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Trademark Law, Functional Design Features, and the Trouble with TrafFix

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ARTICLES

TRADEMARK LAW, FUNCTIONAL DESIGN FEATURES, AND THE TROUBLE WITH TRAFFIX

Harold R. Weinberg*

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INTRODUCTION

This article concerns trademark law's functionality doctrine and the Supreme Court's troublesome opinion concerning it in *TrafFix Devices, Inc. v. Marketing Displays, Inc.* The doctrine provides that if a producer's useful or aesthetic design feature is "functional," then competitors can lawfully copy it even if the feature otherwise would be protected against copying by trademark principles. In order to introduce the functionality doctrine and the trouble with *TrafFix*, it is helpful to describe the nature of design features, the simultaneous roles they may play as source-identifying trade symbols and as useful or aesthetic product elements, and trademark law's place in the United States' legal system that includes patent law and reflects national policy favoring competitive markets.

A product's design features include its appearance, color, configuration, look, feel, size, shape, or packaging. Examples of design features include the interior design and decor of a Mexican restaurant; the heart shape of a box containing Saint Valentine's Day chocolates; the exterior contours of a Ferrari automobile; and, considered in *TrafFix*, the appearance of two closely-spaced coil springs in a traffic sign stand. Design features may play a trade-symbolic role by conveying to consumers information about a product's source, characteristics, or qualities. This message reduces consumer shopping or purchasing costs by assuring a consumer that a product sold under the trade symbol has the same source, characteristics, or qualities as similarly marked products previously experienced by the consumer. Legal protection of trade symbols also assures a producer that it, and not a competitor, will reap reputation-related rewards associated with the

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2 Id. at 1259-60.
3 For reasons developed in Part III, this article employs the term "design feature" broadly to encompass the appearance or image of a product, its trade dress, and its packaging. The term "trade dress" has itself been broadly defined to include a product's total image and overall appearance as well as its size, shape, color or color combinations, texture, graphics, configuration, design, look, shape or packaging. Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 764 n.1, 23 U.S.P.Q.2d (BNA) 1081, 1082 n.1 (1992).
4 Id. at 763.
5 See RESTATEMENT OF LAW OF TORTS § 742 cmt. a (1938) (originating heart-shaped box example).
7 TrafFix, 121 S. Ct. 1255.
producer’s product. This encourages the producer to invest in the quality of its products and in its reputation.\(^9\)

The law of trademarks supports the trade-symbolic role of design features. A court may prohibit a competitor from copying a producer’s design feature in order to avoid consumer confusion and to protect the producer’s good will. However, this protection becomes problematic if the design feature also contributes to a product’s usefulness. The shape of a Ferrari’s exterior body parts may be trade symbolic, symbolizing the racing lineage and high quality of automobiles manufactured by Ferrari S.P.A.; and also contribute to the vehicle’s structural integrity or performance.\(^{10}\) Design features also may contribute to a product’s aesthetics. A Ferrari’s exterior design may be more beautiful than most other cars’ designs. The aesthetic qualities of design features may be important to consumers who purchase services. The cantina ambiance supplied by some producers of Mexican dining may contribute to consumer gratification independent of Mexican cuisine’s nutritional value or flavor.\(^{11}\)

Trade-symbolic design features that also contribute to a product’s usefulness or aesthetics present a difficult problem for intellectual property law. On the one hand, trademark law might be employed in perpetuity to protect trade-symbolic design features against unauthorized copying.\(^{12}\) On the other hand, patent law is intended to protect qualifying useful or aesthetic innovations for a limited term and, absent patent protection, a product’s design features are supposed to be available to all.\(^{13}\)

\(^9\) id. at 164.

\(^{10}\) See Ferrari, 944 F.2d 1235 (case in which automobile manufacturer brought trademark infringement action against manufacturer of replicas).

\(^{11}\) Decor, displays, sales techniques, and other elements that constitute a product’s image are forms of trade dress. See Two Pesos, 505 U.S. at 763 (discussing the trade dress of a Mexican restaurant chain). So is the manner in which services are presented to the purchasing public. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 16 cmt. a (1995).

\(^{12}\) In general, trademark protection exists so long as the trade symbol is used with a product in the ordinary course of trade. See 15 U.S.C. § 1127 (1994) (defining the terms “abandoned” and “use”). Such use might go on forever. See Qualitex, 514 U.S. at 164-65 (expressing concern that extending trademark protection to functional design features might create perpetual patent-like rights).

\(^{13}\) An invention is patentable only if the applicant can demonstrate during a rigorous examination process that the invention meets a high standard of creativity. See generally 1 DONALD S. CHISUM, CHISUM ON PATENTS OV-1 - OV-2 (2000). If a patent issues, its metes and bounds are carefully delimited. Id. The duration of patents is limited to a few years. See 35 U.S.C. §§ 154, 173 (1994) (setting a basic 20 year term for utility patents and a 14 year term for design patents). Design features also might be copyrighted. For example, an original design feature might qualify as a sculptural work under the Copyright Act. See 17 U.S.C. §§ 101, 102 (1994) (§ 101 defining “sculptural work,” and § 102 stating that
In addition, trademark protection must not unduly conflict with the United States' historical "competitive mandate." This includes national policies favoring competition, entry of new competitors into markets, and unauthorized copying.

Courts have had a difficult time formulating and applying standards for deciding whether a design feature is nonfunctional and can be protected by trademark law against unauthorized copying, or is functional and may be lawfully copied even if it otherwise qualifies for trademark protection. Functionality case law is copious and said to be elusive and enigmatic. This article does not deny that the functionality doctrine is complex and that courts have struggled with it. However, it argues that many courts have demonstrated the ability to distinguish functional design features from nonfunctional ones with care, reason, and sensitivity; and that TrajFix may make this task more difficult and the functionality doctrine more opaque.

Potentially TrajFix's worst mischief is that courts may read it to preclude employing the "fulcrum" upon which successful functionality analysis often turns: whether there are functionally-equivalent alternative design features

original works of authorship include sculptural works). Copyright terms also are limited. Id. § 302 (stating, for example, that the general term of a copyright is the life of the author plus 70 years). See generally RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 16 cmt. b (1995) (stating that rigorous application of the functionality doctrine is required in order to avoid undermining the patent and copyright law regimes protecting useful and ornamental designs).


to substitute for a design feature claimed to be protected against unauthorized copying by trademark principles. Courts have reasoned that if there are sufficient alternative design features, then the design feature in issue is nonfunctional and unauthorized copying is not permissible; if there are not sufficient alternatives, then the design feature is functional and unauthorized copying is permissible. Some judicial functionality standards explicitly require evaluating evidence of alternative designs features. Others, such as whether a design feature is a competitive necessity, implicitly require evaluating evidence of alternative designs. Courts will be deprived of their best tool for making functionality determinations if TrajFix inhibits their use of the fulcrum. TrajFix may cause other trouble as well. For example, it needlessly states two functionality standards, one for useful design features and one for aesthetic design features. TrajFix also casts a cloud over the principle that when a decision maker decides whether a product's overall configuration is functional, that configuration should be viewed in its entirety, and not as discrete individual design features.

Part One of this article briefly defines some terms employed throughout and provides a short review of trademark principles. Parts Two and Three employ different methodologies to illuminate the functionality doctrine and the significance of TrajFix. Part Two develops the etymology of important functionality standards including those considered in TrajFix. It highlights links among the standards, and between the standards and evidence of functionality. Part Two’s etymology suggests Part Three’s economic methodology. The strength of the economic lens amplifies and simplifies the doctrine while its limitations help to explain why the functionality doctrine has been problematic and why TrajFix is troublesome. After summarizing the lessons of Parts Two and Three, Part Four discusses how courts may decide functionality cases with care, reason, and sensitivity; and how TrajFix

17 Vornado Air Circulation Systems, Inc. v. Duracraft Corp., 58 F.3d 1498, 1507, 35 U.S.P.Q.2d (BNA) 1332, 1339 (10th Cir. 1995). See Jay Durler, Jr., Trademark Protection for Industrial Designs, 1988 U. ILL. L. REV. 887, 946 (stating that the “best” approach looks to whether “the class of alternative designs ... have the same competitive potential”).

18 See, e.g., Disc Golf Ass’n, Inc. v. Champion Discs, Inc., 158 F.3d 1002, 1008-09, 48 U.S.P.Q.2d (BNA) 132, 1137 (9th Cir. 1998) (discussing design alternatives to plaintiff’s disc golf targets).

19 See, e.g., In re Morton-Norwich Prods., Inc., 671 F.2d 1332, 1339 (C.C.P.A. 1982) (involving trademark registration of a container configuration).

may affect this process. Part Five concludes the article with thoughts concerning TrafFix’s future impact on trademark law and the functionality doctrine.

I. DEFINED TERMS AND TRADEMARK PRINCIPLES

This article employs a few defined terms for consistency and clarity. “Design feature” means a product’s trade dress, appearance, image, color, configuration, look, feel, size, shape, or packaging. Design features relevant to the functionality doctrine can be perceived by humans through their senses. They can be experienced by purchasers before, during, or after the sale of the product incorporating the design feature. The design feature at issue in many functionality cases is a product’s overall design. Other times the critical feature is an individual element of a product’s design.

Another defined term, “senior producer,” describes a producer claiming that it is harmed by a “junior producer’s” copying of a “choice design feature” employed by the senior producer. Thus, “choice design feature” refers to a design feature claimed by a senior producer to be protected against

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21 See supra note 3 and accompanying text. For some purposes it is necessary to distinguish between product design and other types of design features. See infra note 30 and accompanying text.

22 The likelihood of confusion requirement limits the scope of a senior producer’s trademark rights to design features that can be sensed because an absence of likely purchaser confusion indicates an absence of infringement. See infra note 32 and accompanying text. If there is no likelihood of confusion, then there is no free-riding by a junior producer, the senior’s good will is unimpaired, and the senior is not entitled to relief. See generally J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 23:1 (2001).

23 Consumers often perceive design features through their sense of vision. See Taco Cabana Int’l, Inc. v. Two Pesos, Inc., 932 F.2d 1113, 19 U.S.P.Q.2d (BNA) 1253 (5th Cir. 1991), aff’d, 505 U.S. 763 (1992). Some design features may be perceived in other ways. See, e.g., Qualitex Co. v. Jacobson Prods. Co., Inc., 514 U.S. 159 (1995), 34 U.S.P.Q.2d (BNA) 1300 (describing trade symbols as anything that can carry meaning including fragrance and sound); Thomas & Betts Corp. v. Panduit Corp., 138 F.3d 277, 46 U.S.P.Q.2d (BNA) 1026 (7th Cir. 1998) (considering the tactile comfort contributed by a product’s design). While most functionality cases involve design features that are perceptible during marketing or sale, see, e.g., Knitwaves, Inc. v. Lollytogs Ltd., 71 F.3d 996, 36 U.S.P.Q.2d (BNA) 1737 (2d Cir. 1995), design features also may be perceptible when a product is used. See, e.g., Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 24 U.S.P.Q.2d (BNA) 1561 (9th Cir. 1992) (considering an initialization code which caused a trademark to be displayed on game computers); U.S. Golf Ass’n v. St. Andrews Sys., Inc., 749 F.2d 1028, 1032, 224 U.S.P.Q. (BNA) 646 (3d Cir. 1984) (considering a mathematical formula employed in a computer that calculates golf handicaps).

24 See, e.g., Kendall-Jackson Winery, Ltd. v. E. & J. Gallo Winery, 150 F.3d 1042, 47 U.S.P.Q.2d (BNA) 1332 (9th Cir. 1998).

25 See, e.g., TrafFix, 121 S. Ct. 1255.
copying under trademark principles, and which may or may not be functional. An "alternative design feature" is one that a junior producer arguably might employ if it is denied legal access to a choice design feature.

Trademark law, which is part of the law of unfair competition, provides for a commercial tort that protects trade-symbolic design features against infringement. The federal Trademark Act of 1946, the Lanham Act, protects "symbols, devices or designations of origin" including design features against infringement. State law also limits the unauthorized copying of design features. Trademark rights attach to a design feature as a result of its use as a trade symbol.

To be protected against infringement, a design feature must be inherently distinctive because its intrinsic nature almost automatically tells purchasers that it is being employed as a source-identifying trade symbol; or a design feature must have secondary meaning because it was promoted to the point that its primary significance to purchasers is as a source-identifying trade symbol. If a design feature qualifies for legal protection, then the protection may continue as long as the producer uses the design feature as a source-identifying trade symbol.

26 At one time, trademark law did not encompass source-identifying design features which instead were protected by unfair competition law. However, their protection ultimately was subsumed into trademark law which now is a branch of unfair competition law. See Restatement (Third) of Unfair Competition § 9 cmt. g (1995). Unfair competition law also includes causes of action for false advertising, misappropriation of business values, and others. See generally 1 McCarthy, supra note 22, §§ 1:8-1:10. Both federal law and the laws of some states contain antidilution statutes that protect trademarks against blurring or tarnishment and that do not require a showing of likelihood of confusion. See, e.g., Lanham Act § 43(c); N.Y. Gen. Bus. Law § 368-d (McKinney 1998). A finding of functionality that precludes liability for trademark infringement also may preclude liability for trademark dilution. See I.P. Lund Trading ApS v. Kohler Co., 163 F.3d 27, 36-39, 49 U.S.P.Q.2d (BNA) 1225 (1st Cir. 1998).

27 Federal protection is available for a design feature that is not federally registered as a trademark. See 15 U.S.C. § 1125(a) (1994). A design feature also may be federally registered as a trademark and be protected as such. See 15 U.S.C. §§ 1114, 1127. Federal registration offers certain advantages. For example, a federally registered trademark can result in the mark becoming "incontestible," and registration provides constructive notice of the registrant's claim of ownership in the mark. However, one of the exceptions to incontestible status is that a mark may be challenged on functionality grounds. See 15 U.S.C. §§ 1064-65, 1072.

