Conditioning Functionality: Untangling the Divergent Strands of Argument Evidenced by Recent Case Law and Commentary

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COMMENT

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INTRODUCTION

At the intersection of patent and trademark law there exists an epic struggle for domain that has been ongoing since the late nineteenth century. Protecting the trade dress of a product or design has become increasingly difficult with the advent of a recent legal setback. Although a force—the functionality doctrine—has been implemented to police this intersection, a fortiori, how the functionality doctrine is defined and used will dictate not only the future health of trade dress protection, but also the way in which innovators seek protection for their inventions or marks.

This Comment focuses on establishing a uniform approach to functionality that purports to preserve deserving trade dress protection while still honoring the sanctity of the Patent Clause of the U.S. Constitution. First, the Comment will briefly describe the basics of the functionality doctrine and its recent history in the courts and elsewhere in the legal community. Second, the Comment will analyze the overlap between patents and trade dress and look at recent commentary on functionality. Finally, a solution will be proposed and subjected to a test case.

The proposed solution melds the Inwood definition of functionality with the competitive need rationale in a four-factor “decay” test. The

1. Trade dress protection derives from § 43(a) of the Lanham Act. See 15 U.S.C. § 1125(a) (2000). Although trade dress protection once only extended to product packaging, labeling, and display, it has been expanded to include design features or product configuration. Today, the “total image” of a product, including its color, size, shape, and texture, as well as other characteristics or traits, is protectable. See Michael S. Perez, Note, Reconciling the Patent Act and the Lanham Act: Should Product Configurations Be Entitled to Trade Dress Protection After the Expiration of a Utility or Design Patent?, 4 TEX. INTELL. PROP. L.J. 383, 387 n.11 (1996) (regarding past limits on trade dress protection); Truck Equip. Serv. Co. v. Fruehauf Corp., 536 F.2d 1210 (8th Cir. 1976) (regarding the expansion of trade dress to design features and product configuration); Keeley Canning Luhnow, Note, TrafFix Devices, Inc. v. Marketing Displays, Inc.: The Problem With Trade Dress Protection For Expired Utility Patents, 1 BUFF. INTELL. PROP. L.J. 224, 227 (2002) (regarding the “total image” expansion of trade dress protection). A valid claim of infringement must show that the trade dress was distinctive and non-functional, and that consumers would likely be confused as to the source of the allegedly infringing product. See 15 U.S.C. § 1052(f) (2000) (distinctiveness); id. § 1125(a)(3) (non-functional); id. § 1114(1)(a) (likelihood of confusion).
2. See discussion infra Part I.A–B.
6. See discussion infra Part III.A.
author feels that his proposal best fuses the varied views on functionality and serves as a filter through which deserving petitioners can obtain protection. Despite sporadic abuse by patentees, the trade dress system needs to have its place in intellectual property because it encourages innovation relating to nearly all aspects of a product. More importantly, by endorsing intellectual property protection for distinctive product features, the trade dress system encourages those without the means or necessary knowledge to seek patent protection. For these reasons, the fight for functionality looms large.

I. THE FUNCTIONALITY DOCTRINE AND ITS RECENT DEVELOPMENTS

Product features found to be functional are ineligible for trademark or trade dress protection. Exactly what does it mean to be functional? On the most general level, a functional product feature is tantamount to a useful product feature. Socio-economically, the functionality doctrine seeks to prevent trademark law from inhibiting legitimate competition via a producer’s control of the useful product feature. Alternatively, functional product features already have an avenue for protection, namely patent law, which extends a limited monopoly to deserving utilitarian inventions. To offer the owner of a functional product feature trade dress protection, which is potentially perpetual, would grant the owner an indefinite monopoly as well as deny competitors the chance to examine and improve upon the product. Thus, how the law defines functionality significantly impacts not only the economic strategy of intellectual property rights holders, but also the unstable line between patent and trademark protection. Over the past century, courts and lawyers have applied and advocated a plethora of different theories with regard to functionality. The Supreme Court most
recently addressed the issue of functionality in the case *TrafFix Devices, Inc. v. Marketing Displays, Inc.*\(^\text{13}\)

### A. TrafFix

Marketing Displays, Inc. (MDI) manufactured and sold stands for temporary road signs that used two springs to keep the signs upright in high winds.\(^\text{14}\) MDI had two utility patents for a mechanism based on this “dual-spring design.”\(^\text{15}\) A short time after the patents expired, TrafFix copied and used MDI’s design in commerce.\(^\text{16}\) MDI brought claims of trade dress infringement, trademark infringement, and unfair competition; TrafFix countered with claims of unfair competition and antitrust violation.\(^\text{17}\) The district court granted summary judgment for MDI on the issue of trademark infringement.\(^\text{18}\) However, the court granted TrafFix summary judgment on the issue of trade dress infringement.\(^\text{19}\) According to the court, no reasonable jury could determine that the dual-spring design had acquired secondary meaning.\(^\text{20}\) Regardless of whether secondary meaning was acquired, the feature was functional, thus rendering it ineligible for trade dress protection due to the patent holder’s agreement to allow an invention to enter the public domain after expiration; [Restatement (First) of Torts § 742 (1938)](https://www.law.cornell.edu/restatements/torts/first/sections/section742) (expanding the definition of functionality to include any contribution to the product’s efficiency or economy of manufacture, handling, utility, durability, effectiveness, or ease of use); *In re Deister Concentrator Co., Inc.*, 289 F.2d 496 (C.C.P.A. 1961); *In re Shakespeare Co.*, 289 F.2d 506 (C.C.P.A. 1961) (shifting toward a competitive need view, basing functionality not only on a feature’s possession of utility but also on the hindrance of competition caused by the unavailability of said feature); *In re Morton-Norwich Prods., Inc.*, 671 F.2d 1332 (C.C.P.A. 1982) (embracing competitive need—focusing on the fact that competitors did not need the same design of the plastic spray bottle at issue to adequately compete—in finding that the bottle was non-functional); Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 850 n.10 (1982) (apparently moving away from competitive need by deeming, in dicta, a product functional “if it is essential to the use or purpose of the article or if it affects the cost or quality of the article”); Vornado Air Circulation Sys. v. Duracraft Corp., 58 F.3d 1498, 1508 (10th Cir. 1995) (deeming a feature functional if it is a significant inventive component of an invention covered by utility patent); *Qualitex*, 514 U.S. at 165 (aligning the *Inwood* test with competitive need—couching a feature as functional if its exclusive use “would put competitors at a significant non-reputation-related-disadvantage,” and if there are no available alternative designs).

