Patent Semiotics

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In addition, we would like to thank Professor Jessica Silbey, Professor of Law and Honorable Frank R. Kenison Distinguished Scholar in Law at Boston University School of Law, for her help in bringing this piece to publication.
[***] Note from Jessica: In an email on January 31, 2024 with the subject line "Swan Song," Dan sent me a near final draft of this essay asking for my comments. He wrote "So attached is the last manuscript I will write. It may be interesting, it might not. But I have been thinking about it for around 20 years. Even before Barton [Beebe]'s stellar trademark piece. (I mentioned it once and he just looked puzzled as to what patent semiotics could possibly be.) Anyway it's now or never." Dan also asked for my help publishing the article after his death. The UCI Law Review editors past and present have been exceptional partners bringing Dan's last article to publication. Dan and I did not talk about changes to the article only "corrections" and "citations." And thus, most of the article above the line is as he finally drafted it. Together with the UCI Law Review editors, we formatted and corrected below the line. In his memory, we do this with love and gratitude.

INTRODUCTION

Patent law is structured around the use and characteristics of a particular type of document, drafted by an aspiring inventor and issued by the federal government.[1] The patent is generally expected to convey particular types of legal and technical meaning to its audience.[2] This suggests that patents and associated patent doctrines should be prime contenders for examination as a matter of *semiotics*, the study of signs, including text or graphics, and how they convey meaning. Yet, surprisingly little has been previously said about patent semiotics,[3] especially considering that the text and drawings of every patent are quintessentially an exercise in signification. I will argue here that the semiotic nature of the patent document in fact makes it amenable to understanding via the insights and methods developed to study signification more generally. This analysis may be particularly apt in the circumstance of interpreting patent claims, which is a notoriously fraught exercise in determining meaning.

The overall project of exploring the details of patent semiotics would call for a much longer and more extensive exposition, but here it is possible to identify some fundamental parameters, offer an initial analysis, and suggest where future inquiries

1. *See* Dan L. Burk, *Dynamic Claim Interpretation, in* INTELLECTUAL PROPERTY AND THE COMMON LAW 107, 107 (Shyamkrishna Balganesh ed., 2013).

2. On the proper audience for patent texts, see Jeanne C. Fromer & Mark A. Lemley, *The Audience in Intellectual Property Infringement*, 112 MICH. L. REV. 1251, 1262 (2014); Mark D. Janis & Timothy R. Holbrook, *Patent Law's Audience*, 97 MINN. L. REV. 72, 89–120 (2012).

3. For rare exceptions, see Simone R.N. Reis, Andre Reis, Jordi Carrabina & Pompeu Casanovas, *Semiotic Aspects in Patent Interpretation*, 32 INT'L J. SEMIOTIC L. 359 (2019); Kevin Emerson Collins, *Semiotics 101: Taking the Printed Matter Doctrine Seriously*, 83 IND. L. J. 1379 (2010). Some of Collins' work also contains elements of semiology not always identified as such. *See, e.g.*, Kevin Emerson Collins, *The Reach of Literal Claim Scope into After-Arising Technology: On Thing Construction and the Meaning of Meaning*, 41 CONN. L. REV. 493 (2008).

might go. In this Article, I argue that the tools of semiotic analysis are not only helpful in understanding the actual practice of claims interpretation but in charting a course to more sensible claims interpretation. I begin by establishing some basic concepts and terminology, which I then consider in the context of claim construction. After a thorough discussion of the semiotics of literal claims interpretation, I give special attention to semiosis in the Doctrines of Equivalents and Reverse Equivalents, as well as the central claiming regime from which these doctrines arose. I show that semiotic analysis reveals the structure, hidden agendas, and inevitable biases of patent claims interpretation. I conclude with brief observations as to the significance of this approach.

I. THE PATENT TEXT

Patents, patent policy, and patent doctrine are fundamentally enmeshed in issues of textuality. This is manifest in the most basic explanations for the existence of the patent system. The most commonly recited rationales for providing patents are the incentive theory and the disclosure theory. According to the first theory, the exclusive rights accompanying a patent solve a public goods problem, providing an incentive to invest in technologies that might otherwise be easily copied or appropriated.[4] Under the second theory, patents are expected to induce disclosure of technologies that might otherwise have been kept as trade secrets.[5] In each case, the desired behavior is prompted by a limited period of exclusivity after issue of the patent and during which the patent owner is free to charge higher than normal prices for access to the patented technology.

The two rationales are also linked by a requirement that the patented technology must be made public by means of a document that fully discloses how to make and use the invention in which exclusive rights will vest.[6] Naturally, the disclosure theory especially relies fully on such publication of enabling technical details. But even under the incentive theory, the social cost of exclusivity is expected to be partially recouped by placing the patented technology into the public's hands when exclusivity ends. Enrichment of the fund of public knowledge is said to be part of the bargain between a patentee and the public. Thus, a great deal of patent doctrine is devoted to ensuring that the inventor of the claimed invention fully and accurately discloses its details in the patent document.

This characteristic is fundamental and unique to patent law. As I have pointed out in previous work, the patent is entirely intertextual, which is to say that it constitutes a text arising from interactions with other texts.[7] In particular, the references of the prior art infuse and define the content of the patent text.[8] This is radically different than what we find in other forms of intellectual property. In copyright, operative legal decisions are based on reference to the work as fixed in a tangible medium; in trademark, operative legal decisions are similarly based upon reference to a particular configuration of a design or logo. But in patent law, operative legal decisions are not based upon instantiation of the claimed invention,

4. *See* Dan L. Burk, *Law and Economics of Intellectual Property: In Search of First Principles*, 8 ANN. REV. L. SOC. SCI. 397, 400–01 (2012).

5. *Id.* at 404–05.

6. 35 U.S.C. § 112(a).

7. *See* Dan L. Burk, *Patents in Action*, 63 JURIMETRICS J. 221, 225 (2023).

8. *Id.*

but rather are based upon references to a textual description of the claimed invention.[9] At no time during the life of the patent is the patent holder required to practice or produce an actual physical instantiation of the invention.

Patent law and policy are therefore distinctly centered and focused on the patent document and its meaning. The primacy of the text in patent law carries with it certain implications. First, the language and interpretation of the document are matters of intense legal scrutiny. A key concern of patent policy is that the published patent is clear, comprehensive, and accessible. If the patent is intended to disclose the technical details of an invention, it presumably can only inform the technical community of those details if it can be read, comprehended, and understood. The result, as we will see, is that institutions that engage with the patent text—primarily the federal courts—have developed elaborate mechanisms for interpreting the document.

Of particular interest to the exposition in this Article is the final section of the published patent document, a series of numbered sentences known as the "claims" of the patent. These statements are intended to set out in technical language the legal rights being awarded to the patent holder—to delineate the scope of the patent owner's exclusivity. One purpose of these texts is to warn the public away from technology that is the subject of the patent's legal exclusivity. At the same time the claims are intended to inform the public of what is *not* subject to exclusivity, and so safely away from potential infringement upon the patentee's exclusive rights. There is substantial doubt as to whether the current treatment of patent claims achieves these goals. Proper claim construction has therefore been the subject of a vast academic and judicial literature; here we examine how the systematic study of signs bears on the problem.

II. SOME SIMPLE SEMIOTICS

Semiotics generally is defined as the study of signs and the manner in which signs convey meaning.[10] Such signification occurs across a wide range of situations and circumstances. Signification of one type or another will occur in almost any situation or context to which the human intellect turns its attention. Written and spoken language constitute the paradigm systems of signification, but a wide range of other visual, aural, and tactile signification are found in myriad of other settings. A chime may signal the availability of a meal. An animal, such as an eagle, may stand for or signify the United States of America. The reproductive organs of plants may signify different human emotions; a hammer, wig, or test tube may signify a particular profession. Any of these forms of signification may be the subject of semiotic study.

Although singular or isolated signs may be found, more frequently signification occurs in the context of *codes*, which in semiotics, is a term of art. Codes constitute a set of conventions for shared use, meaning, and understanding of signs. They may overlap, interact, and apply simultaneously to a sign or given set of signs.

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9. Burk, *supra* note 1, at 109–10.

10. *See* UMBERTO ECO, A THEORY OF SEMIOTICS 7 (1976); *see also* Ubaldo Stecconi, *Semiotics*, *in* THE ROUTLEDGE ENCYCLOPEDIA OF TRANSLATION STUDIES 260 (Mona Baker & Gabriela Saldanha eds., 2d ed. 2009) ("[S]emiotics is a theory of how we produce, interpret and negotiate meaning through signs.").

Here we will be parsing the codes we call language, which is generally recognized to be the most powerful and pervasive system of human signification, although certainly many other code systems exist as well. Indeed, as we will see, even signs that appear to be isolated or singular inevitably are embedded in formal or informal code systems.

The simplest model of such, the individual sign, a "dyadic" model developed by Ferdinand Saussure, postulates a sign with two components: a material signifier that references an antecedent but immaterial signified.[11] Together, these elements of signifier and signified convey meaning. The signifier is typically some tangible symbol or object that may be conceptually associated with the signified, thus referencing the signified when the signifier is perceived. The signified may be any object or concept or feeling or other item that is subject to signification. The somewhat surprising result is that the sign conveys meaning through the association of the present and *perceptible* signifier with the absent and *imperceptible* signified. Exactly how this conveyance occurs, however, is the subject of some difference and dispute.