28 See 1 McCarthy, supra note 22, § 7:53.


30 See Wal-Mart Stores, Inc. v. Samara Bros., Inc., 529 U.S. 205, 210-11, 54 U.S.P.Q.2d (BNA) 1065 (2000). Wal-Mart held that a showing of secondary meaning is required to protect a product design under section 43(a) of the Lanham Act. It also stated that to the extent it is difficult to distinguish a product design from packaging or other subject matter, courts should err on the side of caution and require secondary meaning. Part III of this article discusses the distinction between product and packaging.

31 That can be for a long time. See supra note 12. For example, the traditional Coca-Cola bottle shape
In addition, the unauthorized copying of a design feature may be a tort only if there is a likelihood of purchaser confusion concerning the origin, sponsorship, or approval of the product incorporating the copied design feature. That is, a senior producer must demonstrate that a junior producer's use of a design feature likely will confuse purchasers into believing that the junior is connected, affiliated, or associated with the senior; or into believing that the junior's product originated with or is sponsored or approved by the senior. Likely confusion notwithstanding, a junior producer is entitled to copy a functional design feature.

II. THE ETYMOLOGY OF FUNCTIONALITY

The Supreme Court in TrafFix endorsed two functionality standards. One is that a design feature is functional if it is essential to the use or purpose of the article or if it affects the cost or quality of the article. The other is that a design feature is functional if exclusive use of the feature would put competitors at a significant non-reputation-related disadvantage. These standards have old and intertwining roots. This part of the article explores the origin, development, and meaning of these and other functionality standards. It also considers how the functionality standards are interlinked and how they relate to evidence of functionality.

To begin, the functionality doctrine is a moraine of case law, restatement, and commentary. It has accumulated over the last 100 years; has been applied to design features of diverse products sold in varied markets; and has been colored by the evolving legal relationships among trademark law, patent law, and competition policy. The language of functionality is

has been in use since 1915, was federally registered as a trademark in 1945, and no end to its protection is in sight. See THE COCA-COLA HOME PAGE at http://thecocacolacompany.com (last visited Mar. 23, 2001).

See 1 MCCARTHY, supra note 22, § 8:15. If the senior producer's choice design feature is nonfunctional, then the junior producer is precluded from using the choice feature or alternative design features so similar to it as to create a likelihood of confusion. See Knitwaves, Inc. v. Lollytogs Ltd., 71 F.3d 996, 1006, 36 U.S.P.Q.2d (BNA) 1737 (2d Cir. 1995).


TrafFix, 121 S. Ct. at 1261-62.

Courts have applied the functionality doctrine to products ranging from horseshoe nails to frisbee catchers to Mexican dining. See Capewell Horse Nail Co. v. Mooney, 172 F. 826 (2d Cir. 1909); Disc Golf Ass'n, Inc. v. Champion Discs, Inc., 158 F.3d 1002, 48 U.S.P.Q.2d (BNA) 1132 (9th Cir. 1998); Taco Cabana Int'l, Inc. v. Two Pesos, Inc., 932 F.2d 1113, 19 U.S.P.Q.2d (BNA) 1253 (5th Cir. 1991), aff'd, 505 U.S. 763 (1992). Judges are concerned with the relationship between trademark law and patent law. See,
durable. None has eroded away. However, it is possible to roughly divide
the functionality doctrine into three periods. The standard of functionality
contained in the 1938 Restatement of Torts ("Restatement") provides one
useful landmark.36 This article refers to all that preceded the Restatement’s
publication as the "Pre-Restatement Period" and the period from the
Restatement’s publication until 1982 as the "Restatement Period." The year
1982 commences the "Inwood Period" which is named after a case in which
the Supreme Court articulated in dictum the first of the two functionality
standards endorsed in TrafFix.

A. PRE-RESTATEMENT PERIOD

The Pre-Restatement Period began around the turn of the 20th Century.
America’s "factory age" was underway, markets were laden with mass-
produced goods, and trademark litigation was frequent and acrimonious.37
Senior producers demanded protection against "slavish" copying of their
products by junior producers, and junior producers often responded that
what they copied was functional.38 Standards of functionality that emerged
from these disputes are viable and reflected in TrafFix.39

One such emerging standard is that functional means "essential." Justice
Oliver Wendell Holmes employed it in his 1901 opinion in Flagg Manufactur-
The senior producer in *Flagg* sought to restrain a junior producer from selling unpatented multi-stringed musical instruments called zithers. According to Holmes, the junior’s zithers imitated all the “essential” and many “non essential” details of the senior’s instruments. By “essential,” Justice Holmes probably meant “belonging to the essence,” “that which makes an object what it is,” “indispensably necessary,” or “important in the highest degree.” He apparently regarded the zithers’ essential design features to include their form and their arrangement and spacing of strings. These features may have provided the senior producer with “intrinsic advantages” over competing instruments.

Three years later the New York Court of Appeals embellished the “essential” standard in *Marvel Co. v. Pearl*. It considered whether a senior producer could exclude junior producers from incorporating certain design features of an unpatented compressible rubber ball syringe. These features included a bulb easily operated by one hand and a protective guard. In
holding for the juniors, *Marvel* indicated that an unpatented design feature should not be protected if it is "essential to the successful practical use and operation of" the product, "if it primarily serve[s] to promote [the product’s] efficiency for the purpose to which it is devoted," if it is "common to or characteristic of" the product, and especially where it results from an effort to comply with the physical requirements of the product "essential to commercial success."  

*Marvel*’s multiple interlinked standards of functionality are intertwined with references to sources of evidence of functionality. To decide if a choice design feature is functional, one may look to evidence of the feature’s contribution to making the product work well, evidence of its contribution to the product’s success in the market place, and evidence of the prevalence of the feature among products with the same purpose. Evidence of each type is interrelated because the standards are interrelated. If a product lacking the choice design feature does not work well, it may not be a success in the marketplace. If the choice feature is necessary for the product’s commercial success, then it may become common to or characteristic of the product; that is, standard. Another Pre-Restatement court explained why some design features become standard: “[d]evelopment in a useful art is ordinarily toward effectiveness of operation and simplicity of form,” and many products “from diversity have approached uniformity through the utilitarian impulse.”  

*Marvel* also approved the lower court’s statement that “[t]here is nothing about the article as made . . . by the [junior producers] that is not necessary in the making and operation of [the syringes].” This statement recognizes that evidence of functionality may reside in the production process that results in a product. It may be more costly or even impossible to produce a product without a choice design feature. For example, if a senior producer’s product incorporates the most efficiently manufactured form, then that form is functional and can be lawfully copied by a junior producer.  

The fulcrum has Pre-Restatement Period roots. The availability of functionally-equivalent alternative design features is an important theme running through the case law. Lack of sufficient alternative design features

junior producers were indistinguishable by ordinary purchasers. *Id.* at 161.


49 *Pope Automatic Merch. Co. v. McCrum Howell Co.*, 191 F. 979, 981 (7th Cir. 1911).

50 *Marvel*, 133 F. at 161.

51 See *Pope Automatic Merch.*, 191 F. at 981.
often made a choice feature essential for a competitor to compete, to meet a market or technological requirement, or to enjoy commercial success. Learned Hand and other Pre-Restatement judges explicitly evaluated whether there were functionally-equivalent alternative design features to substitute for a choice design feature. They also evaluated whether there were cost-effective alternatives for manufacturing techniques resulting in choice design features. 

Judicial standards comparing the relative merits of choice and alternative design features relevant to a product’s production, use, or commercial success are economic in nature. Thus, it is not surprising that the Pre-Restatement cases provide excellent examples of judges viewing trademark law and its functionality doctrine through an economic lens. Economic thinking appears in cases recognizing that a producer’s commercial success depends upon incorporating into its product the design features that consumers want. This reflects the economic concept of “derived demand”: a producer’s demand for an input such as a design feature is derived from consumer demand for a product incorporating that input. Pre-Restatement

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52 For example, Judge Hand stated that for some features of a senior producer’s pistol, “there were substitutes so nearly interchangeable” but that there was no “reasonable modification” for a rear pistol sight which was “useful and better than others. With reference to certain alternative pistol features, he noted that “[a]ny saving in metal is trifling.” Wesson v. Galef, 286 F. 621, 624-25 (S.D.N.Y. 1922). In Shredded Wheat Co. v. Humphrey Cornell Co., 250 F. 960 (2d Cir. 1918), Judge Hand carefully evaluated the costs of modifying a cereal biscuit’s appearance. He reasoned, for example, that “[t]o increase the size of the biscuit would make it impossible to put two in the ordinary saucer; to decrease it, so that three could be sold for the present price of two would obviously increase the cost of that part of the manufacture, after the wheat is shredded, by one-half again, or nearly.” Id. at 965.

53 For example, one court recognized that the junior producer used the most efficient and economically manufactured form for a vacuum cleaner. If the junior were required to use some other form, “considerations of cost of the superfluous material and labor” might prevent the junior from competing with the senior. See Pope Automatic Merch. Co., 191 F. at 981.


55 See, e.g., Keystone Type Foundry v. Portland Publ’g Co., 180 F. 301 (C.C.D. Me. 1910) (noting that printers were guided in their choice of type by publishers and that publishers rested their choice upon public demand).

56 See 1 THE PALGRAVE DICTIONARY OF ECONOMICS 813 (1998). The economic role of a design feature as an input into the production of a product is discussed infra Part III.
functionality cases also recognized that ease of entry facilitates competitive markets, and they facilitated entry by permitting junior producers to copy senior producers’ choice design features without sharing the costs of designing the products incorporating those features. The juniors were permitted to “free ride.”

The Supreme Court recognized the economic nature of functionality in Kellogg Co. v. Nat’l Biscuit Co. There the senior producer sought to enjoin the junior producer from manufacturing and selling shredded wheat breakfast cereal. The senior complained that the junior produced its shredded wheat in the same pillow-shaped form employed by the senior. Justice Brandeis concluded that this practice was fair competition because the biscuit’s form was “functional—that the cost of the biscuit would be increased and its high quality lessened if some other form were substituted for the pillow-shape.”

This language suggests that the functionality of a choice design feature is a conclusion that should follow a comparison of the choice and alternative design features’ “cost effects,” “quality effects,” or both. The Pre-Restatement Period cases also teach that cost and quality effects tie into “commercial success effects,” which also are relevant to determining whether a choice design feature is functional.

57 Flagg states that the senior producer’s zithers were desired by the public and that the defendant had the right to “get the benefit of that desire even if created by the plaintiff.” Flagg, 59 N.E. at 667. See also Diamond Expansion Bolt Co. v. United States Expansion Bolt Co., 164 N.Y.S. 433, 435 (N.Y. App. Div. 1917) (recognizing that to enter a market a junior producer may copy a senior producer’s choice design feature).

58 “Free riders” are persons who receive the benefit of something that satisfies purchasers’ desires without contributing to that something’s costs. See Henry N. Butler, Economic Analysis for Lawyers 921 (1998). Complaints of free riding were chronic during the Pre-Restatement Period. See, e.g., Keystone, 180 F. 301 (discussing a senior producer’s claim that the junior producer copied the senior’s printers’ type and could sell it at cut rates because the junior had no designing or advertising costs).

59 Kellogg Co. v. Nat’l Biscuit Co., 305 U.S. 111 (1938). Kellogg was decided in 1938. In this year, the American Law Institute published The Restatement of Torts which is the event employed by this Article to commence the Restatement Period of the functionality doctrine. Kellogg did not mention the Restatement and cited Pre-Restatement Period case law, so it is included in the discussion of the Pre-Restatement Period.

60 Id. at 122. This conclusion was influenced by an earlier Judge Learned Hand opinion, cited by Justice Brandeis, which evaluated the effects of modifying the cereal biscuit. See id. at 116 n.2 (citing Shredded Wheat Co. v. Humphrey Cornell Co., 250 F. 960 (2d Cir. 1918) discussed supra note 52).

61 See also William Warner & Co. v. Eli Lilly & Co., 265 U.S. 526, 531 (1924) (stating that the senior producer’s use of chocolate in its medicine was substantial and desirable because it made the product agreeable to the palate and acted as a suspending medium, so it should not be called “non-essential”).
B. RESTATEMENT PERIOD

The 1938 Restatement of Torts ("Restatement") also was concerned with a design feature's cost, quality, and commercial success effects. However, rather than providing that a functional design feature is one that somehow is essential, the Restatement announced that "[a] feature of goods is functional . . . if it affects their purpose, action or performance, or the facility or economy of processing, handling or using them; it is non-functional if it does not have any of such effects."62 Thus, to be functional, a choice design feature need not be indispensably necessary; rather, it is functional if it merely "contributes" to the efficiency or economy of manufacturing the product, or to the product's utility, durability, effectiveness, or ease of use.63 The Restatement's "affects standard" would seem to make virtually all choice design features functional even if there are functionally-equivalent alternative design features. It is not clear why the Restatement adopted its definition of functionality.64 Whatever the reason, the Restatement's functionality standard did not sweep away Pre-Restatement Period approaches to deciding whether a design feature is functional.65

62 RESTATEMENT OF THE LAW OF TORTS § 742 (1938) (emphasis added). But see id. § 742 cmt. a (stating that the issue is whether prohibition of imitation by others will "deprive the others of something which will substantially hinder them in competition") (emphasis added). The comment language follows a discussion of aesthetic design features. Under the Restatement, a competitor was "privileged" to copy functional choice design features. See id. § 741.

63 Id. § 742 cmt. a.

64 Perhaps its authors believed that an expansive definition of functionality would enhance the law's clarity and conserve judicial resources by reducing the number of cases in which functionality is a close issue. See 3 RESTATEMENT OF TORTS viii (1938) (stating that the Restatement was supposed to reduce the law's uncertainty and lack of clarity through "careful" restatement of the common law). But see Daniel M. McClure, Trademarks and Unfair Competition: A Critical History of Legal Thought, 69 TRADEMARK REP. 305, 334 (1979) (stating that the Restatement "served to cement for the future the substance of old common law doctrine," but not discussing the functionality doctrine); see also Note, Unfair Competition and the Doctrine of Functionality, 64 COLUM. L. REV. 544, 558, 560 (1964) (stating that the Restatement approach to functionality afforded the means for courts to benefit consumers by increasing competition).

