) (discussing how impressions of certain groups of people are often based on prototypes). See also Linda Hamilton Krieger, *The Content of Our Categories: A Cognitive Bias Approach to Discrimination and Equal Employment Opportunity*, 47 *Stan L Rev* 1161, 1161 (1995) (arguing that employment discrimination stems not from intentional behavior, but from unintentional cognitive errors related to categorization).

²⁶⁰ One difference might be that once people are trained to learn categories in a way other than that which the studies suggest, that trained approach might be fruitful. For example, patent lawyers constantly exposed to peripheral claims by characteristic might become better at understanding their proper extent than ordinary people are at understanding similar descriptions in studied categories. See Golden, 21 *Harv J L & Tech* at 330 (cited in note 71). If true, training comes with costs and benefits that must be considered. But assuming that this “training” has occurred in patent law by virtue of the longstanding use of peripheral claims by characteristic, the poor notice provided by these claims, see text accompanying notes 238–44, undermines this argument's force.

for sufficient similarity.²⁶¹ The former possibility corresponds in large part to learning by characteristic, the latter to learning by exemplar. Recent experiments have suggested, though, that when it comes to learning larger, more differentiated categories, learning by characteristic is prevalent early in the learning process but slowly gives way to exemplar learning.²⁶² By contrast, in learning smaller, less differentiated categories, learning by exemplar is dominant.²⁶³ These results are intuitive: it seems more efficient to learn membership in a larger, more differentiated category by characteristic, at least at first; and once one ascertains the category's basics, developing a sharper sense of the category's bounds might entail learning about exemplars that do not precisely match the already learned characteristics.²⁶⁴ And in a smaller, less differentiated category, the exemplars are sufficient to teach the category. To the extent this research applies to intellectual property categories—as intuition would suggest—when intellectual property law is protecting a small, poorly differentiated category, claiming by exemplar would be appropriate. But claiming by characteristic would be more suitable for larger, better differentiated categories, though claiming by exemplar might also play a role in teaching categorical boundaries.

There can also be practical differences of the content notice given by exemplar and characteristic claiming. With characteristic claiming, like in the current patent system, there is readily accessible an immense database of claims governing the set of protected embodiments. A person interested in the particulars of inventions will, more or less, be able to locate relevant patents in the database.²⁶⁵ On the other hand, with exemplar claiming, like in the current copyright system, *res ipsa loquitur*: the thing, the copyrighted work, speaks for itself as a central claim. To the extent the work is consumed, the claim is conveyed. But searching for protected works with specific features is harder given that copyrighted works—even those registered with the

²⁶¹ See J. David Smith and John Paul Minda, *Prototypes in the Mist: The Early Epochs of Category Learning*, 24 J Exp Psych: Learning, Memory, & Cog 1411, 1411 (1998) (criticizing these findings for focusing on small, poorly differentiated categories which may favor exemplar strategies); Stephen Dopkins and Theresa Gleason, *Comparing Exemplar and Prototype Models of Categorization*, 51 Can J Exp Psych 212, 212, 225 (1997) (comparing experimental results that pitted the exemplar and prototype theories against each other).

²⁶² See Smith and Minda, 24 J Exp Psych: Learning, Memory, & Cog at 1412, 1426 (cited in note 261). See also Robert M. Nosofsky, Thomas J. Palmeri, and Stephen C. McKinley, *Rule-plus-exception Model of Classification Learning*, 101 Psych Rev 53, 53 (1994).

²⁶³ See Smith and Minda, 24 J Exp Psych: Learning, Memory, & Cog at 1412, 1426 (cited in note 261).

²⁶⁴ Id at 1412, 1426–30.

²⁶⁵ But see Fromer, 94 Iowa L Rev at 560–62, 585–87 (cited in note 49) (noting, however, that the public typically does not read patents and that the characteristics of the patent document and patent database make it hard to find all relevant patents).

Copyright Office—are not easily searchable by any meaningful feature. It is typically easier to search through a list of features than the exemplars themselves.

In sum, the traditional view holds that peripheral claims provide better content notice as to the category of protected things than do central claims. That view is overly simplistic within the traditional approach and also fails to account for how people learn categories. Work in cognitive science suggests that central claiming might accord better than peripheral claiming with how people learn categories. The traditional view also neglects the other dimension of claiming, characteristic or exemplar. Claiming by characteristic—whether peripheral or central—might be more helpful for people to learn the extent of the protected set when the set is large or is differentiated. But claiming by exemplar—again, whether peripheral or central—might be better to teach the public the set's extent at the boundaries or when the set is small or poorly differentiated.

3. Ascertainment of protectability.

In addition to the varying degrees of difficulty and cost associated with claim drafting and content notice, the claiming systems differ in the ease of assessing whether the claimed set of embodiments is protectable. This factor is closely related to content notice because the assessor—typically a government actor—needs to understand the set's scope to ascertain protectability by the relevant intellectual property laws. But there are some additional aspects to ascertainment of protectability.

Peripheral claims—like rules—are devised upfront, and they might be examined then by a governmental actor to ascertain whether the claimed set of embodiments is protectable. The ostensibly peripheral-claiming patent system is examined both upfront in patent examination and in the context of particular adjudications later down the road. Upfront, if PTO examiners determine that there is no basis to label any members of the claimed set of embodiments as not novel, useful, nonobvious, or adequately disclosed, a patent will issue. Peripheral claims are thought to enable the examiner to assess the novel or original features of the claimed set because the full extent of the set is expressly set out by the creator. An issued patent entitles the patentee to a presumption of patent validity should it result in litigation,²⁶⁶ meaning that patent validity for the set's extent can be explored again down the road, but less vigorously. But if content notice is poor, examiners will overlook examination of subsets of the claimed set.

²⁶⁶ 35 USC § 282.

Contrast that with central claims. If central claims are characteristic, they will also set out a list of features. But the central claim will not necessarily easily enable a complete explication of novelty or originality, as this prototypical list of features will not inevitably be equivalent to a list of the necessary and sufficient features that identify all members of the set of protected embodiments. The characteristic central claim will nonetheless be useful—perhaps as much as a characteristic peripheral claim—to an examiner for much the same reason as a characteristic peripheral claim. But it might mean that protectability of those set members not literally described by the central claim will not be assessed during examination. Assessment of protectability of the full set for central claims by exemplar is difficult, as the examiner must deduce the essential features of the exemplar. Of course, embodiments not literally encompassed by the central claim but falling within the set of protected embodiments will be adjudged separately down the line for protectability, if at all. These nonliteral embodiments will thus be ascertained for protectability within the context of a particular dispute, where it is more straightforward than in the abstract investigation of protectability to determine whether protection of these embodiments furthers or stifles innovation.

4. Breadth of the set of protected works.

Another aspect one might think is affected by the choice of claiming system is the breadth of the set of protected works. As discussed in Part I, one asks very different questions under each type of claiming to enumerate the corresponding set of protected embodiments.²⁶⁷ Asking these different questions does not, however, mean that the interpreter necessarily arrives at significantly different breadths (with one possible exception—the breadth’s expansiveness based on works grounded in after-developed technologies, a topic explored in the following Part). In construing peripheral claims, one can assign claim terms either narrow or broad meaning.²⁶⁸ For example, in the context of patent law, Dan Burk and Mark Lemley state that one “can read a term abstractly, so that a ‘fastener’ becomes anything that attaches two other things together, or [one] can read the same term more concretely, defining a fastener to be a particular type of connector such as a nail or a U-bolt.”²⁶⁹ One will presumably not construe “fastener” to include bananas or

²⁶⁷ See text accompanying note 36.

²⁶⁸ See Burk and Lemley, 9 *Lewis & Clark L Rev* at 31 (cited in note 95) (noting that courts have broad discretion in interpreting patents).

²⁶⁹ *Id.* Burk and Lemley also suggest that a court’s approach to dissecting claims into elements can lead to broader or narrower claim construction. See *id.* at 41–46.

shoes, so there are limits on the expansive breadth of peripheral claims. Much will depend on how broadly or narrowly the peripheral claims have been written and then further on the interpretive ideology deployed.²⁷⁰ In construing central claims, one can limit or broaden the set of embodiments that are sufficiently similar to the centrally claimed prototype.²⁷¹ Still, there are outer bounds on similarity inquiries. In most contexts, books, for example, will not be found to be sufficiently similar to airplanes. And just as with central and peripheral claims, there is elasticity in construing both characteristic and exemplar claims.

Of course, concern lies not only with the true breadth of the set, as determined by government officials, but with its operational breadth. Many patents and copyrights are never adjudicated,²⁷² and the breadth of the set thus remains somewhat indeterminate based on the claims as understood through the lens of (often blurry) interpretive principles.²⁷³ Given that there is uncertainty as to the extent of the set of protected embodiments under peripheral or central claiming and characteristic or exemplar claiming, aversion to the risk of liability attracts licensees.²⁷⁴ Licenses will be taken sometimes even when unnecessary—when a patent or copyright is invalid or the valid claims do not cover the licensed activity. Operationally, such licensing leads to a set of protected embodiments broader than the law would otherwise allow. Therefore, the better the content notice provided by the claims, as discussed above in Part III.A.2, the less broad the set of protected embodiments will tend to be operationally, relative to actual breadth.

²⁷⁰ See *id.* (“[T]here are no hard and fast standards in the law by which to make the ‘right’ decision as to either the size of the textual element or the level of abstraction at which the element will be evaluated.”); Kelly Casey Mullally, *Patent Hermeneutics: Form and Substance in Claim Construction*, 59 Fla L Rev 333, 333–39 (2007) (discussing varying methodologies for interpreting patent claims).

²⁷¹ See notes 145–52 and accompanying text.