Two distinct approaches (at least) have coalesced around the struggle to comprehend the operation of Saussure's model; we may designate these approaches as modern and postmodern semiotics. Modernist semiotics has been characterized by what has been called a "spiritual" approach to semiotics, drawing an analogy to the widespread mystical or religious belief that the physical form of the body serves as a container for an immaterial animating spirit.[12] The modernist sign has similar qualities. On a modernist view, the physical signifier channels or contains the signified; the material of the sign provides a type of pipe or conduit for the transmission of meaning. This conduit model is seen as connecting the sender and receiver of meaning in a sort of semiotic machine.[13] Generally, modern semiotics pays little attention to the physical signifier; the focus in modernist semiotics is on the nature and function of the immaterial signified that lends meaning to the sign. Thus, in the Saussurean dyadic model of the sign, signifieds are purely mental constructs; they may refer to external objects, but they are not external objects.[14]

But this rather highly idealized, almost Platonist model of the sign as a conduit carries with it a variety of practical and philosophical quandaries, essentially bordering on the mystical. In particular, the modernist conduit understanding of the sign leaves the nature of the relationship of the two components of the sign as something of a mystery.[15] What is the nature of the immaterial meaning or message contained within the physical signifier? How can the signifier, a physical word or symbol, contain something conceptual, that seems insubstantial or ethereal? By

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11. An alternative, related, but more complex "triad" framework for the sign, advanced by Charles Sanders Pierce, has also been highly influential in semiotics. *See* DANIEL CHANDLER, SEMIOTICS: THE BASICS 32–33 (2002). Kevin Collins has used the Piercean framework for a detailed and helpful examination of the patent "printed matter" doctrine. *See* Collins, *Semiotics 101: Taking the Printed Matter Doctrine Seriously*, *supra* note 3. Reis et al. have also adopted the Piercean triad to describe a very elementary and analytically sparse concept of patent claims. *See* Reis et al., *supra* note 3.

12. George Aichele, *Two Theories of Translation with Examples from the Gospel of Mark*, 47 J. STUD. NEW TESTAMENT 95, 101–02 (1992).

13. GILLES DELEUZE & FÉLIX GUATTARI, ANTI-OEDIPUS: CAPITALISM AND SCHIZOPHRENIA 36 (Robert Hurley, Mark Seem & Helen R. Lane trans., 1983).

14. CHANDLER, *supra* note 11, at 58.

15. GEORGE AICHELE, SIGN, TEXT, SCRIPTURE: SEMIOTICS AND THE BIBLE 24 (1997).

what mechanism or process is the ephemeral signified contained or conveyed by the signifier? Is the existence of a transcendent signified even rationally plausible? Much like the religious beliefs to which it is compared, the modernist approach opens the analysis of the sign to a series of transcendent conundrums.

An alternative approach, associated with postmodern semiotics, sidesteps such arcane questions by focusing instead on material or hyletic—from the Greek *hulê*—instantiation of the sign. Whereas modernist semiotics is largely concerned with the ethereal signified, postmodern semiotics rejects the model of the "ghost in the sign" and gravitates instead toward the hyletic signifier. Postmodern analysis refuses to permit the separation of meaning and material instantiation.[16] Meaning is not considered an idea or concept that somehow dwells within the sign. Rather, in the postmodern view, the sign constitutes the mechanism through which meaning is *constructed*, and the physical signifier is an irreducible element of such a construct. Thus, the postmodern focus is on the function and role of the signifier. The structure and presence of the signifier, rather than containing an immaterial meaning, is viewed as a focal point for social action.

III. TRANSLATING INVENTION

With some basic concepts in hand, a convenient and evocative entry point into the issues surrounding patent semiotics is the question of the patented invention. As I have indicated above, the American patent applicant is required to describe and claim the invention that is the subject of the patent but is under no obligation to actually materially instantiate the invention.[17] This means that the subject of the patent, the invention, remains entirely conceptual. Indeed, this is the fundamental definition of invention in American patent law; to be an inventor, someone must have a mental comprehension, or conception, of the invention as it is later described in the patent document.[18]

A number of commentators have expressed their dismay at what they regard as slippage or ambiguity in the use of the term "invention" in connection with the text of the patent document. Oskar Liivak complains that the "invention" disclosed by the inventor in a patent routinely diverges from the "invention" as defined by the patent claims.[19] Christopher Cotropia similarly observes that (at least) two different definitions of the "invention" are in play in patent law.[20] The first, which he denominates the "external" invention, arises from the textual disclosure of the inventor's actual technical accomplishments. A second, competing definition that he dubs the "claim-centered" definition arises from the potential scope of the patent claims. In essence, each of these commentators complains that the "invention" in patent law may be constituted by the text of the claims—which is to

16. Aichele, *supra* note 12, at 110.
17. *See supra* note 9 and accompanying text.
18. *See* Pfaff v. Wells Elec., Inc., 525 U.S. 55, 60 (1998).
19. Oskar Liivak, *Rescuing the Invention from the Cult of the Claim*, 42 SETON HALL L. REV. 1 (2012).
20. Christopher A. Cotropia, *What is the "Invention"?*, 53 WM. & MARY L. REV. 1855 (2012).

say, by interpretation of the text of the claims—rather than being constituted by the technical advance described by the inventor.[21]

In each case, these scholars are concerned with the potential misapplication of interpretive tools to the patent document, concerned that the meaning being extracted from the text is systemically improper. As I will show here, such observations are not wrong; indeed, they are in a certain sense quite apt and accurate. But this does not necessarily make them (as the commentators seem to think) alarming or problematic, and in any event the distinction such commentators describe may well be unavoidable given the nature of the patent text (or, really, any text). In particular, the semiotic tools and observations associated with problems of translation offer useful insight into the nature of the invention disclosed in a patent.

The translative activity that interests us here will generally not be translation in the typical or colloquial sense—that is, converting words in one language to their cognates in another, which is the most conventional, superficial use of the term.[22] Instead, we note that the term "translation" is taken from Latin, meaning a movement from place to place (which is an alternate, less used definition of the term).[23] This must metaphorically occur in the colloquial linguistic translation, as the meaning of a sign is "moved" between different systems of communication.[24] Even where shifts between codes or "languages" are not concerned, every communication requires multiple instances of translation.[25] First the thoughts of the speaker must be translated into spoken or written language, then there must be a movement of such symbols across space and time to a recipient, who must finally translate the received language back once again into mental impressions.[26]

Adopting this definition, scholars in semiotics have identified at least three modes of translation that may be illuminated by semiotic analysis, and all of which implicate translation in the sense of transfer.[27] The first is *intralingual* translation, occurring within a particular code, such as the rewording of a text in the same language. A second type of translation is *interlingual*, between codes, such as the translation of signs between English and French—what we have identified as the most common understanding of the term. The third type of translation would be *intersemiotic*, or translation that occurs between different codes, such as the lingual description of a picture or Mussorgsky's musical depiction of visual illustrations.[28]

Here we are concerned with translation of a claimed invention from an inventor to the world. This will primarily engage the first and third type of translation. Of course, some interlingual translation between linguistic codes is

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21. *Cf.* Tun-Jen Chiang & Lawrence B. Solum, *The Interpretation-Construction Distinction in Patent Law*, 123 YALE L.J. 530 (2013) (attempting to articulate a distinction between the "linguistic meaning" of the claim and the "true invention" developed by the patent applicant).

22. Henrik Gottlieb, *Semiotics and Translation*, *in* THE ROUTLEDGE HANDBOOK OF TRANSLATION STUDIES AND LINGUISTICS 45, 45 (Kirsten Malmkjaer ed., 2017).

23. AICHELE, *supra* note 15, at 41.

24. Franciscu Sedda, *Semiotics of Culture(s): Basic Questions and Concepts*, *in* INTERNATIONAL HANDBOOK OF SEMIOTICS 675, 693 (Peter Pericles Trifonas, ed. 2015).

25. *Id.* at 690.

26. Gottlieb, *supra* note 22, at 47.

27. Evangelos Kourdis, *Semiotics of Translation: An Interdisciplinary Approach to Translation* in INTERNATIONAL HANDBOOK OF SEMIOTICS, *supra* note 24, at 303, 303.

28. *See* Alfred Frankenstein, *Victor Hartmann and Modeste Musorgsky*, 25 MUSICAL Q. 268 (1939) (discussing Mussorgsky's "Pictures at an Exhibition").

inevitable for patents written and filed in a global environment—patents filed in the official language of one country's patent office may need to be linguistically translated into the official language of a different patent office when the application finds its way to another jurisdiction. Choices or mistakes in such linguistic translation can create impediments, for example where the term that should be "nitrous" is translated into English as "nitric" and the mistakenly translated description of the claimed invention becomes, on its face, inoperative.[29] Interlingual choices will affect the meaning of signs across jurisdictions.

But intralingual and intersemiotic translation pose routine challenges to patent texts in any setting. The movement or translation is fundamental to the structure and purpose of the patent document, shifting the conception of the inventor into new surroundings. The act of invention is purely mental, a conception of elements assembled in the mind of an inventor.[30] To claim patent rights in that conception, it must be translated into a written description in a patent application. Often this requires passage through the mind and understanding of an intermediary, such as a patent agent or attorney, who translates the inventor's words, drawings, or texts into the jargon and format of the patent application. That document must then be understood by a patent examiner, or later in its existence by licensees or by competitors, who must again translate the patent text into their own comprehension.