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\(^{13}\) 532 U.S. 23 (2001).

\(^{14}\) Id. at 25.

\(^{15}\) Id.

\(^{16}\) Id. at 26.

\(^{17}\) Id.

\(^{18}\) Id.

\(^{19}\) Id.

\(^{20}\) Id.
On appeal, the trademark and antitrust holdings were affirmed, but the trade dress ruling was reversed.\textsuperscript{22} The Sixth Circuit ruled that to deny trade dress protection, the defendant must show “that exclusive use of a feature . . . put competitors at a \textit{significant} non-reputation-related disadvantage.”\textsuperscript{23} Any of MDI’s competitors that sought to use its dual-spring design would have to develop an alternative means, that is, distinguishing its design so as to avoid trade dress infringement.\textsuperscript{24} Finally, in criticizing the district court finding, the Sixth Circuit noted a general split among the circuits over the issue of prohibiting trade dress protection for a feature covered by an expired utility patent.\textsuperscript{25}

Granting a writ of certiorari, the Supreme Court reviewed the case and reversed, finding the dual-spring design functional and, therefore, not eligible for trade dress protection. In arriving at its decision, the Court noted key points regarding utility patents and trade dress. First, although expired patents do not rule out trade dress eligibility, they do create a strong inference of functionality.\textsuperscript{26} Second, a feature must be proven non-functional by the party seeking trade dress protection. In a case involving a utility patent, the burden on the party seeking protection is much higher, requiring credible evidence that the feature is non-functional—such as showing that a feature “is merely an ornamental, incidental, or arbitrary aspect of the device.”\textsuperscript{27}

The Supreme Court went on to deem the dual-spring design functional, because it was the central advance claimed in the expired utility patent.\textsuperscript{28} The Sixth Circuit functionality test was apparently flawed because it focused on whether a particular product configuration was a competitive necessity—turning to alternative designs was not necessary if the feature was already worthy of being functional.\textsuperscript{29} Although the Court alluded to aesthetic scenarios in which competitive

\begin{itemize}
  \item[21.] \textit{Id.} Note that MDI failed to present sufficient evidence to show that the feature was not functional. In addition to the trade dress claim, the district court found that TrafFix was not liable on the antitrust and unfair competition claims. \textit{Id.} at 27.
  \item[22.] \textit{Id.}
  \item[23.] \textit{Id.} at 23 (emphasis added).
  \item[24.] \textit{Id.} at 27.
  \item[25.] \textit{Id.} at 28.
  \item[26.] \textit{Id.} at 29.
  \item[27.] \textit{Id.} at 30.
  \item[28.] \textit{Id.}
  \item[29.] \textit{Id.} at 34.
\end{itemize}
necessity may indeed apply, such as in *Qualitex*, the Court depended on the *Inwood* test—a feature is functional when “it is essential to the use or purpose of the article or if it affects the cost or quality of the article”—in evaluating the functionality of the dual-spring design.  

**B. Post-TrafFix Variance in the Lower Federal Courts**  

As a result of the perceived drift away from competitive need in *TrafFix*, a great deal of variance has surfaced in the lower federal courts regarding functionality. This subsection outlines the various jurisdictional trends and leads to the potential remedy explained in Part III.  

First, despite *TrafFix*, the Federal Circuit, as the lone court of appeals for patent cases, has continued to rely on the logic of *Morton-Norwich* and a competitive need analysis. Conversely, other courts have used the *Inwood* test in their analyses. In following *TrafFix*, the Fifth Circuit set aside its own competitive need-based interpretation of functionality: “[I]f a product feature is ‘the reason the device works,’ then the feature is functional. The availability of alternative designs is irrelevant.” Less convincingly, the Third Circuit turned to the *Inwood* test, but hedged it by discussing competitive need. Furthermore, although the Sixth Circuit purported the *Inwood* test to be the primary rule, it deemed competitive need applicable in the event *Inwood* yielded indefinite results. Additionally, some courts, including the Ninth Circuit, have mischaracterized *TrafFix*, aligning it with *Qualitex* and

30. *Id.* at 33.  
31. *Id.* at 32.  
32. *See* Valu Eng’g, Inc. v. Rexnord Corp., 278 F.3d 1268, 1271–73 (Fed. Cir. 2002).  
The district courts and the Trademark Trial and Appeal Board have exhibited an even wider range of interpretation regarding functionality in the wake of TrafFix. The declaration of an expired utility patent as strong evidence of functionality has been used, confused, and abused. This bold correlation between utility patents and functionality has caused even a single element of a patent claim to effect a finding of functionality for a distinctive design feature. Still other district courts have combined Inwood and Qualitex, finding a feature functional if it is essential to effective competition in a particular market. Finally, the Inwood and Qualitex functionality tests have been used disjunctively in a manner similar to that in TrafFix: meeting the requirements of either test can render a product functional. Suffice it to say, this variance throughout the federal courts indicates the need for some kind of unified standard, which will be addressed further below.