²⁷² Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw U L Rev 1495, 1501 (2001) (noting that approximately 0.1 percent of patents are litigated to judgment); Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 Ga L Rev 1129, 1131 (2001) (stating that copyright owners “grudgingly tolerated” infringing uses because infringement was difficult to detect and rarely worth the cost of litigation).

²⁷³ See Cohen, 20 UC Davis L Rev at 732 (cited in note 146) (characterizing the test for copyright infringement as largely dependent on “some visceral reaction”); Osenga, 38 Rutgers L J at 69–70 (cited in note 201) (discussing the ambiguities inherent in patent claim construction).

²⁷⁴ See Gibson, 116 Yale L J at 887–95 (cited in note 172) (arguing that copyright’s doctrinal indeterminacy combines with risk aversion on the part of lawyers to create a feedback loop); Smith, 116 Yale L J at 1804 (cited in note 10) (suggesting that holders of narrow patents can exploit this risk aversion by engaging in holdup behavior).

5. Protection of works grounded in after-developed technologies.

There is one likely exception to the notion that claiming choice does not per se affect the breadth of the set of protected embodiments—namely, how much works grounded in future technological developments are protected. A peripheral claimant must think well beyond the manifestation of his invention to the future set of manifestations likely to be valuable enough to prevent others from using it, even if not presently practicable. A peripheral-claim drafter must thus try to anticipate what will, within the period of legal protection, be technologically feasible and commercially and intellectually preferable, as well as the attitudes of courts that might construe the right's scope in the future.²⁷⁵ For instance, in a system of peripheral claiming, a patent seeker will aim, if possible, to include within his claim scope future technological substitutions for current technological possibilities. And a copyright seeker, say in 1980 in a hypothetical system of peripheral claiming, would want to ensure that his copyright of his hardcover novel would extend to then-unforeseen Internet publications of it. Because so much of the future determination of the right's scope will be determined by that which is claimed at the get-go,²⁷⁶ it is unsurprising that the peripheral claimant spends much time and money at the initial drafting stage to seek a right for the broadest set of embodiments the claimant can envision.²⁷⁷ As with rules generally, peripheral claiming therefore leads to a greater expenditure at the outset to draft broad claims, as explored in Part III.A.1, and leads to a great cost to the rightsholder at a later date should technological, commercial, or intellectual circumstances not align with his predictions at claim drafting.

²⁷⁵ See Woodward, 46 Mich L Rev at 755 (cited in note 59) (comparing a patent claim draftsman to a lawyer who draws up a will, in that both must consider future judicial attitudes when drafting documents).

²⁷⁶ In a system of strict peripheral claiming, there is room for interpretive rules to be differentially generous with permitting future advances to fall within claim scope. A strict rule might interpret claim terms based on their meaning at the time of drafting, which would tend to exclude many unforeseen advances that have come about by the time of claim interpretation. Contrast that with a more charitable rule interpreting claim terms based on their meaning at the time of interpretation when the earlier unforeseen advances have already come to pass. See, for example, Kevin Emerson Collins, *The Reach of Literal Claim Scope into After-arising Technology: On the Construction of Things and Meanings*, 41 Conn L Rev 493, 499 (2008) (arguing that the tension between claim fixation and claim growth is a false paradox in the context of after-arising technology); Lemley, 104 Mich L Rev at 102–04 (cited in note 32) (suggesting that because patent prosecution and litigation can take “years and even decades,” the time that is fixed to define a patent term may be dispositive in a substantial number of cases). Compare William N. Eskridge, Jr., *Dynamic Statutory Interpretation* (1994) (exploring the significance of interpreting fixed language as dynamic in the context of statutory interpretation).

²⁷⁷ See text accompanying notes 210–13.

A central claimant, on the other hand, can defer delineation of the full set of protected embodiments at the outset until the future when by virtue of the passage of time, the unfolding of related innovation has become clearer.²⁷⁸ Moreover, the evaluation of the set of embodiments looks very different at the outset and in the abstract than it does in the future in the context of a particular controversy.²⁷⁹ Central claims, then, more easily allow for an expansion of protection beyond the claimed core in light of future innovation.

The choice on the other dimension of claiming, by characteristic or exemplar, probably will not have much direct effect on how well the claims protect future developments. That protection will be determined more by the choice of interpretive rules.

It is impossible to classify claims' protection of future developments as monolithically positive or negative. In situations where it encourages overall innovation to protect unclaimed future changes—say, when a creator knows there will be unpredictable obsolescence should he innovate, discouraging innovation in the first instance—strict peripheral claiming with its exclusionary effect on future developments will negatively affect innovation as compared with central claiming. But when the opposite is true—when the landscape has shifted considerably due to subsequent landmark developments—strict peripheral claiming provides a more useful contraction than central claiming of intellectual property rights by tending to exclude these future developments from long-ago claimed rights.

* * *

Precisely balancing these factors against each other to determine which claiming system ultimately leads to the most valuable innovation must be empirically grounded. Nonetheless, these factors can be evaluated qualitatively, leading to analysis of patent and copyright claiming, to which I now turn.

²⁷⁸ See Lichtman, 93 *Georgetown L J* at 2021 (cited in note 83) (offering the Internet as a case in point). See also Meurer and Nard, 93 *Georgetown L J* at 1992 (cited in note 14) (noting that the doctrine of equivalents allows the inventor to defer refinement until a time when the costs of refinement are lower). Relatedly, it can make sense to expend resources on delineation only once the protected work makes that economically viable, so only valuable patents or copyrights will be expounded upon in the context of particular disputes. See Lichtman, 93 *Georgetown L J* at 2029 (cited in note 83) (arguing that it makes sense to review patent applications casually at the application stage because only a small number of patents will eventually warrant serious review); Lemley, 95 *Nw U L Rev* at 1497, 1510–11 (cited in note 272) (noting that a small percentage of patents are actually litigated).

²⁷⁹ See Lichtman, 93 *Georgetown L J* at 2015 (cited in note 83).

B. Analyzing Patent Claims

This Part has until now compared strict peripheral claiming with strict central claiming and strict characteristic claiming with strict exemplar claiming. But there can be good reason to mix and match claiming types in varying degrees to take advantage of the best parts, while minimizing the worst. This Part suggests a better claiming system for patent law in light of the foregoing analysis. After discussing how the patent system already de facto has taken advantage of different types of claiming for varying purposes, I propose that it would be gainful to incorporate further aspects of central claiming and claiming by exemplar—reminiscent of copyright law—into patent law’s predominant system of peripheral claiming by characteristic.²⁸⁰

If there is one point of consensus in the many debates over patent law, it lies in the goal of furthering innovation by striking the proper balance between granting an exclusionary right to innovators and encouraging future innovation by building upon previous advancements.²⁸¹ To advance this goal, it is important to ensure that patent claims enable a properly sized set of embodiments—not too big, not too small—to be protected. The patent claims must also not deter those innovators patent law wants to encourage from inventing and seeking patent protection. Finally, the claims should provide sufficiently clear content notice of that which is protected both to deter wasteful investments in licenses and litigation by third parties and to safeguard the patentee’s investments. These goals largely correspond to the factors explored in Part III.A.

Recall that current patent claims are typically peripheral and by characteristic, though with numerous exceptions.²⁸² Peripheral claiming by characteristic is an expensive undertaking.²⁸³ And though it is traditionally thought to give useful content notice of the scope of the set of protected embodiments, both recent legal work and research in cognitive science on categorization provide reason to doubt that the content notice provided by peripheral claiming is as useful as is thought in relation to central claiming, except perhaps to some degree with regard to allowing the PTO to assess protectability.²⁸⁴ The cognitive science litera-

²⁸⁰ This incorporation likely would require some recalibration of evaluating patent validity—principally novelty, utility, and obviousness—to make sure they are properly compatible with the claiming approach.

²⁸¹ See Fromer, 94 *Iowa L Rev* at 542 (cited in note 49) (noting that the economic literature addressing patents is engaged in a debate over how to stimulate innovation while minimizing deadweight losses).

²⁸² See Part II.A.

²⁸³ See Part III.A.1.

²⁸⁴ See Part III.A.2–3.

ture—and common sense—also demonstrate that the choice of claiming by characteristic or by exemplar might affect content notice and assessment of protectability.²⁸⁵ After abstracting away the interpretive rules that have developed for current patent claiming, the choice of claiming system does not, in and of itself, affect the breadth of the set of protected embodiments²⁸⁶ but for its sometimes deleterious effect on the protection of developments incorporating after-developed technologies.²⁸⁷ Analysis of Part III.A's factors thus demonstrates that patent law's peripheral claiming by characteristic has its downsides.

But that is not the full picture. In some ways, patent law does not always rigidly demand peripheral claiming by characteristic and has adjusted claiming to take advantage of some of the best features of each claiming type. First, recall that courts have the discretion, by invoking the doctrine of equivalents, to treat peripheral claims as central claims in adjudging whether to protect future technological, commercial, or intellectual developments that are insignificant variants on that which was claimed.²⁸⁸ In this way, courts can assess in the context of a particular invention and industry whether to include certain postclaiming developments within the scope of the patent right. Courts can thus determine once the developments have already occurred whether the path of innovation is best served by including them.²⁸⁹ Second, when the cost of drafting peripheral claims is too great, the applicant can opt to write cheaper central claim-like means-plus-function limitations describing the invention's function, thereby protecting the means for accomplishing the function described in the patent specification and its substantially similar equivalents (though under the courts' fairly constrained equivalence analysis).²⁹⁰ Third, the use of dependent claims helps to provide useful content notice of those subsets of the broader set claimed in the independent claim most central to the patentee's protection.²⁹¹ When a more abstract independent claim—say, for a writing implement—is lacking, dependent claims—for, say, pencils, pens, markers, and the like—can help provide content notice. Fourth, when it is too difficult to come up with a common label for seemingly disparate items that nonetheless possess a commonality for the purpose of a particular invention—a situation in which the drafting costs are too

²⁸⁵ See *id.*

²⁸⁶ See Part III.A.4.