Similarly, the process is manifest in disputes regarding patent infringement, which will be the primary example taken up in this Article. A judgment of infringement requires a trier to find every element of the claimed invention in the accused device[31]—essentially, to compare the text of the patent claims to some object or process in the world and find that the referent falls within the meaning of the text. This, by necessity, first requires an understanding of the claims' meaning—from a modernist semiotic perspective, identifying signified in the semiotic channel. Once a meaning is determined, the trier then identifies a referent for that sign in the accused device. Multiple acts of translation occur in such a process, including ultimately translating the meaning of the claims, as represented by the physical signifier onto an infringing material object that signifies the same meaning.

IV. PATENT TRANSLATION

What might the semiotics of translation tell us about the translation of signs representing the claimed invention? First, it is critical to acknowledge that the modern and postmodern models of the sign sketched out above lead (as might be expected) to two rather different views of translation. The first view regards the meaning of a text as an idealized reference that is to be found already extant in a text and is generally selected by the text's originator or author by virtue of the sign recorded by the author.[32] Given that meaning is already embedded in the sign, on this view, the process of translation involves transferring the content or meaning of the recorded signifier to a new and appropriate signifier. This view is associated

29. *See In re* Oda, 443 F.2d 1200 (C.C.P.A. 1970) (considering mistranslation of a Japanese patent term from "nitrous" to "nitric").

30. Pfaff v. Wells Elec., Inc., 525 U.S. 55, 60 (1998).

31. TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1377 (Fed. Cir. 2008).

32. *See* Henrik Gottlieb, *Semiotics and Translation*, *in* THE ROUTLEDGE HANDBOOK OF TRANSLATION STUDIES AND LINGUISTICS 45, 45 (Kirsten Malmkjaer ed., 2017).

with modernist schools of semiotics that bifurcate the material instantiation of the signifier from its reference content, an immaterial signified.

Thus, optimally under the modern approach, the translator is simply the vehicle by which the content of the sign is transmitted from one state to another.[33] The ineffable content of the signified is transferred to a different signifier in a different language or code, which then contains or embodies the signified. The signified should remain the same, or as nearly as possible identical, to that in the source language. Any alteration, bias, or influence introduced by the translator during transmission would constitute a distortion of the message.

The alternative postmodern approach rejects the assumption of an immaterial meaning carried by the signifier, highlighting the resistance of the text that we have already identified. Rather than allowing translation based upon the inchoate meaning of the text, postmodern or literal translation stays close to the physical dimension of the text. This approach focuses on matching the physical transcript of the initial text to its translation finding cognate signifiers for the translated text. The material instantiation, or *hulé*, of each signifier is paramount. What Walter Benjamin dubs a "literal" translation of each word is preferred because substitutions or re-phrasing of textual clauses or passages elevates global, contextual meanings at the expense of the characteristics of the physical signifier.[34] Broader attempts at conveying meaning are avoided.[35]

This choice is a common experience for translators or for any multilingual speaker — either choosing between strict cognates of words in different languages, so as to maintain the sense of the initial term, or adopting alternative phrases and constructions that convey the sense of the initial text because that understanding would be lost in a string of literal cognates. Often, neither approach is entirely satisfactory for capturing the sense of the initial text, and typically neither can be plausibly maintained as the sole translational technique for any text.[36] This is surely the case for patent claims as well. As I have pointed out in previous work with Mark Lemley, courts interpreting patent claims routinely oscillate between discrete word-by-word constructions of meaning and more distributed, abstract constructions of meaning.[37] The meaning of the claim will vary widely depending on the portion of text chosen to represent an "element" of the claimed invention.

The distributed, broader, multi-signifier reading of a claim term is precisely what the postmodern approach is intended to avoid, as it introduces non-literal interpretations drawn from the interstices between signs. At the same time, confining interpretive scrutiny to a single word or sign may be inadequate to convey the meaning of the initial sign. As a result, such literal translation, word by cognate word, often yields awkward or infelicitous syntax at the level of the word or

33. WILLIS BARNSTONE, THE POETICS OF TRANSLATION: HISTORY, THEORY, PRACTICE 230 (1993).

34. WALTER BENJAMIN, ILLUMINATIONS 82 (Hannah Arendt, ed., trans., Harry Zohn trans., 1968).

35. JAQUES DERRIDA, THE EAR OF THE OTHER 185 (Christie V. McDonald, ed., Peggy Kamuf & Avital Ronell, trans., 1985).

36. *See* UMBERTO ECO, EXPERIENCES IN TRANSLATION: SAYING ALMOST THE SAME THING 24 (Alastair McEwen trans., 2001).

37. Dan L. Burk & Mark A. Lemley, *Quantum Patent Mechanics*, 9 LEWIS & CLARK L. REV. 29, 51 (2005).

phrase.[38] But according to Benjamin, the advantage of such literal word-by-word interpretation is that it juxtaposes different transcriptions of the signifier with one another, placing them in tension with one another.[39] Thus, meaning emerges across signifiers, from the comparison and contrast between the signifiers chosen for translation.

V. SEMIOTIC CLAIM INTERPRETATION

An elaborate interpretive mechanism has grown up in American law around such translation. American patent courts routinely begin their interpretive process by searching for the "literal" meaning of the claims.[40] I draw particular attention to the label of "literal" interpretation because of the similar label postmodern understanding of the sign. These two uses of the term "literal," in patent claim construction and in postmodern semiotic analysis, at first glance seem to share definitional commonalities—each is concerned with assigning the most common, unembellished, bare-bones meaning to a particular sign. Each favors word-by-word consideration of meaning, rather than readings at a more abstract conceptual level.

But there the commonalities end. Something rather different (and somewhat startling) seems to be going on in the case of literal claim interpretation, and while the similar terminology could be confusing, when framed properly the differences between the uses of "literal" is instructive. Juxtaposing the postmodern semiotic understanding of literal translation with the practice of patent courts is both disconcerting and enlightening. Thus, Benjamin's use of the term "literal" and the use of the term by patent courts is neither identical nor harmonious, but exploring tensions between these closely related uses reveal some of the hidden complications that plague patent doctrine.

A. Patent Literalism

Thus, literal patent claim interpretation does not, oddly enough, involve literal semiotic meaning. Courts that are seeking the "literal" meaning of claims do not appear to be thinking of literal meaning at the level of the signifier, where literal language may be distinguished from figurative language. Consider that figurative claim language, incorporating rhetorical tropes such as metaphor or synecdoche, would be highly unusual in patents, probably unheard of, and in any event would be statutorily dysfunctional. Claiming figuratively that the invention is "like a butterfly" or that the invention "is a raging storm," or referring to a component of the invention such as "the baffle" to represent the whole would almost certainly fail the statutory requirement of claim definiteness. Such linguistic forms are entirely foreign to the patent genre.[41] Claims incorporating these linguistic forms would never be allowed and would quickly be invalidated if they were to pass the scrutiny of some poetically-minded examiner. (Additionally, the mind boggles at the prospect of drafting a disclosure that would support such figurative claims.)

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38. AICHELE, *supra* note 15, at 46, 48.

39. BENJAMIN, *supra* note 34.

40. Gen. Mills, Inc. v. Hunt-Wesson, Inc., 103 F.3d 978, 983 (Fed. Cir. 1997).

41. *See* Dan L. Burk & Jessica Reymann, *Patents as Genre: A Prospectus*, 26 L. & LITERATURE 163 (2014). *See also* Burk, *supra* note 7, at 224 (observing that patents adopt the form of scientific or technical literature).

Rather, it generally appears that "literal" claim meaning, as the term is used by interpreting courts, is being sought at the level of the *signified*, in the sense that the interpretation is intended to be entirely modern and denotative. Denotative meaning is typically confined to the most common shared understandings associated with a signifier,[42] a definition that appears to track pretty closely the judicial quest for "plain meaning" in patent claims (and other legal language). The use of dictionaries is particularly telling as a mechanism to try and fix a broad or universal consensus of denotative meaning;[43] courts resorting to a dictionary are clearly attempting a denotative reading of claim terms.

Courts begin the literal interpretive process by looking to so-called "intrinsic evidence," meaning evidence of meaning found within the terms of the patent itself.[44] First and foremost a court will attempt to bestow on a claims the "plain meaning" of its words, gravitating to definitions that have general acceptance.[45] Often a dictionary may be consulted to provide such definitions,[46] although the dictionary is of course a compilation of definitions that is not intrinsic to, but rather lies *outside* the patent document. But in keeping with the modernist view of the sign, the pretense is that the dictionary merely provides the expression of a universal or agreed-upon meaning that is already embedded in the patent claim itself.