65 Some courts cited the Restatement, but supported holdings of functionality with evidence that choice design features were essential or provided important advantages in light of alternative design features. See, e.g., Sylvania Elec. Prods., Inc. v. Dura Elec. Co., Inc., 144 F. Supp. 112, 111 U.S.P.Q. (BNA) 17 (D.N.J. 1956) (finding that the color, shape, and position of a moisture indicator on flash bulbs were functional because they were dictated by the principles of chemistry and the needs of manufacturers and purchasers). But see, e.g., Norwich Pharm. Co. v. Sterling Drug, Inc., 271 F.2d 569, 572 n.7, 123 U.S.P.Q. (BNA) 372 (2d Cir. 1959) (citing the "broad definition" of "functional" in Restatement § 742 and holding that the color pink is functional for stomach medicine because of its pleasing appearance).
Probably the Restatement's most notable contribution to the functionality doctrine is that aesthetic, as opposed to useful, design features may be functional. This gave rise to the doctrine of aesthetic functionality. Recognition of aesthetic functionality led to yet another standard which did not require that a choice design feature be essential to be functional. In *Pagliero v. Wallace China Co.*, the senior producer created original designs for its hotel china that proved very successful in the marketplace. The junior producer began selling hotel china with virtually the same designs. Citing the Restatement, the Ninth Circuit held that the designs were "an important ingredient in the commercial success of the product," so the junior was free to copy them. The evidence demonstrated that the designs' attractiveness sold the china which satisfied consumer demand for the aesthetic as well as for the useful. The designs would have been nonfunctional had they been "a mere arbitrary embellishment" unrelated to basic consumer demand. The doctrine of aesthetic functionality and the *Pagliero* standard were and remain controversial.

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66 See *Restatement of the Law of Torts* § 742 cmt. a (stating that an aesthetic design feature is functional if its unavailability would "substantially hinder" competition). Pre-Restatement Period cases generally applied the functionality doctrine to mechanical elements of a product that affect the product's operation or cost of production. See, e.g., *Globe-Wernicke Co. v. Fred Macey*, Co., 119 F. 696 (6th Cir. 1902) (holding that a junior producer was free to copy the senior producer's system of sectional bookcases). *But cf. Champion Spark Plug Co. v. A.R. Mosler & Co.*, 233 F. 112 (S.D.N.Y. 1916) (considering the functionality of the color of a sparkplug).

67 198 F.2d 339, 95 U.S.P.Q. (BNA) 45 (9th Cir. 1952). Some Restatement Period cases followed *Pagliero* or applied a similar standard for aesthetic functionality. See, e.g., *J.C. Penny v. H.D. Mercantile Co.*, 120 F.2d 949, 954, 50 U.S.P.Q. (BNA) 165 (8th Cir. 1941) (holding a pocket design on bib overalls functional, in part because of the design's commercial appeal).

68 *Pagliero*, 198 F.2d. at 343.

69 Id. at 343-44.

70 One concern is that the "affects" standard makes virtually every aesthetic design feature functional when, in actuality, there are numerous alternative aesthetically pleasing designs. See, e.g., *In re Mogen David Wine Corp.*, 328 F.2d 925, 933 (C.C.P.A. 1964) (Rich, J., concurring). Another concern is that *Pagliero* creates a disincentive for the creation of new aesthetic design features. See, e.g., *Keene Corp. v. Paraflex Indus.*, 653 F.2d 822, 825, 211 U.S.P.Q. (BNA) 201 (3d Cir. 1981) (stating that under the *Pagliero* standard, "[t]he more appealing the design, the less protection it would receive"). A third concern is that *Pagliero* confuses whether an aesthetic design feature is desirable because of its aesthetic qualities as opposed to its service as a source-identifying trade symbol. See *Vuitton Et Fils S.A. v. J. Young Enter.,* 644 F.2d 769 (9th Cir. 1981). There are other problems as well. Many criticisms are summarized in *Sicilia Di R. Biebow & Co. v. Cox*, 732 F.2d 417 (5th Cir. 1984). See generally 1 *McCarthyo*, supra note 22, § 7:81 (stating that the aesthetic functionality doctrine is an "unwarranted and illogical expansion of the functionality policy, carrying it far outside the utilitarian rationale that created the policy"). Nonetheless, most of the regional federal circuits recognize some form of aesthetic functionality. See generally *MOHR & MITCHELLE*, supra note 16, at 23-24, 151. So does the Supreme Court. See *TrafFix*, 121 S. Ct. at 1262. The doctrine also has academic advocates. See J.H. Reichman, *Design Protection and the New Technologies:*
C. INWOOD PERIOD

The Inwood Period commenced in 1982 with Inwood Laboratories, Inc. v. Ives Laboratories, Inc. It's dictum concerning functionality became one of the two functionality standards endorsed in TrafFix. The Inwood Period also is notable for federal statutory clarification concerning the burden of proof in functionality cases, a large volume of functionality litigation in the federal courts, and a new restatement of the functionality doctrine in The Restatement (Third) of the Law of Unfair Competition ("Unfair Competition Restatement").

1. Burden of Proof. The Supreme Court in TrafFix emphasized burden of proof when discussing Inwood and some of its other Inwood Period functionality jurisprudence. Therefore, it is useful to introduce the topic of burden of proof prior to discussing Inwood.

   Functionality is a question of fact. A fighting issue has been whether a senior producer must prove that a choice design feature is nonfunctional as an element of its trademark case, or whether a junior producer must prove functionality as a defense. Congress recently specified that a senior producer bears the burden of proving nonfunctionality in Lanham Act litigation involving design features that are not federally registered as trademarks. This category encompasses a very large share of trademark cases involving design features.

2. Supreme Court. The Court in Inwood juxtaposed earlier themes when it stated in dictum that "[i]n general terms, a product feature is functional if it is essential to the use or purpose of the article or if it affects the cost or

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The United States Experience in a Transnational Perspective, 19 U. BALT. L. REV. 6, 120 (1989) (arguing that the aesthetic functionality doctrine provides a "useful tool" for restraining trademark protection of design features).


72 See generally 1 McCarthy, supra note 22, § 7:71. In deciding Inwood, the Supreme Court may have believed that the burden of proof was the junior producer's who was required to establish functionality as a defense. See Inwood, 456 U.S. at 863 (1982) (White, J., concurring).

73 See generally 1 McCarthy, supra note 22, § 7:72.

quality of the article." This "Inwood Standard" combines two tests with multiple roots. The first test provides that a design feature is functional if it is essential to a product's use or purpose. This language evokes the "essential" standard that emerged during the Pre-Restatement Period. The second test provides that a design feature is functional if it affects a product's cost or quality. Its language evokes both the Restatement's "affects" standard and the Court's Pre-Restatement Period Kellogg opinion that a design feature is functional if a product lacking the feature is more costly or has less quality than a product incorporating the feature.

Reading the Inwood Standard literally, a senior producer's burden of proof to demonstrate nonfunctionality under the first test seems less burdensome than the burden under the second test. Under the first test, a choice design feature may not be essential and, consequently, nonfunctional due to the existence of functionally-equivalent alternative design features available to junior producers. Under the second test, the senior producer would have to demonstrate that a choice design feature has no effect on a product's cost or quality. This seems an impossible burden because every design feature influences a product's cost or quality. Per the Court's Pre-Restatement Period Kellogg opinion, the second test probably requires that to be functional, a choice design feature must affect the product by reducing its cost or enhancing its quality; so the senior producer might attempt to establish that the choice feature increases the product's cost or reduces its quality. But such an argument often may be implausible because purchas

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75 456 U.S. 844, 850 n.10 (1982). The Court cited two cases as authority for the quoted language. The first, Sears, Roebuck & Co. v. Stiffel Co., 376 U.S. 225, 226, 140 U.S.P.Q. (BNA) 524 (1964), indicated that the senior and junior producers' products in that case were very much alike in "functional details." It did not discuss or apply the functionality doctrine. The Inwood Court also supported the language quoted in the text with a citation to the Court's Pre-Restatement Period Kellogg opinion. Inwood did not reference Sears' companion case which also referred to functionality. See Compco Corp. v. Day-Brite Lighting, Inc., 376 U.S. 234, 236, 238, 140 U.S.P.Q. (BNA) 531 (1964) ("[T]he appellate court observed that 'several choices of ribbing were apparently available to meet the functional needs of the product' and '[t]hat an article copied from an unpatented article could be made in some other way, that the design is 'nonfunctional' and not essential to the use of either article . . . may be relevant evidence in applying a State's law requiring such precautions as labeling, . . .."). The Sears and Compco cases are further discussed infra note 98.

76 "Affect" means to bring about change in or to influence. WEBSTER'S, supra note 43, at 83. See In re Morton-Norwich Prods., Inc., 671 F.2d 1332, 1339 (C.C.P.A. 1982) (regarding functionality under the Restatement, "it appears to us that 'affects' and 'contributes to' are both so broad as to be meaningless, for every design 'affects' or 'contributes to' the utility of the article in which it is embodied. 'Affects' is broad enough to include a design which reduces the utility or the economy of manufacture.") (Rich, J.).

77 Sometimes this argument may be plausible. See, e.g., Truck Equip. Serv. Co. v. Fruehauf Corp.,
ers generally prefer lower costs and higher quality, and producers respond to purchaser demand.\textsuperscript{78}

The relationship between the \textit{Inwood} Standard's two tests is unclear. Probably the "or" that separates them is inclusive, so that a design feature can be functional under the first test, the second test, or both tests.\textsuperscript{79} However, the first test then seems superfluous given the likely difficulty of demonstrating nonfunctionality under the second test. Furthermore, the two tests often may be redundant because a product's use, purpose, cost, and quality are interrelated. So, for example, if a design feature affects a product's cost or quality, then it also may be essential to the product's use or purpose. Conversely, if a design feature is essential to product use or purpose, then it likely affects the product's cost or quality.

The Supreme Court expanded on its \textit{Inwood} dictum in \textit{Qualitex Co. v. Jacobson Products Co., Inc.}\textsuperscript{80} In concluding that the Lanham Act permits registration of a trademark consisting solely of a color, the Court added that a choice design feature generally is functional "if exclusive use of the feature would put competitors at a significant non-reputation-related disadvantage."\textsuperscript{81} This is the "\textit{Qualitex Standard.}" Under it, a senior producer would have to

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\item[78] Qualitex, 514 U.S. at 165. The Court also stated that trademark protection should not inhibit legitimate competition by allowing a senior producer to control a useful design feature; that junior producers should be free to reasonably replicate important nonreputation related choice design features; and that trademark rights should not allow a senior producer to interfere with legitimate (nontrademark-related) competition through potential or actual exclusive use of an important choice design feature. \textit{Id.} at 165-69.
\item[79] "Or" usually is employed in an inclusive sense (x or y, or both) rather than in an exclusive sense (x or y, but not both). \textit{Reed Dickerson, The Fundamentals of Legal Drafting} § 6.2 (1986).
\item[80] Qualitex Co. v. Jacobson Prods., Inc., 1991 U.S. Dist. LEXIS 21172 at *9-10, 21 U.S.P.Q.2d 1457 (C.D. Cal. 1991) (finding that the dye for the choice green-gold color applied by the senior producer to its dry-cleaning press pads to hide dirt was more costly than the dye for alternative colors that could serve the same purpose).
\item[81] See \textit{infra} Part \textit{m.E.}
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demonstrate that exclusive trademark rights in a choice design feature would not significantly disadvantage competitors. This burden of proof seems similar to the Inwood Standard’s first test of functionality in that it also opens the door to proof of alternative design features that are functionally equivalent to a choice design feature.

Qualitex also echoed the Restatement Period’s oft-criticized Pagliero standard that a design feature is functional if it is an “important ingredient in the commercial success of the product.”82 As previously noted, commercial success effects are closely related to cost and quality effects. Qualitex expressed contentment with how the functionality doctrine was being applied, stating that “the federal courts have demonstrated that they can apply [the] doctrine in a careful and reasoned manner, with sensitivity to the effect on competition.”83

During the Inwood Period the Supreme Court also suggested that it viewed functionality as turning on the fulcrum. In Two Pesos, Inc. v. Taco Cabana, Inc., decided after Inwood and prior to Qualitex, the Court approved Fifth Circuit law which it described as holding that “a design is legally functional, and thus unprotectible [under trademark principles], if it is one of a limited number of equally efficient options available to competitors and free competition would be unduly hindered by according the design trademark protection.”84 Under this functionality standard, the efficiency of “options,” that is, alternative design features, would be compared to the

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82 The Pagliero standard had been employed by Justices White and Marshall in their concurring opinion in Inwood. See Qualitex, 514 U.S. at 165. The two Justices quoted the Second Circuit which quoted language originating in Pagliero. See Inwood Labs., 456 U.S. at 863 (quoting from Ives Labs., Inc. v. Darby Drug Co., 601 F.2d 631, 642-43 (2d Cir. 1979)). The reference to commercial success in Qualitex may acknowledge that a functional feature is important because it is required to produce a viable competitive product. See Pebble Beach Co. v. Tour 18 I Ltd., 155 F.3d 526, 538-39 (5th Cir. 1998).


84 Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 775 (1992) (citing Sicilia Di R. Biebow & Co. v. Cox, 732 F.2d 417 (5th Cir. 1984), in which the Fifth Circuit noted that the senior producer provided evidence of multiple alternative design features that were available to competitors).
efficiency of a choice design feature so as to insure that competition is not stifled by providing exclusive trademark rights in the choice feature.