²⁸⁷ See Part III.A.5.

²⁸⁸ See Part II.A.2.a.

²⁸⁹ See Lichtman, 93 *Georgetown L J* at 2029 (cited in note 83) (arguing that by the time judges become involved in a patent dispute, rivals can bring forward information about market effects in order to suggest an appropriate scope for the patent).

²⁹⁰ See Part II.A.2.b.

²⁹¹ See Part II.A.2.c.

significant or the resulting content notice to the public would be too obtuse—the patent applicant can claim those items by exemplar rather than by characteristic by using Markush claims.²⁹² Fifth, the patent applicant must undertake some claiming by exemplar by fulfilling the best-mode requirement,²⁹³ thereby communicating the best known exemplar of the invention.

Though patent law's claiming system has thus admirably been flexible, it might be further optimized. For one thing, the doctrine of equivalents has been constricted in recent years and is employed fairly infrequently by courts.²⁹⁴ Therefore, for ascertaining protectability, the periphery of the claim is almost always used. Drafting patent claims is costly, in large part due to the abundance of drafted claims and the expensive abstract wording the patentee employs to garner broad coverage.²⁹⁵ And peripheral claims are lacking in a number of ways at providing content notice, such as by communicating in abstract language that is hard to understand, by being susceptible to unpredictably varying interpretations, by harshly penalizing patentees for poor word choice, and by being misaligned with how it seems people learn categories.²⁹⁶ Because of the uncertainty in patent law's peripheral claims, Judge S. Jay Plager of the Federal Circuit has said that the patent grant is actually “little more than a right to litigate.”²⁹⁷

Despite the help that peripheral claims by characteristic can give to patent examiners to ascertain protectability, the PTO is frequently criticized for allowing patents to issue with overbroad claims—that is, claims that sweep into the set of protected embodiments members that are not novel or nonobvious.²⁹⁸ Commentators typically attribute the PTO's shortcoming to the vast amount of work that examiners have to do in a short amount of time and the insufficient experience of PTO examiners.²⁹⁹

But there seems to be an additional overlooked reason—linked intrinsically to the system for claiming patents—as to how patent examiners might err in issuing overbroad patents. And that relates to the con-

²⁹² See Part II.A.3.

²⁹³ See *id.*

²⁹⁴ See Part II.A.2.a.

²⁹⁵ See Part III.A.1.

²⁹⁶ See Part III.A.2.

²⁹⁷ *An Interview with Circuit Judge S. Jay Plager*, 5 J Proprietary Rts at 2, 6 (Dec 1993).

²⁹⁸ See Lemley, 95 Nw U L Rev at 1495 (cited in note 272) (noting that this criticism is particularly strong in the realm of software and Internet “business method” patents); Beth Simone Noveck, “Peer to Patent”: *Collective Intelligence, Open Review, and Patent Reform*, 20 Harv J L & Tech 123, 123 (2006).

²⁹⁹ See Lemley, 95 Nw U L Rev at 1499–1500 (cited in note 272) (estimating that the total average time an examiner spends on the prosecution of a patent is eighteen hours).

tent notice provided by peripheral claims. Because of the claims' problems with content notice,³⁰⁰ the examiner might fail to imagine possibly substantial subsets of embodiments within the claimed set. In that case, the examiner will not assess whether those subsets are patentable. And if a patent then issues, the patent right will protect those subsets without a patentability assessment. The patent's breadth can thus be excessive. This possibility provides additional justification beyond the known concerns with underexamined patent applications to rid patent law of the presumption of validity that clings to patent claims postissuance.³⁰¹ At the very least, it indicates that the presumption ought not to apply to the unexamined subsets of the peripheral claim. The validity of these subsets can then be explored in the context of particular litigation with a properly clean slate.

Though contrary to conventional wisdom,³⁰² a move from peripheral claiming toward central claiming (by characteristic)³⁰³ could be another way to address this and other problems associated with peripheral claiming more directly.³⁰⁴ This shift would have at least four effects. First, a switch to central claiming would affect the content notice given to the public of the extent of the set of embodiments protected by a patent right. Traditionally, peripheral claiming has been thought to give good content notice of this extent—preferable to central claiming. There are many reasons to question the quality of content notice provided by peripheral claims, notably ambiguities in language, the unpredictability of claim construction, claims' abstract formulations, and research in cognitive science as to how people learn and process categories, research that would not seem to exempt the category of all of the

³⁰⁰ See Part III.A.2.

³⁰¹ See 35 USC § 282 (establishing the presumption of validity for patents); Doug Lichtman and Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 *Stan L Rev* 45, 50–51 (2007) (arguing that a strong presumption of validity ought to be accorded only to those patents that have undergone intensive examination beyond current standards).

³⁰² See, for example, Meurer and Nard, 93 *Georgetown L J* at 1948–56 (cited in note 14) (offering a “refinement theory” to enable inventors to claim the full breadth of protection to which they are entitled).

³⁰³ This move can happen either by replacing peripheral with central claims or by having them sit side by side. The latter will be more expensive to draft, while the former might lose some of the advantages of peripheral claiming. A historical analogy is to the late nineteenth and early twentieth century when claims served as pointers to the information described in the patent specification. Then, claims commonly explicitly included “substantially as described” language or the law viewed it as implicit. See note 71.

³⁰⁴ This central claiming would be different than what used to exist amid criticism in patent law, in that it would be by characteristic so that it would set out the essential characteristics of the prototypical embodiments of an invention. Central claims of old, by contrast, would often simply refer back to the patent specification without establishing characteristics, which is a principal reason why notice suffered under the pre-peripheral claiming regime.

embodiments of a particular invention.³⁰⁵ Central claims will not excise the problem of language ambiguities; but because people appear to build central models of categories in their mind, central claims might be just as, if not more, effective to provide content notice to the public. Central claims are also likely to contain less abstract formulations,³⁰⁶ thereby improving content notice (except perhaps on the fringes). Uncertainty in peripheral claims lies in the precise reach of each of the claim words, whereas uncertainty in central claims lies in how many embodiments will be found to be substantially similar to the more limited claimed set.³⁰⁷ So long as the characteristics of the central members are set out, substantial similarity is cabined, not unlike the determination of word meaning under peripheral claiming.

The better the content notice, the easier it is for the public desiring use of a particular technological work to assess whether it is free for use or must be licensed by virtue of the work falling within the scope of a patent. With better content notice, third parties can more appropriately price patent licenses based on the value of the technology (rather than also based on the murkier probability that the patent covers the technology in the first instance, which accompanies poorer content notice). All in all, better content notice means a more correct operational breadth for patents, which enhances the march of innovation.

As a second effect, central claiming would make it easier for the PTO to ascertain correctly the patentability of all embodiments described literally by the claim—by simple virtue of the description being narrower and more concrete, covering the heart of the invention rather than every esoteric variation, and likely being truer to cognitive understanding of the communicated category. Central claiming would therefore constrain the extent of the PTO's patentability determination, meaning the PTO's determinations would likely become more accurate. This effect is particularly beneficial in light of the PTO examiners' lack of time and experience to process the crushing number of filed patent applications. And this would accord with the PTO's recent regulation effectively limiting the number of claims a patent applicant can file.³⁰⁸ The PTO surely promulgated this rule in response to the growing number of peripheral claims in each patent application and the effect of the accompanying information overload on its ability

³⁰⁵ See Part III.A.2.

³⁰⁶ Central claims will be less abstract only if they are limited—either in number or in structure—so that applicants cannot try to write the same peripheral claims as currently formulated and label them as central claims.

³⁰⁷ See Part III.A.4.

³⁰⁸ See note 217.

to examine patent applications.³⁰⁹ Central claiming would more properly address this concern. By limiting the number of claims under a peripheral approach, the inventor of a complex and hard-to-describe invention is penalized by being forced to relinquish protection for some embodiments of his invention or to choose even more abstract language than currently used to capture more embodiments in one claim. But central claiming would allow the inventor to describe the heart of the invention, surely an easier task using more concrete language. Consequentially, there would be no presumption of validity accorded to any unexamined embodiments—those that are not within the literal scope of the central claim but are substantially similar—leaving the courts to examine their patentability in the first instance. This judicial inquiry would have the advantage of examining such embodiments within the context of well-developed information indicating whether innovation is furthered by adjudging these embodiments patentable. And this thorough examination would efficaciously happen for the set of patents that are valuable enough to be worth the expense of litigating.³¹⁰

Relatedly, a third effect would obtain. Currently, the courts are stingy in applying the doctrine of equivalents.³¹¹ Moving toward a model of central claiming would encourage courts to be less sparing, giving the doctrine of equivalents more bite. There are those who would criticize this development as undermining certainty, but as demonstrated, there is significant uncertainty with pure peripheral claims, particularly at the fringes. And courts might be somewhat more amenable to allowing works grounded in after-developed technologies—in the proper cases—to count as members of the set of protected embodiments, thereby ensuring that the right patents are not completely devalued by unforeseen technological change.

Finally, central claiming would tend to decrease the cost of claim drafting because patent applicants would need only claim the heart of their invention rather than think dizzily about each possible embodiment worth protecting and choose abstract language to encompass them all by drafting a multitude of claims. Patent applicants would know that they are not fully limited to all that their imagination and resources can claim at a preliminary moment in time. Those who al-

³⁰⁹ See text accompanying notes 217–19.

³¹⁰ See Lemley, 95 *Nw U L Rev* at 1510–11 (cited in note 272) (arguing that spending large amounts of money on PTO examination procedures would likely be a waste, because so few patents are actually valuable). It is unlikely that these effects would render the patent system unstable, as they would merely correct a pendulum that has swung too far in favor of patentees with the presumption of validity and poor notice.