Here the "plain meaning" trope splinters between actual practice and the demands of its rationale. As I have pointed out in previous work, the language and format used is highly specialized, bordering on incomprehensibility to all but patent lawyers. Thus, neither the community of the technically skilled, nor the general community of lawyers, nor certainly the lay public is likely to be familiar with the specialized codes and signifiers employed in patent claims.[47] Yet, according to legal interpretive doctrine, depending on the sign in question, the "plain meaning" sought in claim construction may be the ordinary meaning among the general populace, or it may be that of the community of those having skill in the relevant technical art.[48] The underlying assumption is that the inventor is addressing those of skill in the art, conveying the elements of his conception, and so is likely to describe the conceived invention in terms familiar to such an audience, perhaps interspersed with common terminology.[49]

Of course, the inventor need not do so. The inventor is, as the saying goes, her own lexicographer[50] and can incorporate signs into the claims in some idiosyncratic way that is unrelated to any consensus or generally accepted meaning of the term. If she chooses to opt for meanings not commonly associated with the sign, she had best indicate this in some extra-terminological fashion to the interpreter—perhaps by providing her own definition in the patent specification, by going outside the channel of the sign. Otherwise, the interpreter may choose the

42. AICHELE, *supra* note 15, at 90; CHANDLER, *supra* note 11, at 140.
43. CHANDLER, *supra* note 11, at 140.
44. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).
45. *Id.*
46. Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005).
47. Burk & Reymann, *supra* note 41, at 182–83.
48. *Phillips*, 415 F.3d at 1314.
49. *Id.* at 1313.
50. *Vitronics*, 90 F.3d at 1582.

"plain meaning" denotation of the term as a likely first approximation of the sign's meaning and stop there.

B. Beyond Plain Meaning

If for this or some other reason the sign remains ambiguous, or the interpreter is dissatisfied with the "plain meaning" definitional options associated with it, the interpreter may next move to examine the setting of the sign in the text.[51] Here the relationship of the sign is considered in the context of the surrounding text. Courts rely on a variety of interpretive canons to tease out relationships among the terms of the claim—comparing and contrasting a given use of the term with other uses, considering the meanings of surrounding terms, or examining the syntax of a given use. This, too, is considered "intrinsic" evidence of meaning, as the purpose is again to winnow out the definition of the sign embedded in the channel, intended by the inventor. Thus, the placement of the sign in relation to other signs is taken as an indicator of the meaning intended.

This level of reading is heavily reliant on the linguistic codes surrounding the sign, what Frege calls the *sense* of the sign, that is, its proper conformation to the linguistic rules of grammar, syntax, spelling, and usage that determine permissible use of the sign in a text.[52] Such linguistic code is of course *not* contained within the channel of the sign, but must be drawn from elsewhere. Such sources might include explicit, formal linguistic rules, but also tacit rules of custom and general usage among users. No sign can ever be meaningful without making sense in this Fregian context.[53] Moreover, the necessity for such outside guidance should demonstrate that the sign cannot stand in isolation but is meaningful only in a matrix of surrounding purpose.

As this inquiry is guided by associated codes, a critical consideration in looking to the sense of the sign for interpretation is, naturally, that the inventor (or, more likely, the patent drafter) is employing the same code as the interpreter. At one level it might seem that the linguistic code for American patents will simply be codes related to the reading of English, the language used in the United States Patent and Trademark Office (USPTO) for patents. But I have pointed out in other work that the linguistic conventions used in patent texts may not necessarily be contained or explained within the normal rules of English usage.[54] To take only one example of many, patent drafters will talk about certain claims "depending from" rather than "depending on" other claims in the patent.[55] This is not a typographical error, but a convention that has a particular meaning in the codes surrounding the patent. It would likely seem odd or confusing to a reader without access to the interpretive code that allows the phrase to make sense.

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51. *Phillips*, 415 F.3d at 1314.

52. GOTTLOB FREGE, TRANSLATIONS FROM THE PHILOSOPHICAL WRITINGS OF GOTTLOB FREGE 57 (Peter Geach & Max Black eds., 2d ed. 1960).

53. AICHELE, *supra* note 15, at 71.

54. Burk, *supra* note 7, at 243.

55. *See* ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, PATENT LAW AND POLICY, (8th ed. 2021) (explaining practitioner usage).

C. Connotative Anchors

If a satisfactory meaning still does not emerge from this inquiry, the interpreter may widen the search, looking to other sections of the patent document for indications as to the meaning of the particular claim term.[56] In some cases the document may provide its own explicit dictionary-style definition.[57] In other cases, the context of the term in other sections of the document may be relied upon to supply meaning—in essence, an expanded version of considering the sense of the term. This implies that the interpreter may be drawing upon a yet broader set of codes, not only the linguistic conventions within which the term is used but also its deployment in the context and structure of the overall patent text.

I have shown in previous work that the patent document is a highly specialized and rhetorically idiosyncratic text, constructed according to not only formal legal requirements but also the practices and conventions of the community that routinely handles patents.[58] Discovering the particular sign within certain sections or subdivisions of the patent document may signal a different putative meaning than would discovering it only in the context of the claims.

At this stage, the drawings and text of the broader specification act, in the terminology of semiotics, to *anchor* the meaning of the claims.[59] Here we introduce the concept of connotation: connotation constitutes the set of characteristics common to all the signifiers within the range of denotation.[60] Thus, connotation defines the set of denotations that may properly be ascribed to a sign.[61] In anchoring the claim, we mean that the specification constrains the set of connotative signs that might be ascribed to the claim text, limiting the potential reach of connotative associations to those associations properly related to the claims. Thus the specification tells us to how the claims *ought* to be read, and what meanings are appropriate.[62] At times this wider pursuit of meaning may include intersemiotic translation that is, translation between entirely different types of codes.[63] For example, patents routinely include one or more drawings, constituting a set of visual signs constructed according to a particular set of codes.[64] If indicators of the meaning of an ambiguous claim term are found within the drawings, that meaning must be converted from a graphic depiction to linguistic text.

If an acceptable meaning still has not emerged from scrutiny of the patent document, the interpreter may next move to an examination of the "prosecution

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56. *Phillips*, 415 F.3d at 1315.
57. *Id.* at 1316.
58. Burk, *supra* note 7.
59. ROLAND BARTHES, IMAGE MUSIC TEXT 38 (Stephen Heath ed., trans., 1977).
60. AICHELE, *supra* note 15, at 88.
61. *Id.*
62. *See* Stuart Hall, *The Determination of News Photographs*, *in* THE MANUFACTURE OF NEWS: SOCIAL PROBLEMS, DEVIANCE AND THE MASS MEDIA 226, 229 (Stanley Cohen & Jock Young eds., 1981) (discussing anchorage in captioned photographs).
63. CHANDLER, *supra* note 11, at 201.
64. For a detailed discussion of conventions for patent drawings, see William J. Rankin, *The "Person Skilled in the Art" is Really Quite Conventional: U.S. Patent Drawings and the Persona of the Inventor, 1870–2005, in* MAKING AND UNMAKING INTELLECTUAL PROPERTY: CREATIVE PRODUCTION IN LEGAL AND CULTURAL PERSPECTIVE 55 (Mario Biagioli, Peter Jaszi & Martha Woodmansee, eds., 2011).

history" or, in patent jargon, "file wrapper" of the patent application.[65] This is in effect the epistolary history of the published patent, the record of correspondence and filings related to the patent's examination by a technically trained bureaucrat at the USPTO.[66] It may contain references to the term at issue; it may contain clues or conversations about the terms meaning. The constellation of documents making up this file are clearly separate from the patent itself, even though related to its subject. Nonetheless, investigation of these associated documents is still considered "intrinsic," as the question to be answered is whether they contain indicators or clues as to the meaning intended by the inventor in the patent document sign.[67]

While the nomenclature of patent interpretation considers the file wrapper to be intrinsic to the meaning of the patent claims, the texts being examined in fact constitute a range of different documents—correspondence with the patent office, affidavits filed during the course of prosecution, amended drafts of the patent application itself.[68] The search for claim meaning at this stage thus requires intertextual translation across the cluster of documents, as the use of a term in one type of document may well signify something other than the use of the term in a claim. The authors of the documents may be assumed to use the same codes as those used to construct the patent; indeed, without using this terminology, such commonality is exactly why the courts view the file wrapper as intrinsic to the patent.[69] Generally the originators of the prosecution history documents are the same set of actors, suggesting that signification among the documents will be at least related. Nonetheless, intralingual translation of the sign, within the same code, will be common and largely unavoidable in this phase.

D. Extrinsic Texts

Finally, if the interpreter remains unsatisfied with the meaning that emerges from examining the intrinsic evidence, there may be a resort to "extrinsic" evidence of the claim meaning.[70] Here the interpreter may look to the technical literature and use of the given sign among those in the relevant technical field.

But extrinsic evidence is disfavored over intrinsic evidence, and consulted only as something of a last interpretive resort.[71] In particular, because extrinsic evidence is not "part of the patent,"[72] which is to say that it is not constructed in the same time frame and epistolary exchange as the patent itself, any meaning found in the extrinsic literature becomes somewhat suspect. The courts have relatedly identified "virtually unbounded universe of potential extrinsic evidence"[73] as a deterrent to canvassing such evidence. Employing the terminology we have developed, extrinsic translations of the claims may be disfavored, first, in order to limit the chain of connotative meanings, and second, in order to cabin the codes that might be drawn on to frame such meanings.