3. Lower Federal Courts. The lower federal courts have employed a “plethora” of functionality standards; indeed, there may be as many standards as there are courts, and the standards are not limited to the Supreme Court’s. Excellent summaries of these cases are available elsewhere. However, one particularly helpful opinion is worth describing here because it is almost exactly contemporary with Inwood, yet provides significantly more guidance than the Supreme Court’s eclectic Inwood Period functionality jurisprudence. The case is In re Morton-Norwich Products, Inc. decided by Judge Giles S. Rich of the United States Court of Customs and Patent Appeals, then soon to be merged into the Court of Appeals for the Federal Circuit. The case has been recognized as providing a “handy framework” for evaluating evidence of functionality.

In Morton-Norwich, the appellant sought to federally register the overall shape of a plastic spray bottle as a trademark for the liquid cleaner sold in the bottle. In holding that the functionality doctrine did not bar registration, Morton-Norwich criticized the Restatement’s “affects” functionality standard as meaningless because, in a factual sense, every design feature affects or contributes to a product’s function or cost of manufacture. Therefore, the Restatement did not properly balance the right to copy against the right to protect source-identifying design features. Rather, this balance should be struck by inquiring into whether there is a “competitive necessity to copy.”

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85 See generally 1 MCCARTHY, supra note 22, §§ 7:67, 7:69.
86 See id. § 7:69; Dinwoodie, supra note 20, at 705-06; MOHR & MITCHELL, supra note 16, at 33-149.
88 1 MCCARTHY, supra note 22, § 7:73.
89 671 F.2d at 1334.
90 Id. at 1339.
Competition is hindered, according to Morton-Norwich, if the choice design feature is "the best or one of a few superior designs available." 91 Evidence of the existence of alternative design features and their advantages or disadvantages relative to the choice design feature is important to making this determination. 92 Other evidence relevant to functionality includes an expired utility patent which discloses the advantages of the choice design feature or advertising touting the feature's advantages. Morton-Norwich also emphasized that in deciding functionality cases, it is important to determine whether a choice design feature results from a relatively simple or inexpensive method of manufacturing the product incorporating that feature. 93

4. Unfair Competition Restatement. Like Morton-Norwich, the Unfair Competition Restatement's spare functionality standard evaluates choice design features through the lenses of alternative design features and competitive effects. 94 Under it, a design feature is functional if it affords benefits in the manufacturing, marketing, or use of products incorporating the design feature that are important to effective competition by others and that are not practically available through the use of alternative design features. 95 The Unfair Competition Restatement applies the same standard of functionality to both useful and aesthetic design features. The ultimate

91 Id. at 1341.
92 Id. at 1340-41.
93 Id. at 1341.
94 The Unfair Competition Restatement was promulgated by the American Law Institute in 1993. See RESTATMENT (THIRD) OF UNFAIR COMPETITION § 1 (1995). Its name to the contrary notwithstanding, the Unfair Competition Restatement is the first restatement of unfair competition law. See generally Robert C. Denicola & Harvey S. Perlman, A Foreword to the Symposium on the Restatement of Unfair Competition, 47 S.C. L. REV. 1 (1996).
95 The Unfair Competition Restatement states:

A design is 'functional' for purposes of the rule stated in § 16 [which describes when design features are eligible for trademark protection] if the design affords benefits in the manufacturing, marketing, or use of the goods or services with which the design is used, apart from any benefit attributable to the design's significance as an indication of source, that are important to effective competition by others and that are not practically available through the use of alternative designs.

RESTATMENT (THIRD) OF UNFAIR COMPETITION § 17. The Unfair Competition Restatement's comments employ other language to delimit the boundary between the functional and the nonfunctional. These include statements that the functionality of a design turns upon whether a prohibition against copying would "significantly" hinder competitors, that a design is functional if it is "costly" for a competitor to do without, and that a design is functional "if it is one of a limited number of superior designs." Id. § 17, cmts. a and b.
functionality test for both types of design features is "whether recognition of trademark rights would significantly hinder competition."96

D. TRAFFIX

Prior to Traffix, there was substantial authority for employing the fulcrum to decide whether a choice design feature is or is not functional. Courts, commentators, and others endorsed deciding whether a choice design feature is functional by means of weighing evidence of the availability of functionally-equivalent alternative design features. Traffix may break with this tradition.

The choice design feature in Traffix was a vertical pair of closely spaced coil springs visible in the base of a sign stand designed to keep temporary road signs upright during high winds.97 This is the type of sign, often orange in color with black lettering, that bears happy tidings such as "expect lengthy delays for construction." The senior producer brought an action for trademark infringement under the Lanham Act against the junior producer who had copied the dual-spring mechanism for its sign stands. The principal question before the Court was how were the senior producer's trademark rights affected by two expired utility patents.98 The Supreme Court unanimously concluded that an expired utility patent is strong evidence that

96 Id. § 17 cmt. c.
97 Traffix, 121 S. Ct. at 1258.
98 Id. at 1260. The Traffix Court granted certiorari to resolve a conflict among circuits. Compare Sunbeam Prods., Inc. v. W. Bend Co., 123 F.3d 246, 44 U.S.P.Q.2d (BNA) 1161 (5th Cir. 1997) (holding that trade dress protection is not foreclosed); Thomas & Betts Corp. v. Panduit Corp., 138 F.3d 277, 46 U.S.P.Q.2d (BNA) 1026 (7th Cir. 1998) (same); and Midwest Indus., Inc. v. Karavan Trailers, Inc., 175 F.3d 1356, 50 U.S.P.Q.2d (BNA) 1672 (Fed. Cir. 1999) (same) with Vornado Air Circulation Sys., Inc. v. Duracraft Corp., 58 F.3d 1498, 1500 (10th Cir. 1995) ("Where a product configuration is a significant inventive component of an invention covered by a utility patent . . . it cannot receive trade dress protection."). The Traffix Court confronted the relationship between two federal statutes, the Lanham Act and the Patent Act. In that regard the case differs from Sears, Roebuck & Co. v. Stiffel Co., 376 U.S. 225, 232, 140 U.S.P.Q. 524 (1964); and Compo Corp. v. Day-Brite Lighting, Inc., 376 U.S. 234, 238, 140 U.S.P.Q. (BNA) 528 (1964). They held that when an article is unprotected by a utility patent or a design patent, state law may not forbid others to copy it. The Court reasoned that to forbid copying would interfere with the federal policy (found in art. I, § 8, cl. 8, of the Constitution and in the implementing federal patent statutes) of allowing free access to copy whatever the federal patent laws leave in the public domain. The Supreme Court subsequently narrowed the two opinions, and their effect also was significantly limited by the lower federal courts. See Vornado, 58 F.3d at 1505 ("distinguishing Sears and . . . Compo . . . has become a veritable jurisprudential art form"). See generally 1 McCarthy, supranote 22, §§ 7:55-7:58.
design features claimed in it are functional, and held that the senior producer did not carry its burden of showing nonfunctionality. From an etymological perspective, TrafFix’s most critical dimension is its discussion of the Inwood and Qualitex Standards. In the litigation preceding TrafFix, the Sixth Circuit declined to apply the second test of the Inwood Standard (affects cost or quality); and instead applied the Qualitex Standard (places competitors at a significant non-reputation-related disadvantage). It did so because any effect on cost or quality should not be enough to render a choice design feature functional. This concern is similar to Morton-Norwich’s criticism of the Restatement’s “affects” standard. The Sixth Circuit suggested that in the case of the sign stand before it, alternative design features might be possible; and concluded that the district court erred in determining that the senior producer could not prevail because the choice design feature was functional. The Supreme Court reversed because the circuit court did not sufficiently recognize the evidentiary significance of the expired patents, an error that resulted from misinterpreting the Inwood and Qualitex Standards. According to the Court, the Sixth Circuit interpreted the Qualitex Standard “to mean that a necessary test for functionality is ‘whether the particular product configuration is a competitive necessity.’ ” This was incorrect because the Court did not intend the Qualitex Standard to serve as a

99 TrafFix, 121 S. Ct. at 1260. The post-TrafFix evidentiary significance of utility patents vis-à-vis functionality is discussed infra Part IV.D.1.
100 Mktg. Displays, Inc. v. TrafFix Devices, Inc., 200 F.3d 929, 938, 40 U.S.P.Q.2d (BNA) 1335, 1342 (6th Cir. 1999). The Sixth Circuit held that the senior producer “must show that the trade dress features appropriated . . . . were primarily nonfunctional,” quoted the Inwood Standard, and then said the following which concludes with the Qualitex Standard:

Presumably every limitation on what another competitor can do hinders competition somewhat. The appropriate question is whether the particular product configuration is a competitive necessity. If it affects the cost or the quality or the objective (nonreputational) desirability of competitors’ products negatively enough, then the trade dress element may be deemed legally functional. Having any effect on cost or quality is not enough. Exclusive use of a feature must “put competitors at a significant non-reputation-related disadvantage” before trade dress protection is denied on functionality grounds.

Id. Procedurally, the court of appeals held the district court erred in ruling that the senior producer failed to show a genuine issue of material fact regarding whether it had secondary meaning in its alleged trade dress, and further erred in determining that the senior producer could not prevail in any event because the alleged trade dress was a functional product configuration. Id. at 938.

101 See supra Part II.C.3.
102 TrafFix, 121 S. Ct. at 1261-62.
comprehensive definition of functionality. That role is played by the "traditional" Inwood Standard which applies "[w]hether a utility patent has expired or there has been no utility patent at all," and which was not displaced by the Qualitex Standard.\(^{103}\) If functionality is established under the Inwood Standard, then there need be no further inquiry into whether there is a competitive necessity for the choice design feature or to speculate about alternative design features which might serve as well as the choice design feature. Thus, TrafFix seems to bar using evidence of alternative design features as the fulcrum for deciding functionality cases involving useful choice design features.

TrafFix is etymologically troublesome in other ways as well. According to the Supreme Court, if a useful design feature is functional under the Inwood Standard, then there is no need to apply the Qualitex Standard. It applies in aesthetic functionality cases.\(^{104}\) Placing an easier burden of proving nonfunctionality on senior producers in aesthetic functionality cases might be justified because aesthetic choice design features are more likely than useful choice design features to have functionally-equivalent alternative design features.\(^{105}\) However, the TrafFix Court did not offer this justification for its distinction.\(^{106}\) Nor did it recognize that it can be difficult to categorize a choice design feature as either useful or aesthetic.\(^{107}\)

\(^{103}\) Id. at 1263.

\(^{104}\) The TrafFix Court characterized Qualitex as a case involving aesthetic functionality. Id. at 1262. There the choice design feature was the color green-gold employed in dry cleaning press pads because it avoided noticeable stains. The Court never pinned down whether this application of the color was useful or aesthetic, referring to both the utility and design patent statutes and to examples of both useful and aesthetic functionality. Thus, the distinction between useful and aesthetic design features does not appear to have been critical to the opinion. Qualitex Co., 514 U.S. at 164-66, 169-70. The district court in the litigation preceding Qualitex found that the color was not added to make the pads work better; instead, it was employed only as an aesthetic adornment to improve the appearance of the pad while in use. Qualitex Co. v. Jacobson Prods., Inc., 1991 U.S. Dist. LEXIS 21172, at *9, 21 U.S.P.Q.2d (BNA) 1457 (C.D. Cal. 1991). The circuit court described a need for press pads to maintain a clean appearance. Qualitex Co. v. Jacobson Products, Inc., 13 F.3d 1297, 1304 (9th Cir. 1994).

\(^{105}\) See, e.g., Qualitex, 514 U.S. at 168 (suggesting that when color serves as a trademark for a senior producer, normally alternative colors will be available for junior producers); Publ'ns Int'l, Ltd. v. Landoll, Inc., 164 F.3d 337, 339, 49 U.S.P.Q.2d (BNA) 1139 (7th Cir. 1998) ("Ordinarily there is a sufficient variety of pleasing shapes, sizes, colors, and ornamentation to enable beauty without sacrificing differentiation."). See generally RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 17 cmt. c (stating that it is inherently difficult to evaluate the aesthetic superiority of a design, and that a finding of aesthetic functionality normally requires objective evidence indicating a lack of alternatives).

\(^{106}\) Rather, the Court relied upon precedent, stating that the Qualitex Standard originated in a case involving aesthetic functionality. TrafFix, 121 S. Ct. at 1262.

\(^{107}\) The useful-versus-aesthetic dichotomy is problematic and might best be eliminated. See infra Part
There is still more etymological trouble in TrafFix. It did not parse the two tests juxtaposed in the Inwood Standard. Apparently the dual-spring assembly was functional under both tests: the Court referred to its design as one that is "essential" and one that "affects cost." Nor does TrafFix elaborate upon the relationship between the Inwood and Qualitex Standards or the continuing significance, if any, of its other pre-TrafFix expressions concerning functionality.

III. THE ECONOMICS OF FUNCTIONALITY

Part Two of this article observed that judicial standards comparing the relative merits of choice and alternative design features relevant to a product’s cost, quality, or commercial success are economic in nature; and that functionality cases provide excellent examples of judges employing an

III.B. The TrafFix Court might have added that in close cases, fact finders should classify a choice design feature one way or the other. The Court provided such a rule in Wal-Mart Stores, Inc. v. Samara Bros., Inc., 529 U.S. 205, 213 (2000). There it drew a distinction between product design and product packaging. A senior producer has to prove secondary meaning to protect the former under trademark principles, but not the latter which might be shown to be inherently distinctive. Wal-Mart added that "IJo the extent there are close cases, we believe that courts should err on the side of caution and classify ambiguous trade dress as product design, thereby requiring secondary meaning." Id. at 215. It seems likely that had the TrafFix Court provided a similar rule, it would have been that ambiguous choice design features should be classified as useful and subject to the Inwood Standard; rather than as aesthetic and subject to the Qualitex Standard.