³¹¹ See Part II.A.2.a.

ready think that too many patents are being issued, thereby harming innovation,³¹² might view this cost decrease negatively. But whether or not there are too many patents, it is unlikely that lowered drafting costs will further open the patent floodgates. A lion's share of issued patents belongs to large corporations whose ready resources make it unlikely that they are currently suppressing patent filings because of claim-drafting costs.³¹³ At most, lower costs might increase the number of patent applications filed by smaller entities, until now a smaller segment of the patent-filing population.

This Part until now has focused primarily on central and peripheral claiming. Patent claiming is typically by characteristic, and it would be sensible to include some well-designed aspects of claiming by exemplar in the patent system. As discussed above, cognitive science research suggests that in learning categories, particularly larger, well-differentiated categories, characteristics are preferable to exemplars in the early stages of learning.³¹⁴ To the extent this research extends to patentable inventions, the current system of claiming by characteristic is helpful in the preliminary stages of learning the inventive category when it is large and well differentiated. But research demonstrates that exemplars become helpful at later stages of learning to help fine-tune the understanding of the invention. This factor might be used to patent law's advantage. Though not required by patent law, valuable patents tend to be commercialized.³¹⁵ And, excluding infringements, these embodiments are made by the patentee or under a license from the patentee. Each commercialized embodiment ostensibly falling within the patent's scope is, by definition, an exemplar of the inventive category. With limited exception,³¹⁶ commercialized embodiments are not collected in a database, let alone one linked to the associated patent; one can observe the patent marking only by already knowing and observing the marked product. It would be a straightforward and beneficial application of claiming practice to require regis-

³¹² See, for example, Ian Ayres, *Tradable Patent Rights*, 60 *Stan L Rev* 863, 864 (2007) (arguing that the recent increase in patents likely chills innovation).

³¹³ Of the 173,771 utility patents granted in 2006, at least 67,612 were to large corporations. See PTO, *U.S. Patent Statistics Chart, Calendar Years 1963–2008* (Mar 26, 2009), online at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (visited Apr 14, 2009); PTO, *Patenting by Organizations, 2006* (Mar 27, 2007), online at http://www.uspto.gov/go/taf/topo_06.htm (visited Apr 14, 2009).

³¹⁴ See text accompanying notes 261–64.

³¹⁵ See Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 *Cal L Rev* 1293, 1340–58 (1996) (discussing the economic function of patent pools).

³¹⁶ Patented FDA-approved drug products are listed in the *Orange Book*. See FDA, Office of Generic Drugs, *Approved Drug Products with Therapeutic Equivalence Evaluations* (2008) online at <http://www.fda.gov/cder/orange/obannual.pdf> (visited Apr 14, 2009).

tration of each commercialization falling within a patent's scope (should there be any).³¹⁷ Each embodiment might, for example, be registered by requiring submission of some basic information—say, the instruction manual that accompanies the commercialization itself. This information would then be made publicly available and would be linked to the patent document. In this way, someone seeking to understand the inventive category would be exposed both to the patent claims and any commercialized instantiations of those claims, which would help the public learn both by characteristic and exemplar. This supplemental content notice would help give meaning to the category of the invention, thereby improving public content notice. And it would occur in the situations in which exemplars are most useful, that is, when the patent invention is commercialized and is therefore more likely to be valuable and content notice concomitantly more important. Though these exemplars would already exist, linking them to the patent document would centralize the relevant information: the patent's characteristic claims and the exemplars of the embodiments.

Care must be taken, though, to prevent greedy patentees from seeking broader protection than to which they are otherwise entitled. A greedy patentee might try to claim certain commercialized products or processes as within its patent right even though they are not. By submitting these suprapatented items as exemplars, the public would be misled into thinking they are included within the patent's scope. Such miscommunication has the twin negative effects of undermining proper content notice of the patent right and swelling the patent's operational scope. But this problem can be minimized. Just as patent law already punishes those who mark as protected items outside the scope of a patent's claims with the intention of deceiving the public,³¹⁸ it should be prohibited to submit exemplars not within the patent's scope with the intent of deceiving the public.³¹⁹

³¹⁷ This class of embodiments would roughly correspond to those that can be marked to provide constructive notice of patent coverage for the purpose of collecting damages. See 35 USC § 287(a) (making notice necessary for the patentee to collect damages for infringement).

³¹⁸ See 35 USC § 292(a) (setting the fine for those who falsely mark items as patented); *Clontech Laboratories, Inc v Invitrogen Corp*, 406 F3d 1347, 1352–53 (Fed Cir 2005) (holding that the subjective intent to deceive under the statute is to be judged by objective facts and criteria). See also Jason Mazzone, *Copyfraud*, 81 NYU L Rev 1026, 1026 (2006) (proposing similar punishments for publishing false copyright notices). Of course, some well-intentioned patentees might err at the boundaries of their patents and submit exemplars outside of claim scope, but that might be resolved with patent litigation, as is currently done.

³¹⁹ Were such exemplar claiming to be implemented, the patent system would have to detail how these exemplars would affect claim construction and infringement analysis. This proposal does not imply that patent scope would be limited to the registered exemplars or that the exemplars are at the core of the patent's protection.

Until now, the discussion about the shape of patent claiming practice has been both industry- and technology-neutral. However, it might also be desirable to adjust patent claims to the particular industry or technology at hand, as has been suggested with regard to patentability standards and disclosure practice more generally.³²⁰ For one thing, it might be good to impose central claiming on nascent industries, such as nanotechnology, while imposing strict peripheral claiming on industries that are mature, particularly when the field is crowded with incremental inventions. Emerging industries benefit from central claiming for several reasons. First, drafting costs are kept down, which is beneficial for new industries lacking financial muscle, thereby encouraging patenting and innovation. Second, emerging industries tend to lack substantial prior art and patent examiners are probably not trained in them, making it even harder for the examiners to ascertain protectability correctly. Central claims, by describing the heart of the invention rather than each and every manifestation, make it easier for examiners to reach the right result by limiting the examination scope to the heart of the invention.³²¹ Then, courts can decide on a case-by-case basis and with the greater volume of relevant industry and technological information how broad the set of protected embodiments ought to be. As a result, the patent system's goal of encouraging innovation is furthered. By contrast, mature, crowded industries might benefit from strict peripheral claiming. Drafting costs would be higher, which could deter excessive patenting of incremental innovations, something thought to be harmful to innovation.³²² Protectability would be ascertained solely on the periphery of the claim language, which is realistic for mature inventions with much prior art and which is more readily understood by the examiner. And courts would not be called upon to expand the patent's reach, as subsequent economic or technological conditions are unlikely to upset the understanding of the invention upon which patentability was premised during the earlier examination.³²³

All in all, this Part demonstrates that patent law has done a relatively reasonable job of incorporating beneficial aspects of each of the four types of claiming. But its predominant system of peripheral claiming by characteristic has not sufficiently incorporated aspects of central

³²⁰ See Fromer, 94 Iowa L Rev at 583–85 (cited in note 49); Burk and Lemley, 89 Va L Rev at 1577–79 (cited in note 44) (proposing alternatives to the current monolithic system).

³²¹ See text accompanying notes 308–10.

³²² Fromer, 22 Harv J L & Tech at 77–80 (cited in note 229).

³²³ Another example might be to impose peripheral claiming where the drafting costs are low but the public notice given is good, such as with chemical inventions, whose structure can be concisely and clearly conveyed. See Bessen and Meurer, *Patent Failure* at 18 (cited in note 23).

claiming and claiming by exemplar. This Part suggests why and how to do that, with more central claiming by characteristic in patent applications and with registration of commercialized exemplars to improve the content notice function of claims and concomitantly, the ease of ascertaining patentability and assuring the proper operational breadth for patents. This Part also proposes that claiming practice might be individualized based on the technology or industry at hand to promote innovation. With this exploration of patent law, I now turn to copyright law.

C. Analyzing Copyright Claims

This Part analyzes the claiming system for copyright law and explores the benefits and disadvantages of changing copyright claiming practice. Current claiming practice in copyright law is rigid, and it suffers from various defects, all tied to the poor content notice effected by the central claims by exemplar. Those defects might suggest that copyright claiming ought to co-opt claiming by characteristic from patent law. But the structure and theory of copyright accentuate significant—perhaps insurmountable—barriers to making changes to the current claiming system.

Copyright law seeks to stimulate creative production, and the ideal claiming practice in copyright law would help achieve that goal. As with patent law, ideal copyright claims would enable an appropriately sized set of creations to be protected. In addition, they would not deter the creation of artistic works sought to be induced by copyright law. Finally, they would provide sufficiently plain content notice of that which is protected to deter wasteful investments by third parties in licenses and litigation and to safeguard the copyright owner's investments. These goals correspond largely to the factors explored in Part III.A.

Copyright claiming—by law, at least—is purely central claiming by exemplar.³²⁴ Copyright claims are thus unlike patent claims, which flexibly take on the form of the different types of claims. Rigid copyright claiming, though, is softened by licensing practice. Copyright licenses supplement central claims by exemplar with both peripheral and characteristic claims.³²⁵ Not only is licensing practice principally unregulated by the legal system³²⁶ but the expansive claims set out in licenses can also broaden the set of works protected by the copyright, not only operationally but also by legal effect in court.³²⁷

³²⁴ See Part II.B.1.

³²⁵ See Part II.B.2.

³²⁶ Consider Kathryn Judge, Note, *Rethinking Copyright Misuse*, 57 Stan L Rev 901, 902–03 (2004) (analyzing the rarely applied and murky doctrine of copyright misuse).

³²⁷ See Part II.B.2.