39. See Metrokane, Inc. v. The Wine Enthusiast, 160 F. Supp. 2d 633 (S.D.N.Y. 2001). Metrokane alleged that The Wine Enthusiast infringed when it produced a similar corkscrew, “Le Rapide,” to Metrokane’s “Rabbit,” which was the subject of an expired utility patent. In an ill-fated attempt to use the TrafFix ruling instead of applying the Inwood test, the court inferred from dicta that although the existence of a patent created a strong inference of functionality, this inference could be overcome by demonstrating the ornamental or arbitrary nature of the feature. Metrokane had sufficiently demonstrated the “Rabbit” corkscrew’s ornamental value; thus, the court applied the narrow exception gleaned from TrafFix and deemed the feature non-functional. Id. at 635–38.
41. See ASICS Corp. v. Target Corp., 282 F. Supp. 2d 1020, 1024 (D. Minn. 2003); see also Thurmon, supra note 12, at 334–38. A solution to this questionable result is proposed infra Part III.A.
II. ANALYSIS OF RECENT TRENDS IN FUNCTIONALITY

A. Patent-Trademark Overlap: Design Patents Versus Trade Dress

In order to better understand the importance of functionality, a closer look at the boundary between patents and trademarks is necessary. Near the source of this boundary are design patents and trade dress. These two forms of intellectual property have many superficial differences. Design patents are granted to ornamental designs that are novel and non-obvious for a term of fourteen years. Alternatively, trade dress protection is indefinite and obtainable for nearly every feature of a product’s overall image, so long as the feature is used in commerce, distinctive, and non-functional. Design patents must be applied for via the United States Patent and Trademark Office (USPTO), whereas both registered and unregistered trade dress are protectable. Simply put, both design patents and trade dress provide the holder with the right to exclude another party from making or selling the holder’s design.

Due to this guise of similar ends, conceptual differences between design patents and trade dress have been underrated in their ability to wreak havoc on design protection as it is known. While design patents and copyrights afford protection regardless of the consumer’s connection to the product’s source, source identification and distinctiveness are at the core of trademark and trade dress theory. This difference is problematic from a trademark perspective. Unique

44. So, when a person comes up with a marketable design, should they seek design patent or trade dress protection? This is an oft-debated issue with many arguments on each side. For a list of ten reasons to get design patents, see Hugh Hansen et al., 2001 Panel Discussion on Current Issues in Trademark Law—‘I’ll See Your Two Pesos and Raise You . . . Two Pesos, Wal-Mart . . . and TrafFix: Where is U.S. Supreme Court Jurisprudence Heading, and How Will it Affect Trademark Practitioners?’, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 509, 539–43 (2001). Conversely, for the small-time innovator without the wherewithal or financial resources to apply for a design patent, trade dress would seem to be a more realistic approach. Id. at 524.


46. See RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 16(a)–(b) (1995).


48. Moshe H. Bondi, Patent & Lanham Acts: Serving Two Legitimate Purposes or Providing an Indefinite Monopoly?, 15 ALB. L.J. SCI. & TECH. 1, 7–8 (2004). However, design patent and trade dress are not interchangeable. A design feature that is a source identifier and protectable as a trade dress may still fail to meet any number of design patent requirements, thus rendering it unpatentable.

product designs that are for some reason ineligible for a design patent or copyright may be freely copied, thereby rendering the design ineligible for trade dress protection due to a lack of secondary meaning. However, non-unique product designs that are eligible for design patent or copyright protection can have secondary meaning via the exclusive right to prevent others from making or selling the design. Such an alarming discrepancy has put pressure on courts to allow inherent distinctiveness for product designs in hopes of somewhat leveling the playing field.

Trademark slighting aside, the true dilemma arises when owners are able to get both design patent and trade dress protection, creating overlapping exclusionary rights. During or at the end of a design patent’s term, the patentee can assert trademark or trade dress protection on the same design and potentially turn a limited monopoly into an indefinite one. Nevertheless, one could rebut this indefinite monopoly theory by saying that the trade dress monopoly exists independently of the design patent, is based on different law, and is granted for different reasons. Therefore, when the patent monopoly expires, it expires and is not extended by trade dress protection. Using this reasoning, trademark law does not violate federal patent law because their respective monopolies are two distinct entities.

Preventing undeserved overlapping rights is a primary goal of functionality. The Inwood test is fairly well equipped to filter out undeserving features that are covered by or eligible for utility patents. Alternatively, in filtering out undeserving design features, which are often ornamental by nature, courts have been compelled to use the competitive need rationale. By focusing on the feature’s effect on competition rather than the product itself, the conceptual gap between design patents and trade dress is narrowed by making trade dress protection unattainable for features whose absence would significantly hinder competition. In light of this concept, as further described below, competitive need is a vital part of the four-factor functionality test.