The TrafFix opinion also may be ambiguous when it states that to prove nonfunctionality, a senior producer may show that the choice design is "arbitrary," "incidental," or "ornamental." Id. at 1260. Each of these terms carries its own etymological baggage. By "arbitrary," the Court meant an arbitrary flourish which plays no useful role in a product's design, although it might make the design more attractive. Id. at 1262. (Presumably such a feature might be aesthetically functional.) However, the term also is commonly employed to describe a word that may serve as a trademark without proof of secondary meaning because it is in common linguistic usage and does not describe the goods or services to which it is applied. 1 McCARTHY, supra note 22, §§ 11:11-11:12. "Incidental" means of minor import and, as used by the Court, is an antonym for "essential." TrafFix, 121 S. Ct. at 1255 at 1262. However, the Court also has used the term to refer to a design feature that identifies a product. See William Warner & Co. v. Eli Lilly & Co., 265 U.S. 526, 531 (1924). "Ornamental" was used to indicate a design feature that is decorative. Id. at 1262. However, it also is used in the phrase "merely ornamental" to refer to a trade symbol that does not qualify for trademark protection because consumers do not perceive it as a source identifier. 1 McCARTHY, supra note 22, § 7:24. The context may make the meaning of these terms clear, at least to intellectual property cognoscenti. For example, other courts also have employed "arbitrary" and "ornamental" as antonyms for "functional." See, e.g., Stormy Clime Ltd. v. Progroup, Inc., 809 F.2d 971, 977, 1 U.S.P.Q.2d 2026 (BNA) 2031 (2d Cir. 1987).
FUNCTIONAL DESIGN FEATURES

This part of the article employs the economic lens to more closely investigate the nature of cost, quality, and commercial success effects and the trouble with TrafFix.

A. "CONSUMERS," "PRODUCERS," AND "OTHER THINGS THE SAME"

As employed in this part of the article, the term "consumer" means a person who must choose between purchasing a product incorporating a choice design feature and purchasing a product incorporating an alternative design feature. The term is limited to the classic economic consumer engaged in consumption which is the ultimate economic activity explaining all other economic activity. For example, a person who purchases an office tray for personal, family, or household purposes such as holding retail catalogs from L.L. Bean or J. Crew is a consumer. The model employed in this part of the article assumes that a single person, a "producer," is responsible for all the production and distribution that brings a product or service to the market in which it is purchased by a consumer.

Functionality cases usually assume, but do not explicitly recognize, that the key variables are the choice design feature and alternative design features; and that it is necessary to hold constant all other variables that might affect a product's cost, quality, or commercial success. This is the problem of "other things the same." This discussion assumes, unless otherwise indicated, that what matters is the cost, quality, or commercial success effects of choice design features as compared to those of alternative design features;

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112 See 1 PALGRAVE: A DICTIONARY OF ECONOMICS, supra note 56, at 396 (discussing the Latin phrase ceteris paribus meaning "other things the same"). The functionality doctrine also must distinguish between the role of a design feature as a contributor toward the useful or aesthetic services provided by a product and its role as a source identifier. This problem is discussed infra Part IV.C.
and that other variables that might affect a product's cost, quality, or commercial success hold constant.\textsuperscript{113}

\textbf{B. CONSUMER PERSPECTIVE}

Products have multiple design features. Even a simple paper clip's design features include length, width, and thickness. The clip may be smooth, bear markings, or be coated with colored plastic or paint. Each of these characteristics is a design feature. A consumer may prefer a particular design feature (e.g., alloy automobile wheels) over another (e.g., steel automobile wheels with plastic wheel covers that resemble alloy) for a product (e.g., an automobile) because the preferred design feature makes the product cheaper to acquire, reduces the cost of using the product, or makes the product more useful or attractive.\textsuperscript{114} Preferences for design features are important determinates of consumer demand for products in the marketplace. Consumers seek to make optimal choices in the marketplace taking into account their preferences, income, and the choices available to them.\textsuperscript{115}

Consumers desire products for the stream of services they provide.\textsuperscript{116} For example, most consumers purchase automobiles to obtain transportation services. Design features that may be important to consumers of automotive transportation services include number of doors, quantity and shape of passenger or cargo space, side air bags, fuel efficiency, and other features that affect an auto's usefulness, cost of operation, or safety. Auto consumers also may be motivated to acquire the aesthetic services provided by a car's new car smell; front, side or rear profile; grill design; interior or exterior color; or exhaust sound. These also are design features. Sometimes consumers may

\textsuperscript{113} For example, the article assumes that there is no change in consumer wealth or in the price of products consumers purchase other than the product incorporating the choice or alternative design features. See generally MILTON FRIEDMAN, ESSAYS IN POSITIVE ECONOMICS 49-50 (1953) (discussing variables that either are or are not held constant in defining a demand curve).

\textsuperscript{114} Economists typically do not explain the source or content of consumer preferences or tastes, taking them as given. They are regarded as the province of other disciplines such as psychology or genetics. See HIRSCHLEIFER & HIRSCHLEIFER, supra note 110, at 86-87.

\textsuperscript{115} See id. at 92-103. The economic model is based upon an assumption of rational aggregate consumer behavior. See id. at 7-8.

\textsuperscript{116} See id. at 7-8, 92-103. One also might say that design features provide the "benefits" that consumers purchase. See Vuitton Et Fils S.A. v. J. Young Enterprises, Inc., 644 F.2d 769, 210 U.S.P.Q. (BNA) 351 (9th Cir. 1981) (holding that the fleur-de-lis, a traditional symbol of French royalty, was not a national insignia unregistrable under the Lanham Act).
focus on individual useful or aesthetic design features or clusters of useful or aesthetic design features. Other times consumers may focus on the unified whole of all of a product's constituent useful or aesthetic design features. In this case the totality collectively is a design feature.\textsuperscript{117}

Thinking about design features and products in terms of the stream of services they provide to consumers simplifies the functionality doctrine in two ways. First, it eliminates legal distinctions between products and packaging.\textsuperscript{118} Both are comprised of design features that may be desirable to consumers for the useful or aesthetic services they provide.\textsuperscript{119} Second, the consumer perspective unifies the functionality doctrine by eliminating legal distinctions between useful and aesthetic design features' contributions to the products into which they are incorporated. No longer is there a need for a separate doctrine of aesthetic functionality. Some courts and the Unfair Competition Restatement recognize this.\textsuperscript{120} However, \textit{TrafFix} employs the useful versus aesthetic distinction.\textsuperscript{121}

The virtues of eliminating distinctions between product and packaging and between useful and aesthetic design features are illustrated by the classic heart-shaped candy box containing chocolates purchased by some consumers around St. Valentine's Day.\textsuperscript{122} The box provides useful packaging services, both protecting and preserving the soft and perishable candy inside, and also conveys a message of true love. The box also may have a transparent window or lid displaying its contents, a useful service; and it may provide

\textsuperscript{117} Many functionality opinions evaluate a product's total design. See, e.g., \textit{Sunbeam Prods., Inc. v. West Bend Co.}, 123 F.3d 246, 44 U.S.P.Q.2d (BNA) 1161 (5th Cir. 1997) (evaluating six design elements of a mixer to determine its function).

\textsuperscript{118} \textit{But see} \textit{Wal-Mart Stores, Inc. v. Samara Bros., Inc.}, 529 U.S. 205, 54 U.S.P.Q.2d (BNA) 1065 (2000) (attempting to draw a line between product packaging and product design and holding that only the former may be inherently distinctive, while proof of secondary meaning is required for the latter); \textit{see also} Jeffrey M. Samuels & Linda B. Samuels, \textit{Trade Dress Undressed: Wal-Mart v. Samara}, 29 AM. INTELL. PROP. L. ASS'N Q.J. 43, 59-62 (2001) (criticizing the Court's line-drawing because it may be difficult to distinguish between packaging and product and because it increases legal costs and uncertainty).


\textsuperscript{120} \textit{See, e.g.}, W.T. Rogers, 778 F.2d at 343 ("[T]eauty is function."). The Unfair Competition Restatement is discussed \textit{supra} Part II.C.4.

\textsuperscript{121} \textit{See supra} Part II.D.

\textsuperscript{122} \textit{See RESTATEMENT OF THE LAW OF TORTS} § 742 cmt. a (1938) (originating heart-shaped box example); \textit{see also} \textit{RESTATEMENT (THIRD) OF THE LAW OF UNFAIR COMPETITION} § 17 cmt. c (1995) (discussing aesthetic functionality).
aesthetic services because it is visually appealing. The candy provides useful services as an energy source, and also provides aesthetic services through its taste and exterior or internal (once bitten into) appearance. Useful or aesthetic design features of the box, the candy, or both may motivate consumers to purchase a box of St. Valentine's Day chocolates.

Any one or more of these design features might be functional if there is a lack of functionally-equivalent alternative design features.

C. QUALITY EFFECTS

Quality effects are important to the functionality doctrine which traditionally considers how choice or alternative design features affect product quality. Economically speaking, “quality” refers to the variability in the capacity of different products to provide a stream of services to a consumer. For example, an automobile that will run for 150,000 miles has more quality than one that will run for 100,000 miles. “Service” is quantity times quality. If a consumer purchases a single automobile capable of running 100,000 miles, then the consumer has purchased a future stream of 100,000 miles of transportation services. Quality can be measured in many ways by employing units relevant to a product’s reliability, wear resistance, safety, ability to meet an industry or government standard, attractiveness, and so forth. Consumers generally prefer more quality to less, but they may differ in their willingness to pay for quality.

Thinking about quality in an economic way sharpens the inquiry into whether a design feature is functional. A first step is to define the choice

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123 See Publ’ns Int’l, Ltd. v. Landoll, Inc., 164 F.3d 337, 49 U.S.P.Q.2d (BNA) 1139 (7th Cir. 1998) (suggesting that functions of modern consumer packaging include delivering aesthetic services that provide utility to consumers); Qualitex, 514 U.S. at 170 (stating that color may play an important role (other than source identification) in making a product more desirable); TrafFix, 121 S. Ct. at 1262 (recognizing the usefulness of visibility and reasoning that the senior producer’s visible dual-spring design feature assured users that the device will work and that if purchasers are assured by seeing that design feature, that in itself serves an important market need).

124 The case law provides other examples of design features that contribute both useful and aesthetic services to a product. See, e.g., Standard Terry Mills, Inc. v. Shen Mfg. Co., 803 F.2d 778, 231 U.S.P.Q. (BNA) 555 (3d Cir. 1986) (considering the weave in a towel which contributed to its strength, absorbency, and durability; and which also was compatible with kitchen decor).

125 See Hirsleifer & Hirsleifer, supra note 110, at 258-59.

126 Id. at 258.

127 Nicholas S. Economides, The Economics of Trademarks, 78 TRADEMARK REP. 523, 525 (1988). See infra Part IV.F.
design feature for which the senior producer claims exclusive trademark rights. Failure to do this with sufficient particularity may be one source of the trouble with TrafFix. Once the choice design feature is specified, a second step is to define its contribution to the qualities of the product incorporating it. That is, the second step asks what services does the choice design feature enable the product to provide? Failure to do this also may be part of the trouble with TrafFix. The last step is to determine whether the choice design feature’s contribution to the product’s qualities is functionally superior to the contribution of alternative design features.

For example, suppose the senior producer manufactures ironing board covers incorporating the color green-gold which is the choice design feature. The color enables the covers to appear attractive, clean, and fresh during many years of use. The covers have other qualities too, such as wear resistance and fit. The senior producer probably could demonstrate that other colors can make the same contribution to the qualities of a junior producer’s ironing board covers. If so, and if the senior producer can establish the other elements of a trademark infringement claim, then green-gold is nonfunctional and a junior producer should be required to incorporate a different color into its ironing board covers.

D. COST EFFECTS

The functionality doctrine also is concerned with the cost of a product incorporating a choice design feature versus the cost of that product incorporating an alternative design feature. Evidence of cost effects experienced by consumers buying the product, the producer producing the product, or both should be relevant to deciding functionality cases because consumer and producer costs are interlinked. The cost to consumers of the

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128 See infra Part IV.G.

129 See id.

130 Cf. Qualitex, 514 U.S. at 168-69 (discussing the functionality of color in a case involving green-gold dry cleaning press pads). The district court in the Qualitex litigation found that there was no competitive need in the dry-cleaning press pad industry for the green-gold color because other colors were equally usable and available. Qualitex, 1991 U.S. Dist. LEXIS 21172, at *10. However, sometimes color has specific meaning to consumers and is functional. See, e.g., Publ’ns Int’l. v. Landoll, Inc., 164 F.3d 337, 341 (7th Cir. 1998) (stating that the color gold is functional when applied to some products because it indicates opulence). A color also may be an industry standard. See, e.g., Nor-Am Chem. Co. v. O.M. Scott & Sons Co., 4 U.S.P.Q.2d (BNA) 1316, 1320 (E.D. Penn. 1987) (holding that there is a competitive need for using the color blue in nitrogen-based fertilizer because it indicates the presence of nitrogen).
services provided by a product is determined by demand and supply, and supply is a function of production costs.\textsuperscript{131} A producer chooses its profit-maximizing output of a product based upon the price that consumers are willing to pay for the services the product provides and the cost of producing the product providing those services.\textsuperscript{132} The producer's production costs depend upon both the quantity of the product produced and the quality of that product.\textsuperscript{133} The producer may vary the quantity of its output, the quality of its output, or both. Its optimal output is a function of both these variables.\textsuperscript{134} Ultimately, the marketplace may contain a spectrum of quality, with each producer producing a level of product quality depending upon that producer's costs.\textsuperscript{135}

In deciding functionality cases, consumer or producer cost effects should be directly attributable to the choice or alternative design features in issue. Returning to the ironing board cover example, relevant costs would include the cost of acquiring green-gold dye versus alternative color dyes and the relative costs of incorporating the choice and alternative dyes into ironing board covers.\textsuperscript{136} The costs of fabric or cutting it to shape are irrelevant unless they are affected by the dye color employed.

E. COMMERCIAL SUCCESS EFFECTS, PRODUCER PERSPECTIVE, AND "COOPERATING" INPUTS

The functionality doctrine also considers whether a choice design feature affects a product's commercial success. Commercial success effects might be measured in terms of a product's ability to produce revenue for its producer. Assuming a marketplace in which consumers are informed, a product's price

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\textsuperscript{131} More formally, the height of the demand curve for the service reflects what consumers in the aggregate are willing to pay for amounts of service offered by producers. The supply curve reflects what producers in the aggregate are willing to sell. See HIRSHLEIFER & HIRSHLEIFER, supra note 110, at 260.