A major upside to copyright's system of central claiming by exemplar is that drafting claims is as cheap as can be. Nothing need be expended on drafting once a creator has produced the work, as the work itself is the central exemplar of the set of protected works. The severe downsides of central claiming by exemplar occur under the other factors related to claiming. Most salient is the poor content notice to the public. Content notice is important, because—as Clarisa Long points out—a large number of easily created copyrightable goods are created for a broad audience,³²⁸ making it important that the public understand what it can and cannot use. Though the heart of the category of protected works—the work itself—is communicated, the content notice of the extent of copyright protection is poor. Recall that all substantially similar (and derivative) works are protected by the copyright on a particular work, a test that is notoriously capacious.³²⁹ The application of the substantial-similarity test to the lone claimed exemplar fails to yield a good sense of the members of the set of protected works.³³⁰ When a third party is aware of a copyrighted work, even subconsciously on the grounds of mere access to the work³³¹—rendering impossible the defense of independent creation—that party cannot hope to have a good understanding of the copyright's reach. Therefore, content notice of the extent of copyright protection is woefully inadequate. In some ways, this criticism aligns with the traditional preference for peripheral claims on the ground that they provide more certainty in content notice as to the extent of the set of protected works.³³² But the problem here lies substantially in the other axis of claiming, that of exemplar versus characteristic. There are so many characteristics that one might reasonably discern from the exemplar of any particular copyrightable work, which is why substantial-similarity judgments are unpredictable.³³³ Claiming by exemplar alone does not convey enough about the structure of the set of protected works to provide meaningful content notice. Cognitive science research on categories supports this understanding, in that for relatively large and well-differentiated sets, characteristic prototypes—an analog of characteristic claims—are more useful for teaching content notice, at least at the outset.³³⁴ And exemplars—the analog of exemplar

³²⁸ See Long, 90 Va L Rev at 469–70, 487–89 (cited in note 10) (maintaining, however, that the idiosyncratic nature of the goods makes it difficult to convey information about the goods).

³²⁹ See text accompanying notes 143–73.

³³⁰ *Id.*

³³¹ See text accompanying notes 168–70.

³³² See Part.III.A.2.

³³³ See text accompanying notes 339–42.

³³⁴ See text accompanying notes 261–64.

claiming—are helpful as a supplement once a person already possesses a rough understanding of the category of protected works.

Copyright claims' poor content notice leads risk-averse and inadequately informed third parties either to take licenses even as to works that might not be copyright protected or to avoid them completely, a situation that grants too heavy a copyright reward at the expense of generating further creativity.³³⁵ And though the central claiming by exemplar in copyright law is supplemented by claiming by characteristic and peripheral claiming in copyright licenses, those claims do not per se improve content notice of the set of protected works. The effect of license claims is often to expand the set of protected works beyond that which might have been “intrinsically” protected by copyright law. These licenses take an expansive direction in large part because the only claim sanctioned by law, the claim by exemplar in the work itself, is woefully underinformative, leaving the entity that wants to use what might be covered by copyright with little leverage and limited understanding of true copyright scope. Expansive licenses can then swell the set of protected works in subsequent litigation, as previously described.³³⁶ Therefore, the theoretically improved content notice provided by characteristic claims in copyright licenses provides better content notice only of a possibly inflated set of protected works.

From this vantage point, there would seem to be far better content notice of the proper set of protected works were the law to require—or provide significant incentive to—copyright claimants ex ante to claim their works centrally by characteristic.³³⁷ This claiming would merely require, at insubstantial cost, a succinctly expressed pattern of the work at issue. A claim for a James Bond novel then, might, as in the

³³⁵ See Gibson, 116 Yale L J at 887–95 (cited in note 172) (discussing the factors that cause copyright users to be risk-averse and seek licenses).

³³⁶ See text accompanying notes 182–83.

³³⁷ Troubled by the related concern that copyright law ought to reach only as far as necessary to offer an ex ante incentive to create, Shyamkrishna Balganesesh proposes that copyright infringement ought not to be found unless a “use complained of is one that the copyright owner (that is, the plaintiff) could have reasonably foreseen at the time that the work was created.” Shyamkrishna Balganesesh, *Foreseeability and Copyright Incentives*, 122 Harv L Rev 1569, 1574–75 (2009). Balganesesh's proposal focuses on the concern that the set of protected works currently delimited by copyright law too broadly includes new unforeseeable uses of a work, which could not have affected the creator's incentive to create in the first instance. See *id.* at 1572. This proposal is linked to the instant one in that they are both connected to copyright's current reach beyond that which the public can reasonably be expected to have notice. That said, a test of foreseeability seems too extreme. The incentive to create, as Balganesesh recognizes in part, is surely accompanied by the knowledge that new and unknown markets or uses might in the future arise as venues for the created work, and thus Balganesesh's proposal would likely undermine the incentive to create in the first instance. Application of this test also invokes the concern of hindsight bias in the need of courts to test foreseeability long after the market and creative conditions under which a particular work was created have passed, a concern Balganesesh minimizes.

Introduction, take the form of “a story featuring a suave male British spy, who frequently wears a tuxedo and has a strong sensual appetite, and detailing his adventures in international intrigue, in which he prevails through use of his quick wit and high-technology gadgets.” By providing a searchable database containing these claims, as with patents, the public could have ready access to such claims.³³⁸ With the characteristics set out rather than guessed at, third parties could more readily and accurately assess whether a license ought to be taken on a work as a prospective member of the set of protected works.

Claiming by characteristic would have the benefit of firming up the application of the substantial-similarity test for measuring infringement. By enabling courts to rely on claimed characteristics, the test’s application would no longer be as problematically fuzzy. Current application of the test of substantial similarity in light of central claiming by exemplar leaves the courts grappling to identify magically the salient characteristics of a subjective, creative work to compare with an allegedly infringing work for substantial similarity.³³⁹ Having to determine whether it is significant, for example, that there is a character named Q in the James Bond stories³⁴⁰ is quite the subjective undertaking. In fact, copyright law has been purposely structured to avoid these value judgments,³⁴¹ something current claiming practice nonetheless discourages when courts must assess substantial similarity. There is thus a steady stream of criticism that the reach of copyright is too unpredictable.³⁴² Central claiming by characteristic, by contrast, would ease the courts’ task by making its inquiry more objective: Is the allegedly infringing work substantially similar in characteristics to those enunciated by the copyright holder in his claims? Did Ian Fleming

³³⁸ Compare PTO, *Patent Full-text and Full-page Image Databases*, online at <http://patft.uspto.gov/> (visited Apr 14, 2009).

³³⁹ See Amy B. Cohen, *Copyright Law and the Myth of Objectivity: The Idea-expression Dichotomy and the Inevitability of Artistic Value Judgments*, 66 Ind L J 175, 188 (1990) (discussing the dangers of having courts evaluate artistic merit); Alfred C. Yen, *Copyright Opinions and Aesthetic Theory*, 71 S Cal L Rev 247, 260–66, 288 (1998) (comparing different theories for interpreting art and the implications of these theories in copyright cases).

³⁴⁰ See Ari Shapiro, *James Bond’s ‘Q’ Inspires Real Life Innovators*, National Public Radio Weekend Edition (May 25, 2008), online at <http://www.npr.org/templates/story/story.php?storyId=90792057> (visited Apr 14, 2009) (“Bond would be nothing without his enduring and endearing gadget man, Q.”).

³⁴¹ See Cohen, 66 Ind L J at 177–84, 194 (cited in note 339) (pointing to “the liberal definition of works eligible for protection, the lack of any substantive evaluation of the merits of the particular work seeking protection and the provision for statutory damages,” particularly in light of “growing twentieth-century skepticism regarding the existence of any objective or neutral definition of artistic value”).

³⁴² See, for example, Sara K. Stadler, *Forging a Truly Utilitarian Copyright*, 91 Iowa L Rev 609, 620 n 59 (2006) (citing critics of the substantial-similarity test); Cohen, 20 UC Davis L Rev at 722–23 (cited in note 146) (noting the ambiguity of the term “substantial similarity”).

claim Q in his characteristic claim for the James Bond novels? The characteristics of the copyrighted work on which courts would rely to determine infringement would take shape in large part from the creator's own pronounced characteristics, not the courts' unguided guesswork.³⁴³ By making the application of the test of substantial similarity more predictable, even the extent of the set of protected works under nonlitigated copyrights would become more predictable, improving public content notice broadly. Thus, characteristic central claiming subverts Clarisa Long's argument that it is simply too hard to abstract expressive works because their meaning varies by person.³⁴⁴ If that is true, it might actually be useful for the work's creator to set out the (legally essential) characteristics rather than have the public and courts guess at them with different results.³⁴⁵

There would be another significant way in which characteristic claiming would improve the ascertainment of the set of protected works. Assessing whether a use constitutes a fair use, like the substantial-similarity standard, is frequently criticized for being relatively indeterminate due to elasticity in the four-factor test.³⁴⁶ Documentarians do not know whether they can air an interview clip containing a copyrighted song in the background,³⁴⁷ the artist Jeff Koons does not know whether he can incorporate a copyrighted photograph into a collage painting,³⁴⁸ and avid fans do not know whether they can publish a reference guide to the series of Harry Potter books.³⁴⁹ Some of the uncertainty in applying the four-factor test derives from the fact that it is a standard.³⁵⁰ As such, Michael Carroll advocates for more *ex ante* certainty in

³⁴³ Because the claims would be central though, unclaimed aspects of an expression might nonetheless be protected. Therefore, an omitted or poorly chosen claim word would not automatically operate against the copyright owner, as it sometimes can now for patent owners claiming peripherally. The central claims, however, would provide primary guidance on the most important characteristics of a work.

³⁴⁴ See Long, 90 Va L Rev at 488 (cited in note 10).

³⁴⁵ It is worth noting that it is possible to claim copyrightable works characteristically. For instance, the James Bond example suggests how one might claim literary works. Musical works might be claimed based on their musical structure or lyrics. For audiovisual works, one might claim storyline, visual, or audio aspects of the work. Paintings or photographs might be claimed based on their visual characteristics. The fact that lawsuits and licenses bring copyright holders to describe the characteristics of their copyrighted works indicates that characterization of the range of copyrighted works is plausible.