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65. Graham v. John Deere Co., 383 U.S. 1, 33 (1966).
66. TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1377 (Fed. Cir. 2008).
67. *Id.*
68. *Id.*
69. *Id.*
70. *Id.* at 1317–18.
71. *Id.* at 1318.
72. *Id.*
73. *Id.*

VI. THE DENOTATIVE AND THE CONNOTATIVE

The hunt for defined meaning is in large measure a feature of "peripheral claiming" in patents, which requires that the text of the claims specify the outermost boundary of the inventor's rights in the claimed technology.[74] The underlying assumption of this approach to claiming is that words—which is to say, signs—are capable of a firmly distinct meaning, allowing the drafter to arrange claim terms to demarcate a precise edge in its description of the rights of the patent holder. Such claims are intended to provide what the Supreme Court has dubbed "reasonable certainty" as to the perimeter of the claimed patent rights.[75] The rationale is that a rigid textual boundary will give patent readers notice as to what technology is exclusive to the patent holder and will also prevent the patent holder from expanding the patent's coverage to encroach on the public domain.[76]

A. Interpretive Reference

Generally, resorting to the "plain meaning" or literal interpretation of a claim is (perhaps paradoxically) an attempt to discern the external reference most likely drawn from the inventor's mental conception of the invention. Yet, this cannot provide a certain or fixed meaning to the sign. This distinction is clear from our example of interlingual translation. Translation from one language to another would be trivial if words merely were symbolic of referents already in the world—by mapping the sign onto existing objects, each language would map onto every other.[77] Yet, we have shown that translation is imperfect and routinely fails to capture the usage and meaning between cognate signs.

Even when courts resort to "extrinsic" evidence of meaning, drawn from the use and literature of the relevant technical field, any meaning derived lies at the outermost edge of the "literal" claims interpretive exercise. Postmodern approaches look to the broader community of recipients as establishing a sign's meaning. So, a postmodern approach might look to such evidence intending to establish the meaning of the sign by looking to the usage of those having skill in the art. But in literal claim interpretation, even the resort to assessing extrinsic use of a term is not employed to adopt the meaning determined by the community, but rather to determine such usage as an indicator or clue as to the meaning which the inventor intended to invest the signifier.

In patenting, the imagined components of the inventive conception must reference particular items outside the mind of the inventor. Thus, if the sign in question is the term "baffle," the "baffle" as envisioned by the inventor must reference some form of baffle already at large in the world, or a novel form of baffle that is the inventor's own creation. Yet even in the latter case, some external reference must be present, as the inventive conception will necessarily be formed of elements drawn from the outside. As C.S. Lewis observed, the human mind is incapable of true creation *de novo*—we are incapable of, say, imagining a new primary color or "even a monster wh[ich] does not consist of bits of existing animals stuck

74. *See* Collins, *The Reach of Literal Claim Scope*, *supra* note 3 at 495.

75. Nautilus, Inc. v. Biosig Instruments, Inc, 572 U.S. 898 (2014).

76. Markman v. Westview Instruments, Inc., 517 U.S. 370, 373 (1996).

77. FERDINAND DE SAUSSURE, COURSE IN GENERAL LINGUISTICS 114–15 (Roy Harris, trans., 1983).

together."[78] Thus, the inventive signified always references objects external to the sign.

This creates something of a paradox, in that modernist approaches to the sign assume that the meaning carried by the sign is that intended by the originator of the sign.[79] The job of the interpreter is to identify the referent intended by the inventor, which will be recognized by the recipient. Yet the modernist, "spiritual" formulation of the sign creates a closed system consisting of the signifier and whatever meaning of the signified is considered to be contained in that vessel. There is no explicit mechanism for external reference; the sign in this model "erases the world."[80] At the same time, external reference must be implicit in the formulation of the signified.

B. Connotative Reference

One way of resolving this dilemma is to consider the translation question as an interplay of denotation and connotation. These semiotic functions operate at the level of the signified, modulating the relationship between signifier and signified.[81] Thus, every signified will have both a denotative and a connotative aspect. Denotative meaning of the sign is typically the most usual, common, or ordinary definition that may be assigned to a sign—for linguistic signs, the definition likely found in the dictionary.[82] But as we have already seen, even the usual or common denotative meaning of the sign is impossible to ascertain without assistance from accompanying codes—guidance as to how the sign will be most commonly read by the relevant community. Even the dictionary definition of a claims term cannot be plausibly found by extracting meaning from the modernist signified.[83]

Thus, in contrast to denotation, connotative meanings of the sign take into consideration the web of nuances and alternatives associated with the signified.[84] Connotative meaning takes the denotative sign as a signifier in a new coupling with a signified, generating a new sign. This sign in turn may act as the signifier for a different signified, establishing a different relationship at another level.[85] Such associations may continue in a chain of meaning, with each new sign acting as the signifier for additional signified.[86] As depicted in Figure 1, this process can go on repeatedly, taking each new sign as a signifier.[87] Each expansion in search of connotative meaning adds further connotative options beyond the most constrained denotative definition. The sign "baffle" may then gesture toward other signifieds such as plate, vane, panel, flow, obstruct, direct, fluid, sound, and so on.

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78. Letter from *Clive Staples Lewis to Sister Penelope, (Feb. 20, 1943), in* THE LETTERS OF C.S. LEWIS 371 (W.H. Lewis & Walter Hooper, eds., rev. ed. 1993).

79. AICHELE, *supra* note 15, at 104.

80. Robert Scholes, *Language, Narrative, and Anti-Narrative*, 7 CRITICAL INQUIRY 204, 205 (1980).

81. CHANDLER, *supra* note 11, at 140–41.

82. AICHELE, *supra* note 15, at 90.

83. Susan Petrilli & Agusto Ponzio, *Iconicity, Otherness and Translation*, 7 CHINESE SEMIOTIC STUD. 11, 20 (2012).

84. CHANDLER, *supra* note 11, at 140.

85. *Id.* at 142.

86. *Id.* at 142–43.

87. *Id.*

Connotative meanings then are constructed from associations that might include the other signs or words in physical proximity to the given sign in a text, or they may extend to the cognitive associations for the sign that are generated within social discourses. This broader set of associations makes signs more polysemic—more susceptible to multiple meanings—in their connotation than in their denotation.[88] Often connotative cultural and cognitive associations will be extensive and might stretch on infinitely if not cabined in some fashion. Clearly, at some point, connotative meaning does in fact run out. Connotation thus depends upon the codes, upon the shared cultural framework, that define contextually appropriate associations for the signified, and which determine how far the chain of connotative meaning will be appropriate.[89]

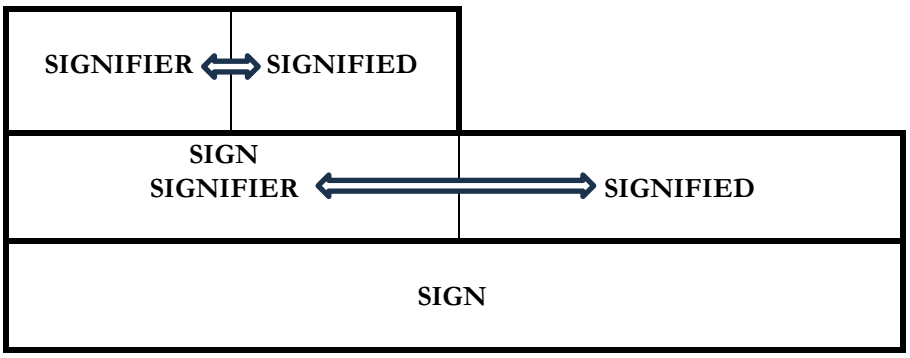

Figure 1

C. Truncated Connotation

Literal translation carries with it the illusion that denotation is universally accepted meaning; this is evident, for example, in the judicial quest for "plain meaning" that is somehow apparent on the face of the signifier. The assumption in this search is that the channel contains a meaning, and the court's job is to locate or determine that meaning, largely by paring down potential alternative readings of the sign. The premise is that the signifier could be associated with more than one potential signified, and the proper one must be determined. Locating the denotative meaning is intended to assure translation from the immaterial, mental concept of the inventor through an appropriately cabined signifier to the mind of the reader.

But semiotics teaches us that denotation is in fact a single facet of connotation,[90] a common meaning situated within the range of meanings that may be associated with the signified. This, in turn, means that denotation is a truncated or abridged version of the sign's broader array of connotation.[91] The search for "literal" claim interpretation is therefore necessarily dependent on the range of acceptable connotations associated with a term. It is by no means self-contained or independent. Instead, we know that both denotation and connotation rely upon

88. *Id.* at 140.
89. AICHELE, *supra* note 15, at 92–93.
90. CHANDLER, *supra* note 11, at 141.
91. AICHELE, *supra* note 15, at 91.

cultural codes, on a shared set of cultural codes that guides the winnowing of relevant associations associated with a given sign.[92]

Neither should we assume that these modes of understanding the sign are exclusive, or discrete. No reading of the sign is ever entirely denotative nor fully connotative. The connotative and denotative can never be entirely separated from one another, and there is no intrinsic determinant embedded in the sign as to which should be adopted.[93] Rather, interpretation exists in a continuum between these poles, as can readily be seen in the ever-widening gyre of literal claim interpretation: beginning with the isolated "plain meaning" of a term, perhaps augmented by a dictionary reference; moving to the meaning derived from context and conjunction with nearby claims; then to context provided by other references in the patent disclosure; perhaps adding the context drawn from prosecution documents; and ultimately to the common practice and terminology of the art as reflected in relevant treatises and literature. Each extension of this search expands the potential universe of running from constrained denotative meaning to a range of connotative meanings.