\textsuperscript{132} The producer has no control over market price in a competitive market. It is a "price taker." A producer may be able to "select" the price for its output if it has market power. Id. at 57-8, 167, 260. Both types of producers seek to maximize profits. See id. at 163, 167.

\textsuperscript{133} More formally, the marginal cost of service depends upon the quantity and quality of service the firm produces. See id. at 260.

\textsuperscript{134} The firm's optimum is where the marginal cost of expanding service by increasing quantity and the marginal cost of expanding service by increasing quality are equal. The resulting marginal cost curve is the firm's supply curve for the service. See id. at 261-62.

\textsuperscript{135} See id. at 262.

\textsuperscript{136} See supra Part III.C.
must reflect its quality. Thus, a product providing superior services due to the presence of a choice design feature will be priced higher in the marketplace than a product providing inferior services attributable to an alternative design feature, and the superior product will generate more revenue per unit sold for its producer. It follows that another approach to determine functionality might start with comparing the revenue generated per unit sold of a product incorporating the choice design feature with the revenue generated per unit sold of a product lacking that feature but incorporating an alternative design feature. Of course, a producer seeks profit as well as revenue, so costs must be accounted for as well.

To see the potential difficulty with measuring the commercial success effects (and also with measuring the cost and quality effects) attributable to a particular design feature, it is useful to recognize that production places a producer between two markets. For example, a producer of wooden furniture acquires wood in the wood market and sells its finished product to consumers in the furniture market. The producer undoubtedly employs other inputs as well, including labor, machinery, electricity, fabric, hardware, paint or varnish, and so forth. A producer's demand for inputs, including design features, is derived from consumer demand for the product that

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137 See HIRSHLEIFER & HIRSHLEIFER, supra note 110, at 259, 263.

138 Commercial success effects may be measured in dollars of revenue or profit. See Epic Metals Corp. v. Souliere, 99 F.3d 1034, 1040, 40 U.S.P.Q. (BNA) 1705 (11th Cir. 1996). Whether a junior competitor can earn a profit without copying a choice design feature may be relevant to whether that feature is functional. See, e.g., Hartford House, Ltd. v. Hallmark Cards, Inc., 846 F.2d 1268, 1273-74, 6 U.S.P.Q.2d 2038 (10th Cir. 1988). See also Abbott Labs. v. Mead Johnson & Co., 971 F.2d 6, 21-22, 23 U.S.P.Q.2d 1663 (7th Cir. 1992) (stating that both the costs a junior producer would incur in employing an alternative design feature and their effect on retail price are relevant to functionality analysis); Schwinn Bicycle Co. v. Ross Bicycles, Inc., 870 F.2d 1176, 1191, 10 U.S.P.Q.2d 1001 (7th Cir. 1989) (indicating that a manufacturing cost differential does not necessarily translate into a retail price differential). Commercial success also might be measured in terms of "sales." See Landscape Forms, Inc. v. Columbia Cascade Co., 70 F.3d 251, 36 U.S.P.Q.2d 1790 (2d Cir. 1995).

139 Production theory addresses a producer's choice of inputs, the relationship between multiple inputs, and the effects of input choice on a producer's production costs and output. See generally HIRSHLEIFER & HIRSHLEIFER, supra note 110, at 309-47 (dealing with demand for factors of production, resource supply, and factor-market equilibrium).

140 Production theory typically assumes production in which all necessary inputs are converted by a producer into a finished product for sale to a consumer. Inputs are sometimes referred to as "factors" or "producer goods." See generally 1 PALGRAVE DICTIONARY OF ECONOMICS, supra note 56, at 884; HIRSHLEIFER & HIRSHLEIFER, supra note 110, at 310. Sometimes a distinction is drawn between the source of productive services (e.g., a robot that paints automobiles) and the productive services it provides (e.g., painting services). See id. 314, 374. Conceptually, this is similar to the point that products provide services to consumers. See generally MILTON FRIEDMAN, PRICE THEORY 153 (1976).
incorporates the inputs.\textsuperscript{141} A producer wants to incorporate inputs that result in a product that maximizes the producer’s profits.\textsuperscript{142}

If a design feature is one among multiple inputs incorporated into a product, economic theory suggests multiple complications that may make it difficult to isolate and measure that particular design feature’s importance to the commercial success of the product incorporating it.\textsuperscript{143} In general, this is because multiple inputs may “cooperate” in contributing to a product’s capacity to provide useful or aesthetic services.\textsuperscript{144} Specific complications can include that (1) multiple inputs may interact with each other and be interdependent; (2) each input may make a contribution to the cost of and the profits from the production and sale of the product, and the contribution of each input to the cost and profits may differ; (3) the producer’s choice of inputs may affect the quantity of the product produced; (4) the producer’s choice of inputs may affect the quality of the product produced; and (5) a producer must decide how much cost to incur and quality and quantity to produce, recognizing that higher costs and increased quality or quantity may or may not generate additional profits. There are other isolation and measurement problems as well.\textsuperscript{145}

\textsuperscript{141} See Prufrock Ltd. v. Lasater, 781 F.2d 129, 228 U.S.P.Q. 435 (8th Cir. 1986) (stating that consumer demand for a product includes the demand for the trade dress that creates the product). See generally FRIEDMAN, supra note 140, at 153 (stating that the demand for inputs reflects indirectly the utility consumers attach to final products and is derived from the demand for final products). The linkage between the demand for the product and the demand for the inputs may be closest when the amount of the input required is “rigidly and technically” linked to the amount of the product. \textit{Id.}

\textsuperscript{142} See HIRSCHLEIFER & HIRSCHLEIFER, supra note 110, at 320.

\textsuperscript{143} See generally id. at 320-33 (discussing production using several variable inputs).

\textsuperscript{144} See generally id. at 330.

\textsuperscript{145} For example, production theory employs a concept of “marginal rate of substitution” which means the amount of input X that can be substituted for a small change in input Y while leaving the firm indifferent in the sense of generating the same output quantity or quality. A marginal change is the increment or decrement in the amount of a variable. See generally HIRSCHLEIFER & HIRSCHLEIFER, supra note 110, at 328. Information concerning marginal units is virtually impossible to obtain in litigation, so an imperfect surrogate may have to be employed. See generally HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §§ 8.2-8.3 (2d ed. 1999) (discussing marginal cost pricing and the use of average variable cost as a surrogate for marginal cost). Antitrust law can help to illuminate trademark law, and is used in that spirit in this Article. See infra Part IV. However, the two bodies of law have different histories and purposes, employ different methodologies, and differ substantively. See generally 1 MCCARTHY, supra note 22, §§ 1:22-1:24. Therefore, this Article does not endorse using antitrust law to decide functionality cases. See LANDES & POSNER, supra note 119, at 289 (stating that it “would not pay, privately or socially, to conduct an antitrust-type analysis in most trademark cases”). But see, e.g., M.A. Cunningham, Utilitarian Design Features and Antitrust Parallels: An Economic Approach to Understanding the Functionality Defense in Trademark Litigation, 18 HASTINGS COMM. & ENT. L.J. (1996) (advocating an antitrust-type determination of product market definition and
The presence of multiple cooperating inputs may cause uncertainty in defining the choice design feature and in isolating its contribution to the services provided by a product. The highway sign stand in TrafFix provides an excellent example of these difficulties. Complications resulting from the presence of multiple cooperating inputs also may make it difficult to compare the cost, quality, or commercial success effects attributable to a choice design feature with those attributable to alternative design features.

Because functionality determinations may be made under conditions of uncertainty, decision makers should require evidence of multiple alternative design features that seem to be functionally equivalent to a choice design feature before concluding that the choice design feature is nonfunctional. In fact, courts do tend to require evidence of multiple alternative design features. That inputs cooperate and that this cooperation results in isolation and measurement problems also suggests that senior producers may find it difficult to demonstrate the nonfunctionality of useful choice design features in products like the sign stand in TrafFix that are designed to yield a specific useful service or a cluster of useful services.

IV. TOWARDS CAREFUL, REASONED, AND SENSITIVE EVALUATIONS OF COMPETITIVE EFFECT

Parts Two and Three of this article highlighted etymological and economic complexities imbedded in the functionality doctrine, and also discussed ways in which the doctrine might be clarified. After summarizing firm concentration). A complete analysis of the relationship between trademark law and antitrust law is beyond the scope of this Article.

146 See infra Part IV.G.

147 See, e.g., Keene Corp. v. Paraflex Indus., Inc., 653 F.2d 822, 211 U.S.P.Q. (BNA) 201 (3d Cir. 1981) (concluding that 12-15 alternative designs are too "limited" to render the choice design nonfunctional); Ideal Toy Corp. v. Plawner Toy Mfg. Corp., 685 F.2d 78, 81, 216 U.S.P.Q. (BNA) 102 (3d Cir. 1982) (stating that a choice design is nonfunctional when alternatives "are limited only by designers' imaginations"). The fact that one or several designs are marketed is relevant to but may not be dispositive of the functionality issue. See Thomas & Betts, 138 F.3d at 299. See generally UNFAIR COMPETITION RESTATEMENT § 17, cmt. b (1995) (stating that "a design may be functional if it is one of a limited number of superior designs"). Proof that some alternative design features actually exist may suggest that others are possible. See Landscape Forms, Inc. v. Columbia Cascade Co., 117 F. Supp. 2d 360, 364, 56 U.S.P.Q. (BNA) 1613 (S.D.N.Y. 2000).

148 See infra Part IV.G. See generally Leatherman Tool Group, Inc. v. Cooper Indus., Inc., 199 F.3d 1009, 1013 n.6, 53 U.S.P.Q.2d (BNA) 196 (9th Cir. 1999) (stating in a case involving a multi-purpose pocket tool that "[a]s a practical matter . . . it may often be difficult to show that the configuration of a useful product is not functional.").
these lessons, this part of the article focuses upon how courts may decide functionality cases with care, reason, and sensitivity to effects on competition; and how \textit{TrafFix} affects this process.

A. MOVING BEYOND DESPAIR

It is easy to despair of rationalizing the etymological debris composing the functionality doctrine.\textsuperscript{149} There is vagueness there. For example, what is an “important” ingredient? Vagueness may be useful because it provides flexibility through generality and abstraction.\textsuperscript{150} However, there also is ambiguity there. For example, must a choice design feature be “essential” to the product incorporating it, or need it merely “affect” the product? Ambiguity creates uncertainty.\textsuperscript{151} The functionality doctrine also employs terminology in ways that are distinctively different from the manner

\textsuperscript{149} Part II of this Article indicates that a choice design feature is functional if its relationship to the product incorporating it is in some way essential, primary, common, characteristic, necessary, important, significant, or limited; in addition, a choice feature is functional if it affects or contributes to the product or its commercial success; and a choice feature is functional if restricting its availability to competitors would unduly hinder competition. \textit{See also} Schwinn Bicycle Co. v. Ross Bicycles, Inc., 870 F.2d 1176, 1188, 10 U.S.P.Q.2d 1001 (BNA) (7th Cir. 1989) (discussing the difference between some of the formulations). \textit{See generally} DINWOODIE, supra note 20, at 685 (discussing the failure of courts and jurists to fashion a successful and consistent approach to functionality). One likely explanation for the functionality doctrine’s numerous formulations is that courts may employ varied terminology when they are mapping uncharted or difficult territory. \textit{See} KARL N. LLEWELLYN, THE BRAMBLE BUSH 47 (1960).

\textsuperscript{150} \textit{See} DICKERSON, supra note 79, at § 3.5.

\textsuperscript{151} \textit{See id.} The word “essential” is in itself problematic because it attaches an unusual meaning to a common term. \textit{See also In re} Morton-Norwich Prods., Inc., 671 F.2d 1332, 1339, 213 U.S.P.Q. (BNA) 9 (C.C.P.A. 1982) (stating that sometimes the term “essential” is employed to express that a design feature is functional, and that it is neither necessary nor helpful to do so). The word “functional” is ambiguous for the same reason. It is used in the case law both in a lay sense to indicate that a product has a function; and in a legal conclusion sense that in order to avoid harming competition, a design must not be protected against copying. \textit{See id.} at 1337 (labeling the former meaning “de facto functionality” and the latter “de jure functionality”). \textit{Morton-Norwich} also notes that the term “utilitarian” employed in some functionality opinions is a synonym for functional in the sense that a product that has a function has a utility. The term utilitarian is ambiguous because it can mean anything which gives pleasure in a philosophic sense and because it can mean useful in a sense excluding beauty, which is the lay meaning of utilitarian. \textit{See} W.T. Rogers v. Keene, 778 F.2d 334, 228 U.S.P.Q. 145 (7th Cir. 1985). Some courts have attempted to provide guidance concerning the meaning of the \textit{Inwood} standard (a design feature is functional if it is essential to the use or purpose of the article or if it affects the cost or quality of the article) discussed in Part II.C.2 of this Article. \textit{See, e.g.}, Warner Bros., Inc. v. Gay Toys, Inc., 724 F.2d 327, 331 (2d Cir. 1983) (stating that a design feature of a particular article is essential only if the feature is dictated by the functions to be performed, that a feature that merely accommodates a useful function is not functional, and that a design feature affecting the cost or quality of an article is one permitting the article to be manufactured at a lower cost or one which constitutes an improvement in the operation of an article).
employed by most jurors or, for that matter, attorneys and judges not steeped in the doctrine.

The economic perspective helps, but only to an extent. Economic theory confirms the soundness of case law making functionality turn on the sufficiency of alternative design features that might substitute for a choice design feature. It also discloses that there is no economic distinction between products and packaging or between useful and aesthetic design features. An economic lens also more sharply focuses the application of the functionality doctrine and reveals the linkage between consumer and producer costs.