³⁴⁶ See text accompanying notes 159–66.

³⁴⁷ See Gibson, 116 Yale L J at 887–88 (cited in note 172).

³⁴⁸ See *Blanch v Koons*, 467 F3d 244, 259 (2d Cir 2006) (finding the use to be fair).

³⁴⁹ See *Warner Brothers Entertainment Inc v RDR Books*, 575 F Supp 2d 513, 535–38 (SDNY 2008).

³⁵⁰ Pamela Samuelson usefully suggests that we ought to unbundle fair use into clusters, based on the major fair use patterns courts are finding, such as uses promoting access to information and uses promoting authorship. See Pamela Samuelson, *Unbundling Fair Uses*, 77 Fordham L Rev 2537, 2541 (2009). In this way, the unclear standard of fair use will be refined into clearer substandards.

the standard by allowing fair use claimants to seek nonprecedential and judicially appealable advisory opinions from a Fair Use Board in the Copyright Office.³⁵¹ Surely, the availability of such opinions can theoretically provide more data points on the fair use spectrum to create a clearer picture of the otherwise murky fair use standard. But there are a number of concerns with this proposal. First, though the costs of obtaining a Fair Use Board opinion might be lower than for full-blown judicial litigation, they are still not insignificant. Arguably, the copyright owner, who is in a better position than the potential user to communicate the extent of the set of protected works, ought to bear this cost of communicating, as with central claiming by characteristic.³⁵² Second, this proposal's implementation could lead to greater cost than under the current system by resort to the Fair Use Board followed by a full-blown appeal in the judicial system. Yet even if the Fair Use Board works as advertised, there are significant concerns with the clarity that more data points can provide.

Some of the indefiniteness in the fair use standard relates to three of the standard's four factors addressing—as with the test for substantial similarity—the subjective features of the creative work. These factors are: “the nature of the copyrighted work,”³⁵³ “the amount and substantiality of the portion used in relation to the copyrighted work as a whole,”³⁵⁴ and “the effect of the use upon the potential market for or value of the copyrighted work.”³⁵⁵ Application of the standard with reference to these factors will thus vary with the copyrighted work. To provide more predictability, then, perhaps courts would find it useful to apply these factors in conjunction with claimed characteristics of a copyrighted work to shed some light on two types of claimed fair uses: those works that borrow from the copyrighted work in ways that do not implicate too many of the claimed characteristics or that transform it beyond those characteristics significantly. For example, were Q not claimed as part of the James Bond novels, retelling the story

See id at 2541–42. Another recent suggestion to make fair use clearer has been to create a fair use safe harbor. See, for example, Gibson, 116 Yale L J at 937 (cited in note 172) (suggesting that fair use be supplemented with a rule that no license is required for excerpts fewer than a certain number of words or seconds of recorded music); Gideon Parchomovsky and Kevin A. Goldman, *Fair Use Harbors*, 93 Va L Rev 1483, 1488–90 (2007) (proposing safe harbors that would treat minimal uses, such as the reproduction of films that are ten seconds or less, as per se valid).

³⁵¹ See Carroll, 85 NC L Rev at 1090–91 (cited in note 166) (“The effect of such a ruling, if favorable, would be roughly analogous to a private letter ruling from the Internal Revenue Service.”).

³⁵² Compare Fromer, 94 Iowa L Rev at 596–97 (cited in note 49) (arguing that patentees ought to bear the cost of patent disclosure as they “are better placed than any other actor in the patent sphere to know about the inventions they seek to patent”).

³⁵³ 17 USC § 107(2).

³⁵⁴ 17 USC § 107(3).

³⁵⁵ 17 USC § 107(4).

from Q's perspective might thus be considered a fair use without requiring a court to assess Q's centrality to the James Bond novels.³⁵⁶ Conversely, the use of the work's essence, as measured by the copyright holder's claims, indicates that the use is probably not fair, unless transformative.³⁵⁷ This use of the claimed characteristics would make fair use determinations more foreseeable by relying on the copyright holder's understanding of the central characteristics of the copyrighted work.

Finally, claiming by characteristic would help stop the operative expansion of copyright scope. As previously discussed, copyright's current murky scope leads risk-averse third parties to take licenses, even where not warranted, which then can legally expand the copyright's scope.³⁵⁸ Under characteristic claiming, content notice ought to improve, which would curtail unnecessary license-taking and thus accretion in copyright law.

From the vantage point of one concerned with the poor content notice of current copyright claims and its effect throughout copyright law, central claiming by characteristic would improve the content notice and predictability afforded to the public of the set of works protected by copyright law by making the category more easily learnable, making determinations of substantial similarity and fair use more foreseeable, and dwindling unnecessary licenses and copyright enlargement. These effects, on this view, would increase overall production of creative works by providing the incentive to create copyrighted works and by encouraging creation by third parties beyond the copyright.

But that is far from the complete analysis. Viewing the copyright system as a whole through a wider lens identifies significant, and perhaps insurmountable, theoretical and practical concerns with central claiming by characteristic. First, there is a concern that requiring copyright holders to claim their works by characteristic, even if centrally, might cause copyright law to contravene the First Amendment. The principal reason for the idea-expression dichotomy—that copyright law protects expression in a work rather than the work's underlying idea—is, according to the Supreme Court, to “strike[] a definitional balance between the First Amendment and the Copyright Act by permitting free communication of [ideas] while still protecting an author's expres-

³⁵⁶ Compare *Suntrust Bank v Houghton Mifflin Co*, 268 F3d 1257, 1259, 1268–69 (11th Cir 2001) (holding that *The Wind Done Gone*—a reinterpretation of the story in *Gone with the Wind* from the view of Scarlett O'Hara's half-sister Cynara, a mulatto slave on Scarlett's plantation—would likely be determined fair use due to its transformative nature).

³⁵⁷ Parodies and satires often transformatively use the central features of the work.

³⁵⁸ See text accompanying notes 182–83.

sion.”³⁵⁹ Fixing the boundary between idea and expression is complicated, requiring linedrawing to determine which abstractions of the expression are still protected as expression.³⁶⁰ Current copyright claiming—injecting the expression in the creative work into the world as copyright content notice—meshes easily with the notion that copyright protects expression, not ideas. This copyright claim is nothing but expression; any protected abstractions will be worked out on a case-by-case basis by courts in subsequent litigation. To claim the work centrally by characteristic, however, may make it seem like copyright law is protecting ideas. A description of the essential pattern of the creative work starts to bear more resemblance than current claiming to an idea,³⁶¹ which can create unease as to copyright’s reach vis-à-vis the First Amendment. Claiming by characteristic thus brings to the forefront the tension between idea and expression, between the First Amendment and copyright law.

One might attempt nonetheless to reconcile central claiming by characteristic with a properly restrained copyright law. Though the claim describes the work’s pattern, that is not to say that copyright protects the work’s idea. The pattern in the claim can be used to focus on the most pertinent aspects of expression in the created work to determine the extent of the set of protected works, rather than use the pattern alone to measure infringement, something that might be considered objectionable under First Amendment principles.³⁶² For example, by applying the James Bond claim of “a story featuring a suave male British spy, who frequently wears a tuxedo and has a strong sensual ap-

³⁵⁹ *Harper & Row, Publishers, Inc v Nation Enterprises*, 471 US 539, 556 (1985). For a sampling of materials on the intersection of copyright and the First Amendment, see generally Neil Weinstock Netanel, *Locating Copyright within the First Amendment Skein*, 54 Stan L Rev 1 (2001); Rebecca Tushnet, *Copyright As a Model for Free Speech Law: What Copyright Has in Common with Anti-pornography Laws, Campaign Finance Reform, and Telecommunications Regulation*, 42 BC L Rev L (2000); Paul Goldstein, *Copyright and the First Amendment*, 70 Colum L Rev 983 (1970); Melville B. Nimmer, *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*, 17 UCLA L Rev 1180 (1970).

³⁶⁰ See Chafee, 45 Colum L Rev at 513–14 (cited in note 142) (noting that while the line is sometimes drawn between the idea and its expression, this delineation does not solve the problem because the range of “expression” is too wide).

³⁶¹ Related is the concern that this more idea-like claiming might try to sweep within it elements that would be unprotected under the “scènes à faire” doctrine, pursuant to which “incidents, characters or settings which are as a practical matter indispensable, or at least standard, in the treatment of a given topic” cannot be copyrightable. See *Alexander v Haley*, 460 F Supp 40, 45 (SDNY 1978). See also generally Leslie A. Kurtz, *Copyright: The Scenes a Faire Doctrine*, 41 Fla L Rev 79 (1989).

³⁶² Part of the reason the boundary between idea and expression has been so difficult to assess has been that there is no ex ante sense of what the copyright protects beyond the copyrighted work itself. In fact, claiming by characteristic helps sort between idea and expression, by allowing the public to focus on either the most relevant portions of expression in the creative work or the work’s pattern.

petite, and detailing his adventures in international intrigue, in which he prevails through use of his quick wit and high-technology gadgets” to one of Fleming’s novels, one can sift out the expression that fits this pattern as the heart of the protected expression. And that filtered-out expression—rather than the claim, which more resembles an idea—might be prioritized as the most important parts of the expression against which potentially infringing works are assessed.³⁶³

Even if this approach is followed, however, the general public—relatively unversed in the specifics of copyright law—might incorrectly think that the existence of characteristic claims means that the idea or pattern conveyed therein preempts any works containing that idea. This effect would operatively expand the copyright holder’s protection to the work’s idea, rather than the expression, thereby chilling the fundamental goal of copyright law, artistic creation.