50. Bonder, supra note 48, at 8. The USPTO now routinely issues trademark registrations covering product designs that are the subject of expired patents. Hansen, supra note 44, at 538; see also Topps Co. v. Gerrit J. Verburg Co., 41 U.S.P.Q.2d (BNA) 1412, 1420 (S.D.N.Y. 1996).
51. Bonder, supra note 48, at 8.
B. Post-TrafFix Commentary

1. Inwood Test

In the wake of the TrafFix decision, some commentators have taken the position that courts should embrace the Inwood test in determining functionality. In its defense, following the Inwood test will likely prove successful in preventing any patent monopolies from developing. On the other hand, it can conceivably deem a feature functional merely based upon a small, insignificant effect on the cost or quality of the article. Thus, although ostensibly this school of thought may serve competitors and the public domain in the short term by cutting off the possibility of trade dress protection to worthy recipients, the door is opened for knock-offs and unfair practices, thereby rendering source identification irreparably injured.

Alongside the Inwood test lurks the question of whether there should be a per se ban of trade dress protection for features disclosed within a utility patent. This approach would undoubtedly protect the patent bargain: after an inventor’s twenty years of exclusive use, his or her invention enters the public domain. The inherent problem with a per se ban is that a product configuration can be simultaneously useful, novel, and nonobvious—hence capable of receiving a utility patent—and non-functional. Because to be useful, a product need neither be better than other alternatives nor essential to competition. From the above statement, one can infer that non-functional utility patents exist. But note that the operative word in that statement is “essential.” If one delves further into the claims of a patent, one will find essential and non-essential limitations. If anything, it is the essential limitations of a patent claim that are paramount and that should be bound by the agreement of the patent bargain. Thus, as is discussed in more detail below, only features that are related to essential limitations of a patent claim should be barred from trade dress protection.

2. Embracing Competitive Necessity

Because there are two sides to any argument, adamant support exists

54. See Timothy M. Barber, Comment, High Court Takes Right Turn in TrafFix, but Stops Short of the Finish Line: An Economic Critique of Trade Dress Protection for Product Configuration, 7 MARQ. INTELL. PROP. L. REV. 259, 289 (2003); McCormick, supra note 11, at 574–75.

55. See Vornado Air Circulation Sys. v. Duracraft Corp., 58 F.3d 1498, 1501–02 (10th Cir. 1995).
for a Supreme Court reversion to the competitive necessity discussed so
memorably in \textit{Qualitex}. The first reason for competitive necessity is
fairly simple: Why turn our backs on one hundred years of common law
progress developing the doctrine? Several critical cases over the years
have embraced and refined the competitive necessity doctrine in hopes
of promoting competition while effectively carrying out the primary
goals of trademark law—to prevent customer confusion and protect the
value of identifying symbols. From a trademark perspective, a feature’s
effect on competition in the market is more important than its being
essential to the use or purpose of the article, which is more of a utility
patent-related concern.

The push for competitive necessity hinges on several other disputed
points. First, under the competitive necessity test, the fewest number of
designs are deemed functional, hence commanding the lowest confusion
cost. Second, the test acts as a superior anti-knock-off mechanism by
preventing such copying activity through the permission of trade dress
protection. Finally, it “provides . . . the most direct, social benefit by
prohibiting trademark protection for those product features that would
adversely hinder free competition.” The maintenance of vigorous
competition is vital to the progress of trade dress law, regardless of the
standard for functionality.

Arguments against the competitive necessity test often concern cost
analysis of alternative designs. Because of the inevitable cost of
producing and the difficulty of “cracking the market” with alternative
designs, competitors are put at a significant disadvantage when asked to
take such a route in lieu of using the original design. Additionally, with
alternative designs comes no guarantee of perfect substitutes, which are
essential to maintaining good market health. Although the above
arguments have merit, the presence of design alternatives should only
be a tertiary consideration to (1) market effect on the cost or quality of

\begin{footnotesize}
\begin{enumerate}
\item See Thurmon, \textit{supra} note 12, at 252 n.33; Dorota Niechwiej Clegg, Note, \textit{Aesthetic
Functionality Conundrum and Traderight: A Proposal for a Foster Home to an Orphan of
Law Association has recently rejected \textit{TrafFix} and endorsed competitive necessity. See
Thurmon, \textit{supra} note 12, at 252 n.33.
\item See sources cited \textit{supra} note 12.
\item See Thurmon, \textit{supra} note 12, at 359–60; David W. Opderbeck, \textit{Form and Function:
Protecting Trade Dress Rights in Product Configurations}, 20 SETON HALL LEGIS. J. 1, 35–37
(1996).
\item Thurmon, \textit{supra} note 12, at 360; see also Opderbeck, \textit{supra} note 58, at 37.
\item 1 MCCARTHY, \textit{supra} note 8, § 7:63.
\item See Barber, \textit{supra} note 54, at 282.
\end{enumerate}
\end{footnotesize}
the article, and (2) hindrance of competition. If this succession is followed, the proposed pitfalls of design alternative analysis will be minimized.