D. Interpretive Ideology

This framework allows us to make sense of certain interpretive doctrines. For example, recognizing the denotative and the connotative readings of the claims may be one path to reconciling the somewhat bizarre interpretive trope that the claims are read in light of the specification,[94] but that nothing must be read into the claims from the specification.[95] This seems effectively impossible, requiring simultaneously that meaning from the patent specification may be the meaning of the claim, while meaning from the patent specification must *not* be the meaning of the claim.[96] These contradictory imperatives may be reconciled if cast in terms of connotative and denotative meaning. The primacy of "plain meanings" dictates that denotative signification cannot be transferred to the claims from elsewhere in the patent document. At the same time, connotative meanings are permissible (and, indeed, as we have seen, inevitable) in understanding the claim language.

Moreover, the impossibility of separating connotative and denotative readings means that both will inevitably be value-laden because the codes that shape either type of meaning are themselves deeply value-laden.[97] The fact that codes are essential to determining meaning implies that any interpretation will be suffused with cultural and community norms that comprise the directive codes.[98] Thus, every text may be considered to constitute an organized system of signs that is constructed according to external codes that reflect community values, beliefs, practices,

92. *See* ECO, *supra* note 10, at 71.

93. CHANDLER, *supra* note 11, at 141.

94. Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005).

95. *Id.* at 1323.

96. *See* Retractable Techs., Inc. v. Becton, Dickinson & Co., 653 F.3d 1296, 1305 (Fed. Cir. 2011) (recognizing the "fine line" between reading the claims in light of the specification and reading the specification into the claims).

97. VALENTIN VOLOSHINOV, MARXISM AND THE PHILOSOPHY OF LANGUAGE 105 (Ladislav Matejka & I.R. Titunik trans., 1973).

98. SUSAN PETRILLI & AUGUSTO PONZIO, SEMIOTICS UNBOUNDED: INTERPRETIVE ROUTES THROUGH THE OPEN NETWORK OF SIGNS 252 (2005).

assumptions, and attitudes.[99] Denotative meaning may appear to be the "natural" or "common" or "obvious" meaning of the sign, but this is due to processes of habituation and acclimation within a relevant ideological framework.[100] Here, we speak of ideology not so much in the colloquial, political sense (although that may be present), but rather as shared communal frameworks for attributing meaning. Ideology constitutes the cultural and historical dimensions of these interpretive codes.

Thus, inevitably, "wherever a sign is present, ideology is, too,"[101] so that semiotic analysis is always ideological analysis as well. The modernist approach assumes that the sign has been specified by the author, and so the sign has a definitive and intended meaning. This, in turn, must mean that any ideology is inherent in the text, rather brought to the text by the reader.[102] But we have already seen from our consideration of literal claim construction that the framework for understanding the sign must be largely external. Often the constellation of codes accompanying a text will seem inherent in the sign, but this is because they have become so routine as to constitute an unconscious or invisible basis for interpretation.[103] This type of naturalization creates the tendency to accept denotative meanings as manifest, incontrovertible, or self-evident truths.[104] Indeed, one expects that interpretive "plain meaning" is a popular judicial trope for exactly this reason—the *façade* that assigning a consensus meaning will be uncontroversial, concealing no hidden dimensions.

But to the contrary, denotative readings that are formed through evaluative codes are highly ideological.[105] Denotative meaning may therefore appear to be neutral or inevitable, but is every bit as ideologically laden as any connotative reading.[106] Not surprisingly then, the postmodern view is that textual meaning is generated by the ideological context brought to it by the reader. Because every sign will exist in an ideological matrix that the reader will draw upon in interpretation, the text will appear to have been meaningful even before the reader engages with it.[107] Postmodern semiotics also views ideology as providing the framework by which the material, meaningless signifier gains meaning, providing access to the text.[108] In the postmodern approach to semiotics, ideology is acknowledged as establishing the dominant reading of a text, and so defines the community to which the text belongs.[109] This, in turn, ties the meaning of the text to a given culture and community.[110]

In the case of the patent text, this meaning is tied to the specialized and insular community of patent practice—the lawyers, the judges, the bureaucrats that

99. CHANDLER, *supra* note 11, at 157.
100. *Id.* at 141.
101. VOLOSHINOV, *supra* note 97, at 10.
102. AICHELE, *supra* note 15, at 101.
103. *Id.* at 100.
104. CHANDLER, *supra* note 11, at 144.
105. KAJA SILVERMAN, THE SUBJECT OF SEMIOTICS 30 (1983).
106. CHANDLER, *supra* note 11, at 141.
107. AICHELE, *supra* note 15, at 101.
108. *Id.* at 104.
109. *Id.* at 103.
110. Susan Petrilli, *Identity Today and the Critical Task of Semioethics in* INTERNATIONAL HANDBOOK OF SEMIOTICS, *supra* note 24, at 847, 861.

surround the crafting and usage of patents. I have shown elsewhere that this community shares a common language,[111] and they surely shared a common ideology couched in terms of "innovation," "incentive," and "progress." Whatever one might think of such tropes, they surely provide a set of codes within which the patent text is infused with meaning. We shall see that such codes frame the patent text in such a way as to dictate the permissible use and disposition of any given patent as well as the corpus of patent documents generally.

Ideologically, it is not difficult to ascertain why patent claim construction tends toward the modernist, denotative view. In recent work, I have examined in some detail the rhetorical and social processes by which the patent evolves from a contested proposition to become a coherent and accepted artifact.[112] Through a variety of mechanisms, the status of the disclosure and claims becomes stabilized; a range of allies are recruited to support the acceptance of the patent document, and the claimed invention is imbued with a range of sociotechnical attributes including novelty, utility, and nonobviousness. The practice of ascribing literal, denotative meanings to the patent claims is surely a key component in such processes. By limiting itself to the most customary and constrained interpretations, denotative readings of the sign acquire the façade of certainty and indisputability. This presentation of inevitability facilitates credence and ultimately acquiescence in the conclusive status of the patent.

VII. PATENT GENRE

Among the most significant set of ideological codes guiding the reader's search for meaning is genre—the grouping of texts sharing cultural or community expectations. Genre defines a text's relationship to other texts, characterizing them as falling into the same category or diverging to different categories. This is a common occurrence, routinely drawn upon by recipients of a text. Readers regularly classify texts in terms of format, subject matter, style, and other common features. In some cases, genre will be signaled or highly influenced by the physical, hyletic format of the sign. In the case of patents, such physical aspects would include the distinctive double-column text formatting, the numbered claims at the end of the document, the administrative indexing, the citations to prior art, the placement of the drawings, and the order of subsections. These quickly alert the reader to the category of document at hand.

Genre therefore constitutes a type of overarching "meta-code," placing a particular categorical frame around a text, so as to define the proper codes available for interpretation and meaning.[113] Genre limits semiosis in one dimension; the meanings associated with the signs must conform to the expectations of the framework. But genre also expands semiosis in a different dimension by placing the text within a category of related texts, opening the possibility of extended intertextual associations.[114] Codes link texts together in a web of shared meaning, simplifying reading of the text not only by providing guidance as to the proper

111. *See* Burk & Reymann, *supra* note 41.
112. *See* Burk, *supra* note 7.
113. AICHELE, *supra* note 15, at 94.
114. *Id.* at 96.

meaning of the text but also by signaling the nature of the meaning that can be expected.[115]

This also has powerful implications for the reading of a genre such as patents. Because codes transcend any given text, or any set of texts, we cannot treat patents or any other category of documents as definitively bounded; what is included or excluded within a genre will shift according to shifting cultural expectations and norms. This is clearly the case with any number of Supreme Court decisions, that draw upon current controversies and practices in patenting to ascribe meaning to the document. One might take for example a case such as *Association of Molecular Pathologists* v. *Myriad Genetics*,[116] in which the Supreme Court limited the subject matter availability of patents on genetic molecules. The reading of the genetic patent at issue in the case was surely drawn from ideologically charged briefs filed in the case, some advocating for the primacy of the needs of genetic research with others advocating for the primacy of the needs in commercial biotechnology.[117]

This interplay means in turn that genre also defines the range of signification properly attributable to a given text. The meanings appropriate to a murder mystery novel are not those appropriate to a calculus textbook. The reader of a patent will not read it, and would not expect to read it, according to the conventions and tropes of a spy thriller or medieval epic. Instead, patent readers classify the document as a patent and anticipate that it will encompass particular types of meaning. Thus, genre signals the reader to bring to the text a set of preconceptions as to the type of message that should be expected from that text.[118] This signaling tightly ties genre to particular communities of readership and the practices of such communities.[119]

We have already noted the generation of codes from community values;[120] this interaction is especially significant for genre. The categorization provided by genre invokes particular codes and expectations in the relevant community. Most importantly, interaction between genre and communities is highly recursive.[121] Genre may signal readers as to the proper framing of the text, but readers also mold and fashion the features of the genre. Indeed, as a form of typified social action, genre reflects the practices of the relevant community as it simultaneously shapes them.[122] The community associated with the text may craft it to advance its own purposes. But at the same time, the text mediates not only its own uses, but the practices and expectations of the associated community.[123]

The synergy between genre and community has powerful implications, especially for patenting. Modernist semiotics assumes that the purpose of the sign is to convey the meaning of the signifier. But postmodern semiotics recognizes that in the register of codes and genre, the purpose of language may not be clarity or

115. CHANDLER, *supra* note 11, at 157.

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

117. Dan L. Burk, *The Curious Incident of the Supreme Court in* Myriad Genetics, 90 NOTRE DAME L. REV. 505, 510 (2014).

118. AICHELE, *supra* note 15, at 96.

119. JOHN M. SWALES, GENRE ANALYSIS: ENGLISH IN ACADEMIC AND RESEARCH SETTINGS 42–43 (1990).

120. *See supra* notes 82–89 and accompanying text.