A second concern lies in whether artistic creators will feel at ease demarcating the essential pattern of their creation. Classical and Romantic theories of art would suggest that there should be no such problem. Per classical theory, popular through the early nineteenth century, there are objective criteria for resolving an artwork’s essentiality.³⁶⁴ The Romantic theory—challenging the classical view—sees art as “a form of self-expression reflecting the emotions and personality of the artist.”³⁶⁵ Each of these theories implies that the artist ought to have no compunction about enunciating the essential criteria, whether they are objective or reflective of his own personality. But a third theory raises a difficulty. Institutional theories define art by the effect it has on the world, regardless of the creator’s intent.³⁶⁶ Artists subscribing to this theory might be reluctant to characterize their art based on their own interpretive views.³⁶⁷ As one example, Jackson Pollock decided to number his paintings rather than name them on the asserted basis that “[n]umbers are neutral. They make people look at a picture for what it

³⁶³ A less conservative approach might instead maintain that the central claim by characteristic is sufficiently detailed to be closer to expression than idea. In fact, noted free-speech scholar Zechariah Chafee, Jr, asserts that copyright should extend to a work’s pattern, which is not its idea, and which is reflected in the notion of a central claim by characteristic. See Chafee, 45 *Colum L Rev* at 513–14 (cited in note 142).

³⁶⁴ See Cohen, 66 *Ind L J* at 184–86 (cited in note 339) (“This view had its roots in the idea that art was mimesis or imitation of nature and that ‘good art’ was defined on the basis of the accuracy of the imitation.”).

³⁶⁵ *Id* at 186–87.

³⁶⁶ See Yen, 71 *S Cal L Rev* at 258–60 (cited in note 339) (providing an overview of the institutional definitions of art and noting its advantages for explaining modern art).

³⁶⁷ The “ordinary observer” approach to assessing substantial similarity might be understood as an implementation of the institutional theory. See text accompanying note 145. But because “judges have no clear objective method for determining the views of the ordinary observer,” this test devolves into a judge’s subjective assessment. Yen, 71 *S Cal L Rev* at 291–97 (cited in note 339).

is—pure painting.”³⁶⁸ If views of the institutional sort are sufficiently widespread, the distaste for characteristic claiming might damn it as a possibility.³⁶⁹ That said, under the current system, authors are already forced to “define” their creations whenever they are involved in litigation, be it by pointing out the essential components for determining substantial similarity or the heart of the work for ascertaining fair use. But as litigation typically happens some time after the work’s creation, the work’s artistic effect on the world can be incorporated into the work’s depiction in litigation.

A related third concern is whether the described characteristics could capture the artistic essence of the work. Consider the likely claim for a Jackson Pollock painting: a painting comprising varied colors of dripped, flung, or spattered paint.³⁷⁰ That description does not capture—and arguably cheapens—the artistic essence and effect of Pollock’s paintings. While the artistic essence of many copyrightable works might be captured through characteristic claims (as with the James Bond series), the difficulty of both characterizing certain copyrightable works and capturing their artistic essence suggests that many characteristic claims will not be sufficiently useful for measuring substantial similarity and fair use. That is, if a claim does not capture a work’s artistic essence, copyright infringement cannot be properly assessed and the claim’s purpose is defeated. Judge Hand articulated this concern in infringement litigation by criticizing the introduction of expert testimony on substantial similarity for “cumber[ing] the case and tend[ing] to confusion, for the more the court is led into the intricacies of dramatic craftsmanship, the less likely it is to stand upon the firmer, if more naive, ground of its considered impressions upon its own perusal.”³⁷¹

Fourth, there is apprehension about the cost and viability of the administrative and legal support necessary to institute central claims by characteristic. There is currently no *ex ante* examination of copyright claims.³⁷² That is acceptable when the claim consists of nothing more than the created work as a central exemplar of the set of protected works, as the work likely surpasses the low threshold of protectability by being original. Then, the set’s bounds and the copyright’s validity are to be worked out only should there be subsequent litiga-

³⁶⁸ *Unframed Space*, *New Yorker* 16 (Aug 15, 1950).

³⁶⁹ Be that as it may, even under this view, claims are salient only for the legal purpose of communicating the scope of the set of protected embodiments instead of the way the world perceives the art.

³⁷⁰ See, for example, Ellen G. Landau, *Jackson Pollock* 194–95 (Abrams 1989).

³⁷¹ *Nichols v Universal Picture Corp*, 45 F2d 119, 123 (2d Cir 1930).

³⁷² See Justin Hughes, *Created Facts and the Flawed Ontology of Copyright Law*, 83 *Notre Dame L Rev* 43, 99 n 305 (2007).

tion. But when the copyright seeker must draft a central claim by characteristic, the problem of rightsholder overreaching—seen with copyright licensing—creeps into the law unless there is legal examination of the copyright claim. Given the task's subjectivity and complexity, examination of copyright claims would not do well to assess copyright validity, that is, the originality of the claim. Rather, administrative examiners would need to review the created exemplar and ensure that the claimed characteristics are accurately reflected in the exemplar to avoid overreaching.

Moreover, if copyright protection were to emanate in part from the claimed characteristics instead of the created work, the importance of writing claims by characteristic with care and of understanding the legal consequences would undoubtedly require creators to involve lawyers in securing protection. Involvement of lawyers would be costly, perhaps so much to the point of deterring creation in the first place.³⁷³

The administrative system that would be necessary might rapidly dissolve into a chaotic mess. Suppose Ian Fleming were claiming his James Bond novels characteristically. Were he to be astute about the process, he would draft voluminous claims covering every possible aspect of the novels, as is seen in patent law,³⁷⁴ to ensure the broadest possible protection for his novels and derivative works. In effect, he would be rewriting his novels in legalistic claim language. This result is costly in terms of claim drafting, would tend to undermine public content notice if the claims looked nearly indistinguishable from the created work itself, and is possibly harmful to the copyright system because it might tend toward overreaching.³⁷⁵

Finally, there are a vast number of copyrighted works, exponentially more than patented inventions,³⁷⁶ with which examiners are already overtaxed.³⁷⁷ And although examination of characteristic copyright

³⁷³ This effect is compounded by the constant creation of copyrightable works. Even without every email message and the like being claimed, there are a significant number of copyrightable works to claim. See text accompanying notes 376–78. It is easier to justify legal intervention in the context of patenting inventions, because inventions are typically created in corporate settings. See text accompanying note 313.

³⁷⁴ See text accompanying notes 217–19.

³⁷⁵ In response, one might limit the number of claims to one and further restrict the number of words in the claim or the number of characteristics that it can contain. This limitation would force the claimant to describe succinctly the claimant's view of the essential characteristics of the created work. This would by no means indicate that other characteristics of the work would not be protected, but merely that they are less essential. And this restriction would diminish claiming costs and would effectuate reasonably good public notice.

³⁷⁶ See Long, 90 Va L Rev at 469–70, 487–89 (cited in note 10). This numerical discrepancy largely derives from the threshold for protectability being lower than in patent law—originality versus novelty, utility, and nonobviousness—and the absence of formalities in creating a copyrighted work as compared with the great number for patented inventions. *Id.* at 488–89.

³⁷⁷ See text accompanying notes 298–99.

claims would be more limited and straightforward than the intensive process of patent examination, the number of claims to examine would be daunting. One might posit that requiring a central claim by characteristic would decrease the number of copyrighted works, making the examiner's job feasible. Central claiming by characteristic, as proposed, is costlier than the current system of central claiming by exemplar, as it requires drafting beyond the creation of the work itself. Those who do not want to undertake the expense and burden of central claiming by characteristic might not seek copyright protection or create their works in the first place. Depending on one's view, this result is either beneficial, in that there are too many copyrighted works,³⁷⁸ or undesirable, given the justifications for doing away with copyright formalities, thereby encouraging an abundance of creativity.³⁷⁹

Another possibility might be to provide incentive to the copyright holder to voluntarily claim centrally by characteristic in those instances in which the content notice the claim would provide would be most helpful.³⁸⁰ Choosing a proper incentive would permit creators to determine for themselves whether it is worth the extra cost of drafting. Choosing the right incentive is difficult, if not impossible, in large part because of the effects that a seemingly good incentive can have on the rest of the copyright system. For example, one might allow publicly available³⁸¹ central claims by characteristic to effectuate constructive content notice of the copyrighted work, so that alleged infringers cannot avail themselves of the defense of independent creation.³⁸² This defense, which is currently always available to accused infringers, permits the independent creation of something substantially similar (or even

³⁷⁸ See Pamela Samuelson, *Preliminary Thoughts on Copyright Reform*, 2007 Utah L Rev 551, 563 (noting the explosion in the volume of works to which copyright law applies due to the rise of amateur creators and digitally networked environments).

³⁷⁹ See Julia D. Mahoney, *Lawrence Lessig's Dystopian Vision*, 90 Va L Rev 2305, 2329 (2004) (criticizing a proposal to increase the formalities required to obtain and retain copyrights).

³⁸⁰ Incentives, rather than imposed copyright formalities, would also keep the United States in compliance with its international treaty prohibiting copyright formalities. See Berne Convention for the Protection of Literary and Artistic Works (1886), 828 UN Treaty Ser 221. It is unlikely that copyright holders would voluntarily claim characteristically without a requirement or incentive. Copyright holders likely prefer the current state of unpredictability for giving them leverage over risk-averse licensees and allowing them to expand copyright scope, both operationally and under the law. See text accompanying notes 232–33.

³⁸¹ See text accompanying note 338.