At least one author has proposed a time limit for trade dress protection alongside the competitive necessity test. Under such a proposal, features eligible for trade dress protection would be granted a short, limited period (usually one or two years) of exclusive right to prevent copying that would be followed by transfer of the feature to the public domain. Although imposing a limited term of protection may seem appealing prima facie, to do so would be tantamount to supplanting the purpose of trademark law with that of patent and copyright law. At the very least, it would be an unwarranted approach because “unlike patent law, the purpose of trademark and trade dress law is to prevent customer confusion and protect the value of identifying symbols, not to encourage invention by providing a period of exclusive rights.”

3. Division of Aesthetic and Utilitarian Functionality

In TrafFix, the Court’s opinion can be interpreted as dividing utilitarian and aesthetic functionality, therefore downplaying the significance of the Qualitex opinion. Although Qualitex affirmed the Inwood test while also recognizing competitive necessity, the TrafFix Court, given the facts surrounding the traffic sign’s dual-spring design, found the Inwood test sufficient on its own to render the feature functional. It is the author’s opinion that the Court did not intend a division of utilitarian and aesthetic functionality. Rather, the Court simply came across a fact pattern in which an aesthetic analysis would be superfluous and, hence, unnecessary to render the feature functional. If you kill your prey with your first shot, why pull the trigger a second time? However, the Court did allude to situations in which competitive necessity is applicable. Therefore, aesthetic functionality should be framed not separately, but rather as another weapon in a court’s arsenal that is complementary to the Inwood test.

63. 1 M. McCARTHY, supra note 8, § 6:3, at 6-6.
64. For traditional definitions and history of utilitarian and aesthetic functionality, see Kerry S. Taylor, TrafFix Devices, Inc. v. Marketing Displays, Inc., 17 BERKELEY TECH. L.J. 205, 209 n.32 (2002), and Pagliero v. Wallace China Co., 198 F.2d 339, 343 (9th Cir. 1952) (endorsing aesthetic functionality).
65. See Baughman Tile Co. v. Plastic Tubing, Inc., 211 F. Supp. 2d 720, 724–25 (E.D.N.C. 2002); Industria Arredamenti Fratelli Saporiti v. Charles Craig, Ltd., 725 F.2d 18,
4. Back-End Functionality Test

A final, intriguing proposal regarding functionality rejects functionality as an element of trade dress claims, adopting in its place a limited functionality defense. Under this theory, the focus of functionality shifts from the plaintiff’s product to that of the defendant’s. “If the defendant copied only functional features, but the defendant’s product was still likely to cause confusion, a court could require the defendant to take additional steps to differentiate [its product from that of the plaintiff].” If the defendant only copied features necessary for competition, the plaintiff’s product should be deemed functional, hence establishing the limited defense. Contrary to the remedy proposed by this solution, the implementation would have to involve the destruction of a rock-hard element of a trade dress claim: functionality. This neither seems like the direction courts and legislatures are heading, nor does it seem very possible that the legal community could be convinced of a plan that wholly abolishes the functionality doctrine. Thus, any merits of this solution are far outweighed by policy considerations and practice.

III. PROPOSAL

A unified functionality standard is the best way to calm the waves that have surfaced in the appellate courts following the TrafFix decision. Although an ostensible acceptance of the Inwood test and division of utilitarian and aesthetic functionality have been widely inferred from Justice Kennedy’s opinion, to make such an assertion would simply be too sweeping. In reality, it was the particular fact pattern in TrafFix that dictated the Court’s focus on the Inwood test while relegating aesthetic functionality and competitive necessity to the background. Still, the Court did mention instances involving aesthetic and ornamental designs in which a competitive need approach to functionality would be proper.

By alluding to instances that call for a competitive need analysis, the Supreme Court advocated the preservation of all weapons at its disposal in determining functionality, even though only one or two weapons—or

20 (2d Cir. 1984) (addressing the coexistence of trade dress and design patent protection).
67. Id.
68. Id.
69. Id. at 366.
factors—may be needed to arrive at any given result. Therefore, in seeking an effective solution, one must focus on the factors comprising the *Inwood* test, but also simultaneously respect the hundred years of common law progress in cultivating the competitive need theory.

### A. Four-Factor Decaying Functionality Test

Functionality is not binary in nature. In virtually every case, there will be facts favoring both functionality and non-functionality. Because of this, courts are often forced to make a binary determination as to functionality, even though the product feature at issue is actually functional to a certain degree as measured on a scale from zero (0% functional) to one (100% functional). If one looks at functionality as a matter of degree, a continuum forms along which a product feature’s functionality lies:

- On one end, unique arrangements of purely functional features constitute a functional design.
- On the other end, distinctive and arbitrary arrangements of predominantly ornamental features that do not hinder potential competitors from entering the same market with differently dressed versions of the product are non-functional and hence eligible for trade dress protection.  

It follows, therefore, that whatever methodology one uses to determine functionality, it should be applied within the constraints of this functionality continuum.

Although federal courts have applied factor-based methodologies, which undoubtedly comprise telling indicators of functionality, courts have been unable to fit these pieces of the puzzle together so as to arrive at a uniform method that does not have to be adjusted in the event of contextual changes. However, by integrating the reasoning of recent functionality cases, one can delineate certain factors as more indicative of functionality than others. In turn, the factors’ respective weights can be fit to an appropriate mathematical equation in an attempt to simulate the trends of recent case law regarding functionality and to serve as a uniform model to which all functionality fact patterns can be applied.

Having thoroughly examined recent case law with deference to the above reasoning, the author proposes a four-factor decay test to determine functionality.  