However, economic theory also teaches that choice and alternative design features are not the only inputs that may affect a product's cost, quality, or commercial success. It may not be possible to isolate or measure the contribution of a choice design feature or an alternative design feature to a product or to distinguish those contributions from the contributions of other cooperating inputs into the same product. Nor may it be possible to vary choice or alternative design features while holding constant all the other variables that may affect a product's cost, quality, or commercial success. These problems compound because the functionality doctrine may require multiple determinations of a design feature's contribution to the services provided by a product: once for a choice design feature, and again for each alleged functionally-equivalent alternative design feature. Moreover, the "real world," unlike the economic model, is not limited to producers and consumers; it is more complex, containing suppliers of inputs to manufacturers (e.g., employees, raw material suppliers, etc.), a chain of distribution (e.g., wholesalers, retailers, etc.), and other actors including nonconsumer purchasers of products or services (e.g., Office Depot that purchases office trays for resale both to commercial users and to consumers).

In light of the functionality doctrine's etymology and economics, TrafFix represents a missed opportunity to simplify and clarify the doctrine and to provide useful guidance for its application. Instead, TrafFix may make matters worse by, among other things, adding to the doctrine's ambiguity.

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152 See supra Part III.
153 There also may be entities that function as consumer surrogates. For example, a physician may recommend a product to a consumer. See Abbott Labs. v. Mead Johnson & Co., 971 F.2d 6, 10, 23 U.S.P.Q.2d (BNA) 1663 (7th Cir. 1992).
154 See supra Part II.D.
and complexity, and by apparently limiting the use of evidence of alternative design features as the fulcrum for deciding functionality cases.

These outcomes would be unfortunate because, as the Supreme Court observed in its Qualitex opinion, the federal courts have demonstrated the capability to apply the functionality doctrine with care, reason, and sensitivity to competitive effect. The examples discussed in the balance of this part of the article demonstrate how courts have accomplished this or may do so in the future. The issues discussed were chosen because they are suggested by TrafFix (or the district or circuit court opinions leading to it), or because they are generally important to properly applying the functionality doctrine.

B. PROTECTION VERSUS ACCESS

Trademark law and its functionality doctrine reflect ambivalence toward protecting trade-symbolic design features. The benefits of protection must be balanced against the fundamental right to compete, which includes access to design features that are necessary to compete. On the one hand, trademark principles facilitate competition and promote consumer welfare by limiting access to design features that convey to consumers valuable information about product source and quality, that reduce consumer shopping and purchasing costs, and that encourage producers to invest in product quality.

Trademark protection for design features also may be

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155 See supra Part II.c.2.
156 As TrafFix put it, "product design almost invariably serves purposes other than source identification." . . . Trade dress protection must subsist with the recognition that in many instances there is no prohibition against copying goods and products. In general, unless an intellectual property right such as a patent or copyright protects an item, it will be subject to copying. As the Court has explained, copying is not always discouraged or disfavored by the laws which preserve our competitive economy. . . .

Allowing competitors to copy will have salutary effects in many instances. TrafFix, 121 S. Ct. at 1260 (citing Wal-Mart Stores, Inc. v. Samara Bros., Inc., 120 S. Ct. 1339, 1344 (2000). The nonfunctionality requirement reflects the importance of access. It is based "on the judicial theory that there exists a fundamental right to compete through imitation of a competitor's product, which right can only be temporarily denied by the patent or copyright laws." Morton-Norwich, 671 F.2d at 1336 (emphasis in original). See also Graham v. John Deere Co., 383 U.S. 1, 7, 148 U.S.P.Q. (BNA) 459 (1966) (stating that Americans have an "instinctive aversion to monopolies" that affects the scope of intellectual property protection). See generally Goldstein, supra note 15, at 875.

advantageous for a producer seeking to introduce a new product into a limited area and ultimately to expand into new markets. Market entry may provide consumers with lower costs and greater choice.

On the other hand, as Trafficix properly makes abundantly clear, trademark law does not exist to reward producers' investments in innovative design features; that is the province of patent law which conditions protection upon innovation and which provides a limited period of exclusivity. Limiting access to choice design features through the use of trademark principles can discourage market entry and limit the number of competitors in a market below the number needed to provide consumers with products at or near their cost of production. This is because trademark rights in choice design features do not merely differentiate products so that consumers become loyal to a particular brand; these rights also may limit competitor access to scarce product inputs needed to compete.

On balance, after Congress' statement that senior producers generally bear the burden of proving nonfunctionality, and after Trafficix, the consumers need a reasonable amount of information). The benefits of brand differentiation can be substantial because it enables consumers to easily identify a product's source. It also increases a producer's incentive to maintain quality and, through promotion of the brand, expand sales to achieve cost-efficient production and distribution. See Lawrence A. Sullivan & Warren S. Grimes, The Law of Antitrust: An Integrated Handbook 298 (2000). By minimizing consumer confusion, trademark law also prevents diversion of trade, another benefit for trademark owners. See Peter E. Mims, Promotional Goods and the Functionality Doctrine: An Economic Model of Trademarks, 63 Tex. L. Rev. 639, 659 (1984).


See Butler, supra note 58, at 277 (stating that competitors engage in price cutting and quality improvement).

Trafficix, 121 S. Ct. at 1262-63. The requirements for patents and copyrights and their terms are summarized supra note 13. Nor, according to Trafficix, do trademark principles "protect trade dress in a functional design simply because an investment has been made to encourage the public to associate a particular functional feature with a single manufacturer." Trafficix, 121 S. Ct. at 1262-63. Cf. United States v. Steffens (The Trade-Mark Cases), 100 U.S. 82, 94 (1879) ("The ordinary trade-mark [e.g., a word or a symbol] has no necessary relation to invention or discovery.").

See generally Hovenkamp, supra note 145, at §§ 1.1-1.2. Under competition, producers may earn a normal profit, but not an extraordinary profit. Every consumer willing to pay the competitive market price can buy the output at that price. A producer with substantial market power or a monopoly confronts consumers with higher than competitive prices. Trademark rights promote product differentiation which may tend to limit interbrand competition and result in market power. See Sullivan & Grimes, supra note 157, at 298.

See generally Hovenkamp, supra note 145, at § 3.9(d) (stating that on the demand side, intellectual property rights seldom result in a monopoly; but on the supply side, intellectual property rights may effectively restrict market entry).
functionality doctrine must be strongly biased towards competitive access to choice design features. Absent some other countereviling intellectual property right, many functionality cases explicitly or implicitly recognize that a junior producer should be permitted to free ride on the functional aspects of the senior producer's design, notwithstanding trademark principles to the contrary. The importance of access also is reflected by functionality cases that do not delve very deeply into the trade-off between the costs and benefits of trademark protection for design features. Competitor access simply trumps other considerations when functionality is a close issue. However, the functionality doctrine should not be applied so absolutely that any design feature that has any function or that has any effect on a product's cost, quality, or commercial success is functional. As the TrafFix Court pointed out, it is well established that design features can be protected under the Lanham Act.

C. FUNCTION VERSUS SOURCE IDENTIFICATION

The Supreme Court in TrafFix observed that "product design almost invariably serves purposes other than source identification." Thus, in functionality litigation it is necessary to distinguish a choice design feature's useful or aesthetic contribution to a product from its service as a source identifier. Only then is it possible to decide whether the design feature is

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163 Burden of proof is considered supra Part II.C.1. The over-arching importance of access also is illustrated by the Supreme Court's recent decision in Wal-Mart Stores, Inc. v. Samara Bros., Inc., 529 U.S. 205, 54 U.S.P.Q.2d (BNA) 1065 (2000). There the Court reasoned that in the case of unregistered product designs, the functionality bar is insufficient to protect competition and new entrants from plausible unfair competition "strike suits" brought under section 43(a) of the Lanham Act. See id. at 214.

164 See, e.g., Epic Metals Corp. v. Souliere, 99 F.3d 1034, 1042 n.20 (11th Cir. 1996) (stating that "public policy favors competition by all fair means, and that encompasses the right to copy, very broadly interpreted, except where copying is lawfully prevented by a copyright or patent . . . and functional shapes are never capable of being monopolized" even if otherwise protected by trademark law).

165 See, e.g., Stormy Clime Ltd. v. Progroup, Inc., 809 F.2d 971, 976, 1 U.S.P.Q.2d 2026, 2030 (2d Cir. 1987) (stating that "the important purpose of the functionality defense is to 'protect advances in functional design from being monopolized so as to encourage competition and the broadest dissemination of useful design features' ").

166 See TrafFix, 121 S. Ct. at 1259 (referring to protection for trade dress).

167 Id. at 1260.

168 See generally Christopher J. Kellner, Comment, Rethinking the Procedural Treatment of Functionality: Confronting the Inseperability of Useful, Aesthetically Pleasing, and Source-Identifying Features of Product Designs, 46 EMORY L.J. 913 (1997) (discussing the problem of distinguishing a design feature's role as a source identifier from the useful or aesthetic services it contributes to a product).
Pebble Beach Co. v. Tour 18 Ltd. carefully drew this distinction.\textsuperscript{169}

\textit{Pebble Beach} involved golf courses. The senior producer’s course is distinguished by the presence of an octagonally-shaped-red-and-white-striped lighthouse visible from the tee box and fairway of the course’s 18th hole.\textsuperscript{170} The evidence demonstrated that the design of the 18th hole including the lighthouse both provides useful and aesthetic services to golfers and also serves as a widely recognized trade symbol. Many golfers use the lighthouse as a target to line up tee shots; and the picturesque waterside hole, nick-named the “Lighthouse Hole,” is the course’s signature hole and one of the most famous holes in golf. The Lighthouse Hole was intentionally located to be visible during televised golf tournaments, and the senior producer emphasizes it in promoting its golf course.

The junior producer created golf courses exclusively consisting of golf holes copied from famous golf courses including the Lighthouse Hole. The junior replicated the Lighthouse Hole by employing topographic maps, video tapes, and computer technology; and described or pictured the replica hole in its advertising and promotional materials.\textsuperscript{171}

The district court entered an injunction requiring the junior producer to stop using images of the Lighthouse Hole and ordering it to remove the replicas. On appeal, the junior argued that its product is golf courses providing replicas of famous golf holes, and that it must be permitted to copy famous golf holes in order to produce that product.\textsuperscript{172} However, there was evidence that the senior producer’s design was not functional in either the useful or the aesthetic senses because there are many alternative designs available to one wishing to produce golf course services.\textsuperscript{173} The Fifth Circuit recognized that what the junior actually sought was to trade on the senior’s extensive good will. The logical extension of the junior’s argument virtually would eliminate trademark protection for strongly trade-symbolic design features.\textsuperscript{155 F.3d 526, 48 U.S.P.Q.2d (BNA) 1065 (5th Cir. 1998).}

\textsuperscript{171} The junior producer sometimes referred to its replica as “The Lighthouse Hole.” The junior usually employed disclaimers on its golf courses and in promotional materials stating that the replica holes were not endorsed, sponsored by, or affiliated with the originals. \textit{Id.} at 534-35.

\textsuperscript{172} \textit{Id.} at 538.

\textsuperscript{173} The Fifth Circuit declined to adopt the doctrine of aesthetic functionality, but noted that because the evidence demonstrated that protecting the senior producer’s golf-hole design would not burden competition, it followed that the design was not aesthetically functional. \textit{Id.} at 540 n.6.
features because a junior producer could always argue that it is in the replica business and that there is no alternative for the replicated design.

D. EVIDENCE OF FUNCTIONALITY

The principal question in TrafFix was the effect of expired utility patents on a claim of trademark infringement. TrafFix was not a close case with respect to whether the senior producer met its burden of showing nonfunctionality. Both the patents in issue and related evidence strongly suggested that the design feature in which the senior producer sought exclusive rights was functional due to an absence of functionally-equivalent alternative design features, and any evidence of nonfunctionality was unconvincing. Nonetheless, the Supreme Court’s opinion is significant for what it says about patents qua evidence of functionality. This part of the article also discusses important evidentiary principles that emerge from the body of cases considering nonpatent-related evidence of functionality.

1. Patents. Utility patents disclosing the advantages of designs for which a senior producer claims trademark protection are recognized as one important source of evidence of functionality. TrafFix addressed the effect of two expired utility patents on a senior producer’s right to bar a junior producer from copying the dual-spring design feature in a traffic control sign stand. According to TrafFix, a utility patent provides “strong evidence” that a design feature claimed in it is functional. This evidence adds “great weight” to the federal statutory presumption that the design feature is functional until proven otherwise, and a senior producer must carry a “heavy burden” of showing that the feature is nonfunctional. Methods that a senior producer might employ to carry this burden include demonstrating that a choice design feature is merely an ornamental, incidental, or arbitrary aspect of a patented device.