121. AICHELE, *supra* note 15, at 94–95.

122. Carolyn Miller, *Genre as Social Action*, 70 Q. J. SPEECH 151 (1984).

123. THEO VAN LEEUWEN, INTRODUCING SOCIAL SEMIOTICS 123 (2005).

communication, but instead privacy and territoriality.[124] Because they define, and are defined by the norms of a given community, codes define the "owners" of the text, the community to whom the text belongs.[125] This, in turn, implies that because systems of signs are integral to the construction of social reality, those who influence and control the structure of sign systems influence and control the structure of social reality as well.[126]

For patents, it is fairly clear who "owns" the text, who is determined and shaped by the patent text, and who employs the text to control associated social practice and reality. In previous work with Jessica Reymann, I have shown that the patent constitutes a highly distinctive category of genre and have discussed the equally distinctive array of judges, bureaucrats, and practitioners surrounding it.[127] This community has full control over the meaning of any patent, via the mechanisms that are outlined above, and sets the norms and standards for the patent genre. This, in turn, means that they set the parameters for innovation arising from the patent text, quite literally shaping the social structures and activities connected to the patent system. Ostensibly, such social action is dictated by the legislature via statutory text, but the in fact the meaning of such text is likewise determined by the codes of the patent community.

VIII. SEMIOTIC EQUIVALENTS

Our investigation of connotative codes places us in a position to understand interpretive patent methodology beyond the scope of literal readings. If literal claims construction fails to find elements of the claimed invention in the accused device, the interpreter may move to an assessment of nonliteral infringement under the doctrine of equivalents. Here, connotative meanings of the sign are given greater play. Under the doctrine of equivalents, the interpreter may identify referents of the sign in the accused device that do not fall within the denotative meaning of the sign, but which could be considered the equivalent of referents falling within the sign's denotative meaning. As Learned Hand described it, "[A]fter all aids to interpretation have been exhausted, and the scope of the claims has been enlarged as far of the words can be stretched, on proper occasions courts make them cover more than their meaning will bear."[128]

Thus, where the claim recites a nail, and the accused device lacks what might be understood to constitute a nail, but instead incorporates a screw, the question is not whether "screw" is among the denotative meanings permissible to the signifier "nail." Neither is the question whether "screw" would be among the closely associated connotations of the signifier "nail." The equivalence question is rather a more widely ranging inquiry into the connotative associations of the sign "nail" with screws. These may well be present; both are common hardware for fastening other components together. At the same time, there are clear differences, such as the threading on a screw, that exclude screws from the denotative meanings for "nail." Determining which associations are relevant and permissible to declaring

124. GEORGE STEINER, AFTER BABEL 473 (1975).
125. AICHELE, *supra* note 15, at 96.
126. CHANDLER, *supra* note 11, at 216.
127. *See* Burk & Reymann, *supra* note 41, at 177–79.
128. Royal Typewriter Co. v. Remington Rand, Inc., 168 F.2d 691, 692 (2d Cir. 1948).

equivalence requires a fairly explicit inquiry into the guiding codes that might associate screws and nails.

As Judge Hand's quote indicates, this interpretive move largely abandons any semblance of the modernist approach to denotative meaning, in favor of something resembling postmodern reading of the sign. Indeed, the Supreme Court's stated operative rationale for the doctrine of equivalents is unabashedly connotative and probably unwittingly postmodern, explicitly abandoning the literal, modernist reading preferred for claims interpretation. The Supreme Court has explained that "the nature of language makes it impossible to capture the essence of a thing in a patent application"[129] and that hewing solely to denotative readings of the claims would "place the inventor at the mercy of verbalism."[130] Here the "meaning" that may be exceeded is clearly the literal, denotative meaning, as the courts remain emphatic that there must in any event be a defined correspondence between the referent and the sign found in the claims.

Thus, the doctrine of equivalence identifies a meaning that in a literal sense was clearly *not* intended by the inventor, in that the equivalent was left out of the claims. Yet, at the same time, the meaning was intended by the sign chosen by the inventor. This places the physical signifier rather than the invisible signified at center stage. The interpreter searches for a connotative meaning associated with the sign, but which admittedly is not within the meaning of the signified. The interpreter follows the chain of signification to an associated signified that refers to elements of the accused device. Thus, a claim's term such as "baffle" becomes a signifier for an associated signified such as "deflection." The sign "deflection" then becomes a signifier for other signifieds, such as structures in the accused device that perform the function or possesses the quality of "deflection." The deflecting structures may then qualify as an equivalent, referenced connotatively, but not denotatively, by the claims.

This shift in approach is manifest in the legal assessment of equivalence. One of the tests for equivalence is to determine whether the putative equivalent is a known substitute for the claimed element, so that the substitution would not be inventive, but technically trivial.[131] Unlike the literal "extrinsic" evidentiary investigation described previously, here the knowledge and practice of the technical community constitutes the relevant association, rather than being taken as an indicator of the conception of the inventor. To the contrary, identifying a known substitute as equivalent departs entirely from any denotative meaning intended by the inventor. The inquiry is rather a pursuit of related referents that were not incorporated denotatively into the claims. What constitutes a properly related referent is explicitly dependent on the customs and codes of those having skill in the technical art of the patent.

A second or alternative test for equivalence is to pose a set of questions asking whether the putative equivalent performs same function as the corresponding claim element, in the same way, with the same result.[132] The Supreme Court has sanctioned adopting either metric, asserting without the slightest hint of irony that

129. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 731 (2002).
130. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 607 (1950).
131. *Id.* at 612.
132. Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 520 U.S. 17, 40 (1997).

"the particular linguistic framework used is less important than whether the test is probative of the essential inquiry."[133] Yet this equivalence inquiry potentially ranges even more broadly than the first, as it is not explicitly couched in the current knowledge of the technical community. The codes and shared meanings of the relevant community will be integral to structuring the tripartite inquiry. But other codes will necessarily shape the inquiry.

This is to say that it should be immediately apparent that an inquiry of this type will be highly value-laden, so that the outcome is determined by the characterization imposed by an interpreter on the referent. Does a nail "hold" two wooden beams together? Or does it, in the same position, in the same structure, "impart structural integrity" to a wooden frame? Are these functions even different? The same types of questions apply to attempts to defining the "way" in which the claimed element and the putative equivalent function. Do nails hold components of a structure together by providing a shared rigid cross piece? Is it a matter of friction? Do screws fasten in this way, or is it due to the occlusion of the threads? We could engage in a similar exercise with regard to the "result" of two putative equivalents. Simply put, how the questions of "way" or "function" or "result" are framed will determine equivalence, and the interpreter has considerable latitude in deciding how to structure the question.

Understanding the connotative dimensions of the doctrine of equivalents may also shed light on some of the more puzzling and counterintuitive maxims associated with its application. For example, the Federal Circuit has often emphasized that the doctrine of equivalents does not expand the claims, that the patent owner receives only the claim scope to which she was always entitled by the text.[134] This seems paradoxical; if screws are deemed equivalent to nails, so that a claim that recites only a nail as an element is judged to include screws as well, it seems as if the claims have been broadened or expanded. Yet the Federal Circuit insists that the scope of the claims remains the same. These contradictory statements may be reconciled by recognizing that the scope of the claims under the doctrine of equivalents was always connotative rather than denotative, so that connotative meanings associated with the sign are part of the claim. At the same time, the Court is reluctant to incorporate any denotative meaning into the claim. These are in fact not different, but the maxim serves to preserve the primacy of "plain meaning" when plain meaning no longer is feasible.

IX. REVERSE EQUIVALENTS

The Supreme Court has coupled the doctrine of equivalents with a rare companion doctrine often referred to as the reverse doctrine of equivalents.[135] The Court has characterized this doctrine as a form of the doctrine of equivalents that sometimes hinders rather than benefits the patent owner.[136]

No doubt the Court had in mind the policy justification in each case: that language is inadequate to capture the essence of the invention. In the case of the doctrine of equivalents, language is purportedly inadequate to include the accused

133. *Id.*
134. *See, e.g.*, Wilson Sporting Goods Co. v. David Geoffrey, 904 F.2d 677, 684 (Fed. Cir. 1990).
135. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950).
136. *Id.* at 608–09.

element; in the case of the reverse doctrine of equivalents, language is inadequate to *exclude* the accused element.