The four factors are posed as questions:

71. Stormy Clime, Ltd. v. ProGroup, Inc., 809 F.2d 971, 977 (2d Cir. 1987).
72. The mathematics of this test are based on an exponential decay function. The probability of functionality decays at a rate of one-half, and the length of a half-life is “one factor.” So from one factor to the next, the probability of a feature being functional will be
regarding the feature at issue and listed in order of magnitude: (1) Is it essential to the use or purpose of the article?; (2) Does it have any current market effect on the cost or quality of the article?; (3) Is there a significant hindrance of competition?; and (4) Are there no truly equivalent alternatives?

The factor-to-factor magnitude decays at the rate of one-half: An affirmative answer to Question (1) will result in a 1 functionality value, hence ending the analysis as the feature is deemed functional. Otherwise, one continues to Question (2), for which an affirmative answer will yield a .5 functionality value. Further, an affirmative answer to Question (3) will yield a .25 functionality value. Finally, an affirmative answer to Question (4) will yield a .125 functionality value. One integrates the values of functionality as applied to a particular feature. If the total value is greater than .5, the court should deem the feature functional and ineligible for trade dress protection. If the total value is less than or equal to .5, the feature shall be deemed non-functional and potentially eligible for trade dress protection.

1. Is the Feature Essential to the Use or Purpose of the Article?

Whether a feature is “essential to the use or purpose of the article” should be the primary consideration when determining functionality. The most basic definition of the word “functional”—without actually using the word “function”—is an entity that is “designed for or adapted to a particular . . . use.” It is fitting, and likely derivative, therefore, that the first factor most courts examine is the one that comprises the basic definition of “functional.” Although courts have struggled to arrive at a single definition for this factor, at least one commentator has cut in half. This author arrived at this formula after reconciling two issues. First, a finding that the feature is essential to the use must result in a one hundred percent, thus, dispositive determination of functionality. The approach of the Supreme Court in TrafFix lends itself to this contention as the Court essentially concluded its functionality analysis upon noting the dual-spring design was the central advance of the utility patent. TrafFix, 532 U.S. at 30. Second, the mere existence of a market effect on the cost or quality of an article must be bolstered by the existence of either a significant non-reputation related disadvantage or the lack of equivalent alternative designs to ensure functionality. See Robert P. Renke, TrafFix Devices, Inc. v. Marketing Displays, Inc.: The Shrinking Scope of Product Configuration Trade Dress, 91 TRADEMARK REP. 624, 625 (2001) (“[E]ven minor product changes can affect the cost or quality of the article. For this reason, most courts have required something more . . ..”).

73. Note that in the event the total value equals .5, that is, if only Question (2) is answered affirmatively, the court should make a contextually-based decision, thereby finding the feature non-functional unless there exists further compelling evidence to the contrary.

pointed to the Second Circuit for an effective analysis:75 “A design feature of a particular article is ‘essential’ [to its use or purpose] only if the feature is dictated by the functions to be performed; a feature that merely accommodates a useful function is not enough.”76 This means that the article would not operate in the same way but for the feature at issue.

Applying this definition of “essential” to TrafFix, the traffic sign could not operate in the same way, that is, possess the ability to withstand strong winds but for the dual-spring mechanism. Because the connotation of the first factor is so intrinsic to the conventional definition of “functional,” an affirmative answer to the “essential to the use” question must result in a dispositive determination that the feature is functional.

Furthermore, if the feature is the subject of a patent, regardless of its status—existing or expired, utility or design—an answer to the “essential” question can be found by using a revised version of the “significant inventive aspect” test.77 Specifically, this revised test examines the patent’s claims and limitations. If the feature at issue correlates to an essential limitation78 of a claim within a patent, the feature is functional, and trade dress protection should be denied. Otherwise, granting trade dress protection to the feature would prevent

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75. See McCormick, supra note 11, at 574.
76. Stormy Clime, 809 F.2d at 975.

In implementing its test, the Vornado court found that the spiral grill constituted a “significant inventive aspect” without examining whether the trade dress protection sought would have impermissibly prevented the invention from entering the public domain. Instead, the court “simply [took] Vornado at its word” concerning the spiral grill’s inventive significance.

Id.

78. An essential limitation is one that is required for patentability. Most of the time, an essential limitation will be an independent claim. Dependent claims normally introduce non-essential claims, because an independent claim can often stand as patentable by itself. See ROBERT C. FABER, LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING § 11, at 17–20 (3d ed. 1990); JEFFREY G. SHELDON, HOW TO WRITE A PATENT APPLICATION § 6.4 at 6-55 (2003 & Release No. 12, 2003). In TrafFix, the dual-spring design was the central advance claimed in the expired utility patents. TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23, 30 (2001). This fact made the burden of showing non-functionality virtually unbearable. But see Leviton Mfg. Co. v. Universal Sec. Instruments, Inc., 304 F. Supp. 2d 726, 736 (finding that because feature was not the central advance of the patent, functionality was still at issue).
the invention from ever entering the public domain, defying the principles behind the patent bargain.  

However, if the feature at issue pertains to a non-essential limitation of a patent claim, granting trade dress protection to this feature would not impede some form of the invention from entering the public domain upon expiration. When a patent is involved, to determine whether a feature is “essential,” one must first determine whether the feature is an “essential” limitation of a claim in the patent. If the answer is “yes,” factor one is met, and the feature is dispositively functional.