³⁸² Such an incentive is somewhat analogous to copyright law's incentive to affix copyright notice, namely the ability to bar innocent copying as a defense in a copyright infringement suit. See 17 USC § 401(d). In that case, a defendant to copyright infringement cannot claim innocence in knowingly copying from a work on the grounds that the work was not copyrighted. Stewart E. Sterk, *Property Rules, Liability Rules, and Uncertainty about Property Rights*, 106 Mich L Rev 1285, 1328 n 159 (2008).

identical) to the copyrighted work.³⁸³ Recall that Clarisa Long suggests that the absence of peripheral claiming in copyright law—and widely available content notice—is justified by the availability of this defense. Those who are aware of a copyrighted work—even subconsciously—cannot hide in the defense’s shadow and have little guidance as to the extent of permissible activities they can undertake to avoid infringement, indicating that the defense does not fully counteract the absence of good content notice of a copyright’s reach.³⁸⁴ Long’s argument does suggest, however, that the public availability of claims providing reasonably good content notice weakens the case for a universally available defense of independent creation. The unavailability of the independent-creation defense is observed in patent law,³⁸⁵ where patent claims are publicly available to provide constructive content notice. Copyright holders might like this incentive because it would make it that much easier to show copyright infringement, which would be judged based on substantial similarity alone and not how the alleged infringer created the work. But the costs of searching that constructive content notice would impose on future creators might be too significant for the copyright system to bear,³⁸⁶ thereby undermining the incentive to create artistic works in the first place. Thus, a seemingly good incentive might undermine the goals of the copyright system.

In sum, this Part indicates that copyright law itself has been relatively inflexible in requiring only central claims by exemplar. Even though copyright licenses include peripheral claims and claims by characteristic, this practice goes largely unregulated by the law, allowing licenses to expand the scope of the legally protected set of works, both

³⁸³ See text accompanying notes 167–70.

³⁸⁴ See text accompanying notes 198–99.

³⁸⁵ See Gerald N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 Notre Dame L Rev 1809, 1815 (2007) (suggesting that patent law imposes strict liability pursuant to its general policy of providing the strongest possible intellectual property rights). For arguments that independent invention sometimes ought to be a defense to patent infringement, see generally Samson Vermont, *Independent Invention As a Defense to Patent Infringement*, 105 Mich L Rev 475 (2006) (noting the criticism that the independent creation defense would lower the incentive to create works with a high risk of being invented by more than one inventor); Stephen M. Maurer and Suzanne Scotchmer, *The Independent Invention Defence in Intellectual Property*, 69 *Economica* 535 (2002) (arguing that the independent creation defense would reduce the wasteful duplication of research and development effort that occurs in patent races). In fact, circumstantial empirical evidence suggests that most alleged patent infringement is not a result of copying. Christopher A. Cotropia and Mark A. Lemley, *Copying in Patent Law*, 87 NC L Rev (forthcoming 2009). If postcreation infringement occurs without knowledge of the infringed patent, it is unclear whether infringers never located the patent claims because they are incomprehensible or impenetrable or that they did not bother to check for them in the first place because of the slight chance of liability.

³⁸⁶ See Fromer, 94 Iowa L Rev at 563–87 (cited in note 49) (suggesting that notice provided by patents is lacking, in both the content of disclosure and the ability to locate relevant patents).

operationally and legally. Though central claiming by exemplar involves almost no drafting costs, it very poorly serves public content notice of the set of protected works. From that perspective, an improvement would have copyright seekers claiming their work by characteristic to improve content notice, which would serve to make the reach of copyright more predictable and cabin the leverage that copyright holders have over those who would like to use something that might or might not be protected. On that thinking, this claiming would reset the balance that many think tips too far in favor of the copyright holder and hurts creativity.³⁸⁷ But there are significant and perhaps intractable concerns to changing the copyright claiming system: the conflicts characteristic claims can create with the First Amendment, the discomfort many creators would experience if forced to characterize their artistic works, the inability of characteristic claims to capture the essence of some artistic works, and the cost and viability of the administrative and legal support necessary to institute characteristic claims. This analysis suggests that while copyright claims are currently significantly flawed, many hurdles must be overcome to institute the improved content notice that central claims by characteristic would provide.

CONCLUSION

This Article investigates the claiming of intellectual property. It first introduces a two-dimensional taxonomy for claims to the thing underlying the right in intellectual property. First, claims can vary in the extent of the set of protected things that they literally describe by being either peripheral or central claims. Second, they can describe the set either by characteristic or by exemplar.

The Article then explores descriptively how patent and copyright law fit into this taxonomy. Though most scholars are convinced that patent law is about peripheral claiming, typically by characteristic, I show that patent law has significant elements of central claiming and claiming by exemplar built into the legal system. And though most think that copyright law involves central claiming by exemplar, significant aspects of copyright licensing practice augment this claiming with peripheral claiming and claiming by characteristic. Therefore, previous descriptions of patent and copyright law as being polar opposites in claiming practice are overstated.

The Article analyzes the effect of each type of claiming on five key factors: the ease and cost of claim drafting, the effect on content notice to the public of the set of protected works, the ease of ascertain-

³⁸⁷ See generally, for example, Kembrew McLeod, *Freedom of Expression: Resistance and Repression in the Age of Intellectual Property* (Minnesota 2007).

ing protectability under the intellectual property laws, the breadth of the set of protected works, and the ability of the claims to incorporate future developments. Claiming practice strikes at the heart of why the law protects intellectual property, as it influences the character and pace of innovation and creative development in a variety of ways. The cost of claim drafting affects how significant the barrier is to obtaining intellectual property rights and concomitantly to the incentive to innovate or create in the first instance. The clarity of content notice to the public of the extent of the set of protected works and the ease of ascertaining protectability play a significant role in whether the power of subsequent innovation lies with the initial rightsholder or with the public. And though I argue that the choice of claiming system does not generally affect the breadth of the set of protected works, it does have momentous impact on the protection of works grounded in after-developed technologies, a factor that determines whether intellectual property rewards ought to vest in initial innovators or subsequent innovators.

In light of these factors and their effect on the underlying goal of intellectual property laws to stimulate innovation and creation, I analyze patent and copyright claims. Patent claiming already is somewhat nuanced in taking advantage of the benefits of each type of claiming by adopting aspects of central claiming and claiming by exemplar within its ostensible system of peripheral claiming by characteristic. Nonetheless, it would be valuable to supplement patent claims in more fundamental ways through central claiming and claiming by exemplar to improve the content notice provided to the public, look more reasonably to after-developed technologies, and better ascertain protectability. As for copyright claiming, it lacks nuance with its strict central claiming by exemplar, which provides exceptionally cheap claim drafting at the expense of any meaningful content notice to the public. Supplemental practices of peripheral claiming and claiming by characteristic that come into play in copyright licensing do not make copyright claiming more nuanced in a good way, as with patent law, but rather affect the scope of the set of protected works in troublesomely expansive ways. Though it might appear to improve copyright claiming to feature central claiming by characteristic more prominently to improve content notice to the public, there are significant and perhaps insurmountable barriers to doing so.

Though this Article explores only copyright and patent law, similar analyses might be made of other forms of intellectual property, such as trademarks and design patents. As with copyright and patent, a trademark protects a set of marks. For example, holding the trademark for “Pledge” furniture wax allows the holder to prevent others from using

“Promise” as a mark for furniture wax.³⁸⁸ Trademark claims—contained in registrations with the PTO—thus seem to be central. And they have a mix of exemplar claiming—the mark itself—and characteristic claiming—the sorts of goods and services to which the mark can be applied.³⁸⁹ And design patentees portray an exemplar of their design in their patent,³⁹⁰ which is used to assess infringement centrally.³⁹¹ In fact, the Federal Circuit recently rejected a move to apply techniques akin to infringement analysis of characteristic peripheral claims for utility patents to design patents, emphasizing that they will be adjudged based on substantial similarity.³⁹² The court’s rejection was based in part on the difficulty of having courts identify the novel features of a design³⁹³ and verbally describing the design claimed centrally and by exemplar.³⁹⁴

All in all, this Article suggests that there has been a severe underinvestigation of claiming practice in intellectual property and that the handful of explorations of the topic have overlooked some of the important aspects of the taxonomical, descriptive, and normative features of intellectual property claims. To maximize innovation, it is imperative that claiming practice, a key factor of intellectual property systems, be explored and optimized.

³⁸⁸ See *S.C. Johnson & Son, Inc v Drop Dead Co, Inc*, 210 F Supp 816, 817–18 (SD Cal 1962) (holding that such use was a trademark infringement where, at the time the lawsuit began, “imitation . . . by defendant was so slavish that even color scheme and contrast between letters on cans and labels were imitated”).

³⁸⁹ See Daniel H. Mark, *Marketing Confusion: The Los Angeles Angels of Anaheim and the Lanham Act*, 26 *Enter & Sports Law* 25, 26, 29 n 38 (Spring 2008).

³⁹⁰ See *Egyptian Goddess, Inc v Swisa, Inc*, 543 F3d 665, 679–80 (Fed Cir 2008) (en banc) (discussing the level of detail necessary to assess a design description).

³⁹¹ *Id.* It is unsurprising that designs are claimed similarly to copyrighted works, as the subject matter overlaps. See Daniel H. Brean, *Enough Is Enough: Time to Eliminate Design Patents and Rely on More Appropriate Copyright and Trademark Protection for Product Designs*, 16 *Tex Intell Prop L J* 325, 326–28 (2008) (asserting that the subject matter of design patents covers virtually “all artistic and distinctive aesthetic innovations” made to commercial products).

³⁹² See *Egyptian Goddess*, 543 F3d at 670–79.

³⁹³ *Id.* at 677 (“In such cases, the outcome of the case can turn on which of the several candidate points of novelty the court or fact-finder focuses on . . . rather than on the proper inquiry, i.e., whether the accused design has appropriated the claimed design as a whole.”).

³⁹⁴ *Id.* at 679–80 (leaving the question of verbal characterization of the claimed designs to trial judges’ discretion, so long as the courts do not “treat the process of claim construction as requiring a detailed verbal description of the claimed design, as would typically be true in the case of utility patents”).