Despite the Court's equation of the two doctrines, in the methodology of patent claim interpretation, they fall into very different categories. The reverse doctrine of equivalents is not applied as part of the nonliteral equivalents analysis along with the doctrine of equivalents. Rather, the reverse doctrine of equivalents falls within the ambit of *literal* claim interpretation, which is to say within the denotative reading of the claims. It uses the denotative meaning of the sign essentially as a check or negative safeguard against literal interpretation. It arises in the unusual case in which every element of the claimed invention is found in an accused device, but the accused device nonetheless is *not* deemed to be the invention—the case in which the accused device is somehow removed "in principle" from the meaning of the claims.[137]

This is to say that a reverse equivalents evaluation is triggered in the when the referent of the claim exists in the world, that referent falls within the denotative meaning of the signified, and yet the referent is judged *not* to fall within denotation of the sign. As with the doctrine of equivalents, the reverse doctrine of equivalents interpreter then explicitly abandons the modernist denotative reading of the signified. The focus instead shifts to the signifier, and the range of connotative meanings associated with the physical sign. This, by definition, will not be the meaning of the sign contemplated by the inventor or lying within the inventor's conception. If, for example, the initial sign is "valve," then the interpreter may move down the chain of connotation from "valve," to signs such as "exhaust," "auxiliary," "one-way," "pressure," "poppet,"[138] and "port" that may be signified by the initial sign or by one another.

Despite its classification as part of literal claim construction, the reverse doctrine of equivalents may be the paradigm of connotative postmodern reading of the claim. The search for a connotative meaning that must be associated with the sign, but which admittedly is not within the meaning of the signified. As with other connotative associations (and for that matter, denotative associations) the interpreter will engage the codes surrounding the sign to arrive at a plausible meaning. The classic statement of the test for reverse equivalents is to determine if the referent performs the same or similar function in a different way than the sign denoted in the claims.[139] This test spotlights function as a critical component of the directive codes. Yet, as we have already seen in the case of the doctrine of equivalents, assessing function and way are highly dependent on codes and expectations surrounding the sign, and how the inquiry is framed.

Thus, in the leading Supreme Court case of *Westinghouse v. Boyden Power Brake Co.*, establishing the reverse doctrine of equivalents, the question was whether a valve in the accused device fell within the meaning of the term as used in the claims, and if so, whether it nonetheless differed "in principle."[140] That question, whether the function of the referent valve differed in principle, might have legitimately been

137. Westinghouse v. Boyden Power Brake Co., 170 U.S. 537, 568 (1898).

138. Poppet valves, discussed at length in the *Westinghouse* opinion, are a type of valve moved by a spring. *See* PHILIPP WAHL, PISTON SPOOL VALVES AND POPPET VALVES 2 (2018).

139. *See Westinghouse*, 170 U.S. at 569; SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1123 (Fed. Cir. 1985) (en banc).

140. *Westinghouse*, 170 U.S. at 568.

framed as whether the valve provided "quick breaking," or "admitted air to the main cylinder," or "created differential pressure," or a number of other formulations. The formulation of the "function" will of course determine whether the referent differs from the sign in the claims, and if so, what the courts have called the "essence" of the invention, which is to say the proper and acceptable connotative meaning. Reverse equivalents thus takes the signifier rather than the signified as its starting point, rejects the denotative reading of the sign, and looks for a proper meaning in the sign's connotative interpretation.

Given their poor fit with the generally denotative stance of current claim construction, it is likely no surprise that these doctrines are holdovers from a previous patent disclosure regime that preceded the current emphasis on peripheral claiming. American law was long based on the concept of *central claiming* rather than peripheral claiming.[141] Central claiming did not attempt to define the outermost boundary of the patent owner's rights. Rather, the patent set forth the embodiment of the invention actually developed by the inventor, and later interpreters—generally courts—would provide the inventor with a fair penumbra of protection around that central disclosure.[142] The fair zone of protection was determined by looking at how important the patentee's invention was,[143] distinctions between the invention and the prior art, and differences between the disclosed invention and the accused device.

One drawback to this regime was (perhaps) the lack of public notice that the Supreme Court has repeatedly said is integral to a system that cordons off certain technologies with exclusive rights.[144] The public deserves some warning as to what is safely used and what is off limits. This would not be known with any certainty from reading the centrally claimed patent; only once a patent had been challenged and the zone of protection around the central embodiment determined could the public know the patent's scope. A second related concern might be that that a court or interpreter had a rather free hand in determining the scope of rights *after* the patent issued, perhaps with some degree of bias or idiosyncratic preference. Finally, there was no guarantee that the scope of the claim, as determined by peripheral claiming, arose from the inventor's conception. Other policy considerations were clearly, and purposefully taken into account.

I have argued in previous work with Mark Lemley that these concerns are largely immaterial, or in any event are outweighed by the clear disadvantages of the current peripheral claiming regime.[145] The semiotics of claim interpretation as delineated here should illuminate why these concerns are largely illusory. We have seen that these same practices that were deplored in central claiming are deeply embedded in the current interpretive practices surrounding literal claims interpretation. Such interpretation attempts to establish a firm, denotative meaning at the periphery of the claims, but in fact is subject to strong connotative forces, the dictates of external codes and norms, and the caprice of the interpreter. Nonliteral interpretation provides yet another dimension of interpretive tractability.

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141. Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PENN. L. REV. 1743, 1746 (2009).

142. *Id.* at 1747.

143. *See, e.g.*, Miller v. Eagle Mfg. Co., 151 U.S. 186, 207 (1894).

144. Nautilus, Inc. v. Biosig Instruments, Inc, 572 U.S. 898, 911 (2014).

145. *See* at Burk & Lemley, *supra* note 141, at 1799.

Indeed, central claiming may be the opportunity for a more transparent, postmodern interpretation of the claims sign. Central claiming necessarily focuses on the signifier rather than the signified, taking the expressed sign as a starting point for determining a fair or acceptable range of claim scope. This determination is not guided by the search for denotative expression but must instead be openly guided by the codes and expectations surrounding the sign. These are, of course, explicitly connotative and ideological considerations. In the postmodern approach to semiotics, ideology is acknowledged as establishing the dominant reading of a text, and so defines the community to which the text belongs.[146]

Rather than the façade of peripheral claiming, central claiming potentially offers transparency about who controls the meaning of the sign, rather than attempting to be transparent about the meaning of the sign.

CONCLUSION

Semiotics offers a rich and deep body of scholarship that might be applied to understanding the nature of the patent document. Here, I have only scratched the surface of such analysis, under a single semiotic model. A wide variety of methodologies and perspectives remain to be explored in greater detail. These might include not only general theories but subcategories such as social semiotics, structural and post-structural semiotics, and cognitive semiotics. Yet even in this very preliminary sketch of semiotics in the patent context, a number of striking insights emerge.

First, I have argued that the structure of signification may explain and even justify some of the more enigmatic tropes and doctrines associated with patent claim interpretation.[147] Such conundra can be attributed to the previously unrecognized interactions of denotative and connotative meanings. Second, I have shown that "literal" patent claim interpretation is dependent on connotative interpretation and does not constitute a definitive or natural denotative reading of the claim. In particular, a common mistake is to read malleable connotative *values* as established denotative *facts*.[148] However appealing this assumption may be, as one commentator observes, "Semiotic analysis can help us to counter such habits of mind."[149]

An additional evocative pattern in the analysis above returns again and again to the primacy of the patent community in structuring, controlling, and deploying the patent document.[150] This is the specialized and insular community of patent practice—the lawyers, the judges, the bureaucrats that surround the crafting and usage of patents. This community lays down the codes, norms, and expectations that define the social function of patents—they are the actors that "own" the patent document and its associated uses. A fundamental tenet of semiotics is to show whose signs are suppressed and whose are favored, whose realities are privileged and whose are dominated.[151]

146. AICHELE, *supra* note 15, at 103.
147. *See supra* notes 94, 134, and accompanying text.
148. JOHN FISKE, INTRODUCTION TO COMMUNICATION STUDIES 92 (1982).
149. CHANDLER, *supra* note 11, at 144.
150. *See supra* notes 110, 124, 146, and accompanying text.
151. CHANDLER, *supra* note 11, at 15.

Finally, the postmodern interpretive opportunity offered by central claiming stands out. The ostensible policy rationale for publishing a written description of the invention is to make it transparently available to the world, in particular to those of skill in the technical art. This rationale is again, not surprisingly, thoroughly modernist, adopting the view that the sign channel transmits a message, and the purpose of the signifier is to communicate the essence of the signified. Yet, what we have considered regarding the nature of denotative and connotative readings throws this rationale into some doubt, or at a minimum, cautions against a single and simplistic view of communication. Language may reveal, but it also conceals; language inevitably obscures and distorts meaning[152] (as the Supreme Court has acknowledged). The plain meaning of the sign will not always shine through, requiring the elaborate interpretive processes that we have reviewed, and the unacknowledged dimensions of those processes explored above.

Central claiming offers a different but more honest form of transparency. The codes and underlying ideologies associated with any sign will inevitably be deployed and utilized in interpreting that sign. In the current dominance of denotative "literal interpretation" these dictates simply go unacknowledged in favor of supposedly authoritative meanings.[153] This permits litigants and jurists to manipulate the supposedly solid peripheral claim boundary to advantage as the inevitable underlying connotative expansion or reduction of the sign occurs. The postmodern interpretive approach instead explicitly acknowledges the ideologies drawn upon in constructing the claim. Rather than the pretense of denotative certainty, a postmodern approach based on central claiming would reveal and recognize the influences that are behind the reading the sign, disclosing the origins and purposes of patent claim interpretation.

152. AICHELE, *supra* note 15, at 38.
153. Burk, *supra* note 1, at 118.