2. Is There Any Current Market Effect on the Cost or Quality of the Article?

An affirmative answer to the second factor of the functional decay test carries a functional probability of .5, or fifty percent. Why .5? This factor solicits an essential link to competitive necessity (factors three and four) upon which the functionality analysis should turn. In applying the second part of the Inwood test to a feature, there is almost always some impact on cost or quality. Thus, the mere finding of an effect is insufficient to show functionality. However, if that effect is competitively significant—for example, if competition is significantly hindered, or there are no equivalent design alternatives—the feature should be deemed functional. In this sense, the second part of the Inwood test may intimate functionality, but there needs to be an affirmative answer to one of the competitive necessity factors to yield a positive total result.

Additionally, the second part of the Inwood test needs clarification. The words “current” and “market” have been added to the definition. First, the word “current” safeguards against the situation in which a feature once had an impact on the article’s cost or quality but no longer does so. Courts should examine the effects today, not the effects from ten years ago. Second, the word “market” was inserted to reflect trade

79. See Vornado Critique, supra note 77, at 1461.
80. See sources cited supra note 78.
81. See In re Morton-Norwich Prods., Inc., 671 F.2d 1332, 1340 (C.C.P.A. 1982); Renke, supra note 72, at 625.
82. See Thurmon, supra note 12, at 293 n.226.
83. The .5 or fifty percent value also symbolizes the threshold that is just below the value necessary for a preponderance of the evidence.
84. See Taylor, supra note 64, at 219–20. In a test case regarding a Zippo lighter, the commentator notes that subsequent lighter and cheaper competitor designs had rendered the effect of the feature at issue negligible. Id.
dress objectives—to protect not only the manufacturer, but also the consumer who determines the final market value of an item.\textsuperscript{85}

Applying this revised \textit{Inwood} factor, one would first ask if the feature permits the article to be manufactured at a lower cost.\textsuperscript{86} Next, one would ask, “If the disputed feature . . . were removed and the overall effectiveness of the product were reduced to that of the prior art, would the reasonable consumer decline to purchase the product?”\textsuperscript{87} If the answer to either of these two questions is “yes,” then factor two is met. Then, factors three and four must be examined to determine if the effect on competition factors can assure the court that the feature is functional. If the results of both factors one and two are “no,” the analysis is complete, and the feature is deemed non-functional and potentially eligible for trade dress protection.\textsuperscript{88}

3. Is There a Significant Hindrance of Competition?

The maximum probability of functionality associated with this factor is half of .5, or .25. This value demonstrates the absolute dependency of the significant hindrance of competition on some market effect. Provided that the feature is not “essential”—that is, without a negative market effect—hindrance of competition can never be viewed as significant,\textsuperscript{89} and the court is essentially wasting its time. Therefore, factor three is treated as one of two possible supplements necessary to catapult mere market effect into the realm of functionality. To apply this factor, one turns to the crux of the competitive necessity issue addressed in \textit{Qualitex}, asking whether “exclusive use of the feature would put competitors at a significant non-reputation-related

\begin{footnotes}
\item[86] See Warner Bros., Inc. v. Gay Toys, Inc., 724 F.2d 327, 331 (2d Cir. 1983). A noticeably lower cost of production coupled with trade dress protection of the feature frustrates competition and, ultimately, creates a monopoly. In this case, the manufacturer will underproduce and raise the price above the marginal cost, hence negatively affecting the market cost of the item. Barber, supra note 54, at 274.
\item[87] Sya, supra note 85, at 997. The assumption is that a reasonable consumer will decline to purchase an item that has regressed in its operational capacity.
\item[88] One must assume that a feature that does not affect the market cost or quality of an article cannot significantly hinder competition such that trade dress protection should be prohibited.
\item[89] The main reason to promote healthy competition is to protect the consumer from monopolistic practices. But theoretically, if monopolies were to render no negative market effect, there should be no objections to them.
\end{footnotes}
disadvantage.\textsuperscript{90} If the answer is “yes,” coupled with a “yes” answer to
Question (2), the analysis yields a .75 value, and the feature is deemed functional. Otherwise, the analysis continues with factor four.

4. Are There No Equivalent Design Alternatives?

Within discussions of competitive necessity and aesthetic functionality, debate over the existence of equivalent design alternatives has been prevalent in both case law and commentary. A feature that leaves competitors with no equivalent design alternatives yields half of .25, or a .125 value of functionality.\textsuperscript{91} The design alternatives factor ranks a half-life lower than factor three because a feature can have similar but not equivalent alternatives without causing a significant hindrance of competition, thereby resulting in an affirmative answer to factor four. Moreover, as was the case with factor three, factor two trumps factor four because if there is no negative market effect on the cost or quality of the article, the lack of equivalent design alternatives argument has no impetus. The only reason to care about a lack of design alternatives is if it correlates to a market effect.\textsuperscript{92} If so, the .5 value from factor two plus the .125 value from factor four equals .625, which is greater than .5 and, hence, sufficient to ensure a functionality determination.

**B. The Metallic Purple Styling Glue Test Case**

Imagine a product that has the primary purpose of molding and styling hair. The product has a stiff, glue-like consistency that hardens


\textsuperscript{91} Valu Eng’g, Inc. v. Rexnord Corp., 278 F.3d 1268, 1276 (Fed. Cir. 2002). “[A] feature cannot be given trade dress protection merely because there are alternative designs available. But that does not mean that the availability of alternative designs cannot be a legitimate source of evidence to determine whether a feature is functional in the first place.” Id.

\textsuperscript{92} See 1 MCCARTHY , supra note 8, § 7:75, at 7-183. “[O]nce a design is found to be functional under Inwood, it cannot then be given trade dress status merely because there are alternative designs available.” Id. “At a minimum, it is clear that, at any such time that functionality becomes evident based on any combination of factors, speculation regarding other possible designs is improper.” Baughman Tile Co. v. Plastic Tubing, Inc., 211 F. Supp. 2d 720, 724–25 n.5 (E.D.N.C. 2002). “[C]ompetitive need, which would include a lack of acceptable alternative features, is only relevant after a finding of non-functionality under the Inwood test.” Barrett, supra note 36, at 131. To align Barrett’s statement with the proposed solution, the application of competitive need after a finding of non-functionality under Inwood occurs only when a feature has a market effect but is not essential to the article’s use. If neither factor one nor two is met, the feature is deemed incapable of functionality and competitive need analysis (factors three and four) becomes unnecessary. See supra note 86.
around the hair follicle ten to fifteen seconds after application to damp or dry hair. The particular color of the styling glue is metallic purple. To create a metallic purple look, the original “off-white” glue is dyed purple, and a small amount of aluminum powder is added to give the glued hair a silvery sparkle when it reflects light. Is the glue’s sparkle effect non-functional and, hence, potentially eligible for trade dress protection?

Applying the proposed test, begin with factor one: Is the sparkle effect essential to the use or purpose of the article? The primary purpose of the styling glue is to immobilize hair in a desired style. But for the sparkle effect, the product would perform its primary function just as well; therefore, the sparkle effect is not “essential” under factor one.

Moving on to factor two: Does the sparkle effect create any current market effect on the cost or quality of the styling glue? This factor is likely met. It is reasonable to think that there is some heightened consumer demand for the product in the hair care market because of its sparkle effect. The consumer likes new and innovative products. Increased consumer demand often leads to increased cost. Additionally, the quality of the styling glue in the eyes of the consumer may well be improved when the sparkle effect is added. Thus, factor two is met, and there is a .5 functionality value.

Looking at factor three, would depriving competitors of the sparkle effect cause a significant hindrance of competition? The key word here is “significant.” The sparkle quality of the styling glue would definitely attract consumers. However, if a competing product held better but did not sparkle, the competing product would likely be chosen based on the ability to perform its primary function better—keeping hair in place. In light of the above statement, a significant hindrance would simply not exist.

Finally, under factor four, ask whether there are any equivalent design alternatives to the aluminum powder sparkle effect. Assume, arguendo, that there are several equally-priced alternatives to aluminum powder available to a competitor that cause the color of the styling glue to catch the viewer’s eye. Because there are design alternatives, factor four is not met, and our final functionality value is .5. This does not meet the test’s preponderance of the evidence criteria; therefore, the sparkle effect is non-functional.

However, if the facts are changed so change the facts and say that the only way to create a sparkle or any reflective effect in styling glue is by using aluminum powder, the result is different. Because there are no
equivalent design alternatives, factor four is met, the functionality value increases to .625, and the sparkle effect, thus, becomes functional, because competitors should be given at least one design alternative if market effect does exist.

Returning to the original fact pattern, assume instead that consumers are indifferent toward sparkle effect, and equally priced alternatives exist. Additionally, assume that the sparkle effect is part of a utility patent obtained for the glue’s adhesive properties. Turning to factor one—whether or not the sparkle effect is “essential”—functionality will depend on whether it was an essential or non-essential limitation of the patent. Suppose Claim One of the patent details a glue-like substance with aluminum powder causing the glue to sparkle, and the aluminum powder element serves to distinguish patentee’s claim from that of prior art, which previously disclosed the same styling glue. Because the sparkle effect is necessary for the improved glue to be patentable, it is an essential limitation of the claim, functional, and thus ineligible for trade dress protection.

Alternatively, suppose the patentee is the original inventor of the styling glue, and Claim Two merely claims the adhesive glue. Then, as alternative embodiment, Claim Two refers back to Claim One and adds the sparkle effect limitation. Now, because the sparkle effect is not necessary for the invention to be patentable—Claim One is the primary embodiment and can stand on its own as a patent, thus still be available to the public after expiration—the sparkle effect would be a non-essential limitation. Hence, factor one would not be met, and the feature would be non-functional and still eligible for trade dress protection.

CONCLUSION

What does the future hold for functionality and trade dress protection? In the near future, the Supreme Court will certainly revisit functionality and further clarify its position. However, until that day, there is only speculation as to what the TrafFix ruling really (or should have) meant. Many commentators and courts have hovered around an effective means of tackling functionality. But optimally speaking, an evolutionary solution must result from the numerous positions that currently exist. Therefore, in compiling a solution, this author took elements of varying theories, clarified them, and weighed them according to how dispositive they were in deeming a feature functional. Then, the elements were grouped and ordered from most to least dispositive, creating a decaying effect. This process illustrates the
importance of each factor in light of recent legal development and allows for all the key functionality theories to play a respective part in the functionality analysis. Although more complex, this solution is stronger than other proposals and better equipped to render just decisions in the eyes of the public. It is on this note that this author proffers his proposal to the greater legal community with hopes of untangling the strands of divergent argument that have plagued the functionality doctrine for so many years.

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