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174 Both this part and Part IV.G consider the functionality of the design feature at issue in TrafFix.
175 See generally 1 MCCARTHY, supra note 22, § 7:89. A utility patent is the most common type of U.S. patent; and may be issued for, among other things, a machine, manufacture or composition of matter. 35 U.S.C. §§ 100, 101 (1994). It should be distinguished from a design patent which covers an ornamental design employed in an article of manufacture. Id. § 171. A design feature may be protected both by a design patent and under trademark principles. See generally 1 MCCARTHY, supra note 22, §§ 7:90, 7:91.
176 TrafFix, 121 S. Ct. at 1260.
177 Id. The presumption is discussed supra Part II.C.1.
178 The Court indicated that where a senior producer seeks to protect arbitrary, incidental, or ornamental aspects of features of a product
Beyond that, \textit{TrafFix} provides some minimal guidance concerning how to identify and weigh patent-related evidence of functionality. One lesson is that for the patent to be relevant, the design feature it discloses must be the same design feature that the senior producer seeks to protect against trademark infringement. Initially this seemed not to be the case in \textit{TrafFix} because the dual springs shown in the patents were spaced well apart at each end of a frame and were intended to hold a sign by two corners, while the dual springs copied by the junior producer were spaced very close together in a frame intended to hold a sign by one corner. However, the patents were relevant to the senior producer’s trademark claim because the senior producer previously had succeeded in patent litigation against a different defendant.\textsuperscript{179} There, the patents were held infringed by springs positioned much like the dual-spring design at issue in \textit{TrafFix}.\textsuperscript{180}

\textit{TrafFix} concluded that the dual-spring design feature claimed in the expired patents was functional because it served the important purpose of keeping a traffic sign upright during heavy winds, and did so in a unique and useful manner.\textsuperscript{181} This conclusion was supported by a patent specification reciting how prior art devices toppled under strong winds while the dual-spring design feature resisted toppling.\textsuperscript{182} Another specification indicated

\begin{quote}
found in the patent claims, such as arbitrary curves in the legs or an ornamental pattern painted on the springs, a different result might obtain. There the manufacturer could perhaps prove that those aspects do not serve a purpose within the terms of the utility patent. \textit{TrafFix}, 121 S. Ct. at 1262. The terms “arbitrary,” “incidental,” and “ornamental” are further discussed supra note 109.
\end{quote}

\textsuperscript{179} The plaintiff in the patent litigation was the patent owner and the senior producer’s president. Mktg. Displays, Inc. v. TrafFix Devices, Inc., 971 F. Supp. 262, 273 n.11 (E.D. Mich. 1997). The Supreme Court indicated that rulings in the patent case were procured at the senior producer’s insistence. \textit{TrafFix}, 121 S. Ct. at 1261. Patent-related evidence of functionality may be especially important if the same person who successfully applied for the patent later seeks to protect the appearance of the patented invention under trademark principles. See 1 \textit{MCCARTHY}, supra note 22, \S 7:89.1 at 7-252.

\textsuperscript{180} In the patent litigation, the alleged infringer’s sign stand did not appear to infringe the literal terms of the patent claims. However, it infringed the patents under the doctrine of equivalents which allows a finding of patent infringement even when the accused product does not fall within the literal terms of the patent’s claims. Sarkisian v. Winn-Proof Corp., 697 F.2d 1313, 1321-22, 217 U.S.P.Q. (BNA) 702, 710-11 (9th Cir. 1983). To be an equivalent, the allegedly infringing product must perform substantially the same function in substantially the same way to obtain the same result. 5A \textit{CHISUM}, supra note 13, at \S 18.04.

\textsuperscript{181} \textit{TrafFix}, 121 S. Ct. at 1261.

\textsuperscript{182} A patent specification must contain a written description of the invention and the manner and process of making and using it in full, clear, concise, and exact terms enabling any person skilled in the art to make and use the invention. It also must set forth the best mode contemplated by the inventor of
that employing dual springs rather than a single spring prevented a sign from canting or twisting which might damage the spring structure or cause tipping.\textsuperscript{183} Thus, \textit{TrafFix} indicates that language contained in an expired utility patent, but outside its claims, may assist an inquiry into whether a design feature is functional due to its inclusion in the patent's claims.\textsuperscript{184}

More generally, when the functionality of a design feature is in issue and an expired utility patent may be relevant, the critical question will be whether the feature serves "a purpose within" the terms of the patent or is a "useful part" of the invention.\textsuperscript{185} This terminology is not employed in patent law in the same way that it was employed by the \textit{TrafFix} Court, so the lower courts must flesh out its meaning.\textsuperscript{186} \textit{TrafFix} thus shares some of the shortcomings of the Court's more general \textit{Inwood} standard that a design feature is functional if it is essential to the use or purpose of an article or if it affects the cost or quality of the article.\textsuperscript{187}

carrying out the invention. The specification is required to conclude with claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as its invention. 35 U.S.C. § 112 (1994).

\textsuperscript{183} \textit{TrafFix}, 121 S. Ct. at 1261.

\textsuperscript{184} \textit{Id.}

\textsuperscript{185} \textit{Id.}

\textsuperscript{186} For example, an invention must be "useful" to be patentable. 35 U.S.C. § 101 (1994). However, it is unlikely that this requirement can bear on the question of functionality in a trademark case. As a matter of patent law, an invention need not be superior to existing products, and the Patent Office normally presumes that an invention has the requisite utility. An invention lacks utility if it is inoperable, does not operate to achieve some minimum human purpose, or is contrary to public policy. See 1 CHISUM, supra note 13, §§ 4.01, 4.04[1].

\textsuperscript{187} See supra Parts II.C.2, and IV.A. The \textit{TrafFix} opinion likely disappoints scholars who argue that there should be a "bright line" rule precluding trademark protection for design features disclosed in a utility patent. See, e.g., Todd R. Geremia, \textit{Protecting the Right to Copy: Trade Dress Claims for Configurations in Expired Utility Patents}, 92 NW. U. L. REV. 779 (1998) (stating that anything short of a bright line preclusion rule fails to protect the right to copy adequately). Yet, they may have hope. The junior producer in \textit{TrafFix} and some of its \textit{amici} argued that the Intellectual Property Clause of the Constitution (art. I, § 8, cl. 8) prohibits the holder of an expired utility patent from claiming trade dress protection. In response to this argument, the Court stated that "[i]n, despite the rule that functional features may not be the subject of trade dress protection, a case arises in which trade dress becomes the practical equivalent of an expired utility patent, that will be time enough to consider the matter." \textit{TrafFix}, 121 S. Ct. 1263. The Court neither elaborated nor carefully considered the divergent approaches employed in the federal circuit courts to determine the extent to which patent laws limit trademark protection for design features. This failure is surprising, given that the Court granted certiorari to resolve a split of circuits on this issue. See supra note 98 and accompanying text. See generally Theodore H. Davis, \textit{Copying in the Shadow of the Constitution: The Rational Limits of Trade Dress Protection}, 80 MINN. L. REV. 595 (1996) (examining the Supreme Court's interpretations of the Intellectual Property Clause and arguing that the clause creates a constitutional right to copy that trumps federal intellectual property legislation including the Lanham Act).
Patent-related evidence of functionality in *TrafFix* was not limited to the expired patents' contents. It also included representations made by the applicant for the patents during the prosecution process acknowledging that employing three springs would unnecessarily increase the cost of the sign stand. Thus, *TrafFix* also endorses the use of prosecution history to inform an inquiry into whether a design feature is functional due to its inclusion in the claims of an expired utility patent. That the senior producer did not assert that any of its representations were mistaken or inaccurate was also, according to *TrafFix*, strong evidence of the dual-spring feature's functionality.

2. Other Evidence. A decision maker may infer that a choice design feature lacks functionally-equivalent alternative design features from evidence that the choice feature is important to persons who consume, purchase, produce, or otherwise are knowledgeable about the product incorporating the choice design feature. A decision maker also may hear evidence specifically concerning the cost, quality, or commercial success effects of choice and alternative design features. These two types of evidence are interrelated and may or may not reinforce each other. For example, a producer's advertising touting the advantages of a product incorporating a choice design feature might suggest that the feature's contribution to the product is superior relative to the potential contributions of alternative design features. The same producer may produce accounting, engineering, or marketing data bearing upon the relative cost, quality, or commercial success effects of the choice and alternative design features.

An evidentiary inquiry into cost, quality, or commercial success effects might best begin with consumers or other purchasers because it is their demand for useful or aesthetic product services that drives producer demand for design features enabling a product to provide those services.

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188 *TrafFix*, 121 S. Ct. at 1262. This use of prosecution history is reminiscent of its use to raise an estoppel that is available as a defense to a claim of patent infringement. See *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 30-34, 41 U.S.P.Q.2d (BNA) 1865, 1871-73 (1997).

189 Functionality cases sometimes contain evidence obtained directly from nonconsumer purchasers concerning the desirability of a choice design feature. See, e.g., *Fabrication Enter., Inc. v. Hygenic Corp.*, 64 F.3d 53, 56, 35 U.S.P.Q.2d (BNA) 1753, 1754-55 (2d Cir. 1995) (containing testimony from a physical therapist concerning the importance of color coding employed on therapy equipment). Survey or other evidence obtained directly from consumers is very uncommon in functionality cases. This may be because it is easier to obtain evidence from relatively smaller-in-number and easier-to-locate "upstream" firms such as distributors or producers dealing in products incorporating the features. See, e.g., *Zippo Mfg. Co. v. Roger Imports, Inc.*, 216 F. Supp. 670, 680-86, 137 U.S.P.Q. (BNA) 413, 421-25 (S.D.N.Y. 1963)
is evidence that consumers or other purchasers believe that the choice design feature makes a product more useful or aesthetically pleasing and that they are influenced to purchase the product because of that feature, then one may infer that the choice feature lacks sufficient alternative design features. If the choice design feature actually makes the product more useful or beautiful should not matter. What does matter is the perception that the feature enhances the product’s ability to provide services. If a design feature is not related to consumer or other purchaser demand for a product’s services and serves merely as a trade symbol, then the functionality doctrine is inapplicable.

Information concerning preferences flows “upstream” from consumers or other purchasers to producers and the producers’ actual or potential competitors. One may obtain evidence concerning cost, quality, or commercial success effects from designers, engineers, distributors, marketing personnel, and the like. Evidence of both actual or hypothetical alternative

(containing an extensive discussion of consumer survey evidence bearing on issues of secondary meaning and likelihood of confusion, but considering producer testimony concerning functionality).

See, e.g., Abbott Labs. v. Mead Johnson & Co., 971 F.2d 6 (7th Cir. 1992), 23 U.S.P.Q.2d (BNA) 1663. The relevance of consumer demand is reflected in the functionality standard providing that functional design features constitute the actual benefits that consumers wish to purchase as distinguished from an assurance of origin or sponsorship. See, e.g., Clamp Mfg. Co. v. Enco Mfg. Co., 870 F.2d 512, 10 U.S.P.Q.2d (BNA) 1226 (9th Cir. 1989).

See, e.g., J.C. Penney Co. v. H.D. Lee Mercantile Co., 120 F.2d 949, 954, 50 U.S.P.Q. (BNA) 165 (8th Cir. 1941). Cf. SULLIVAN & GRIMES, supra note 157, at 44-45 (stating that a seller whose product is differentiated only in consumers’ minds may have enduring power to charge noncompetitive prices).

See, e.g., Truck Equip. Serv. Co. v. Fruehauf Corp., 536 F.2d 1210, 1218, 191 U.S.P.Q. (BNA) 79 (8th Cir. 1976) (describing testimony of the senior and junior producers that the choice design feature was chosen to be distinctive based upon marketing rather than engineering considerations and holding the feature nonfunctional). See generally supra Part IV.C (discussing the necessity of distinguishing a choice design feature’s aesthetic or useful contribution to a product from its service as a source identifier).

Cf. Monsanto Co. v. Spray-Rite Serv. Corp., 465 U.S. 752 (1984) (stating that distributors are important sources of information assuring that products reach consumers "persuasively and efficiently" and the transmission of such information does not support an inference that a manufacturer and a distributor conspired to violate the antitrust laws). The presence of competitors employing alternative design features is, in itself, evidence that the choice design feature is nonfunctional. See, e.g., Sunbeam Prods., Inc. v. West Bend Co., 123 F.3d 246, 44 U.S.P.Q.2d (BNA) 1161 (5th Cir. 1997).

See, e.g., Epic Metals Corp. v. Soulire, 99 F.3d 1034, 40 U.S.P.Q. (BNA) 1705 (11th Cir. 1996) (containing testimony from the senior producer’s president concerning the choice design feature’s contribution to a product’s services); Keene Corp. v. Paraflex Indus., Inc., 653 F.2d 822, 211 U.S.P.Q. (BNA) 201 (3d Cir. 1981) (referring to testimony of the junior producer’s vice president, electrical engineers, and architects concerning the aesthetic importance of the choice design feature); Pebble Beach Co. v. Tour 18 I Ltd., 155 F.3d 526, 538-39, 48 U.S.P.Q.2d (BNA) 1065 (5th Cir. 1998) (containing testimony of the junior producer’s marketing director concerning the competitive necessity of the choice design feature); Sno-Wizard Mfg., Inc. v. Eisemann Prods. Co., 791 F.2d 423, 230 U.S.P.Q. (BNA) 118 (5th
tive design features may be relevant.\textsuperscript{195} Product advertising or other promotional materials describing the advantages of a choice design feature also may provide evidence of functionality.\textsuperscript{196} Evidence of the importance of a choice design feature also may be found in consumer or trade publications.\textsuperscript{197}

Whatever its source, evidence concerning the functionality of a choice design feature in which the senior producer asserts trademark rights should pertain to that feature.\textsuperscript{198} It also should be evidence that the choice design feature is functional. Some evidence may support an alternative inference that the feature’s significance is trade symbolic. For example, a junior producer’s testimony that its customers asked it to copy the senior producer’s furniture design is ambiguous. The customers may have believed that the design enabled the product to provide superior useful or aesthetic services, they may have planned to free ride on the senior’s good will associated with the design, or they may have wished to capture both benefits.\textsuperscript{199}

\textsuperscript{195} Thomas & Betts Corp. v. Panduit Corp., 138 F.3d 277, 299, 46 U.S.P.Q.2d (BNA) 1026 (7th Cir. 1998).

\textsuperscript{196} See, e.g., American Greetings Corp. v. Dan-Dee Imports, Inc., 807 F.2d 1136, 1142, 1 U.S.P.Q.2d (BNA) 1001 (3d Cir. 1986) (stating that if a marketer advertises a product’s advantages, that constitutes “strong” evidence of functionality). \textit{But see Thomas & Betts}, 65 F.3d at 654 (finding that there were material questions of fact concerning whether statements in promotional materials referred to functional advantages of the choice feature or other features of the product).


\textsuperscript{198} See, e.g., Brunswick Corp. v. Spinit Reel Co., 832 F.2d 513, 4 U.S.P.Q.2d (BNA) 1497 (10th Cir. 1987) (advertising employed by junior producer to demonstrate functionality of choice design feature did not refer to the design of the product in issue).

\textsuperscript{199} Related evidence may justify concluding that the former inference is the appropriate one. See Landscape Forms, Inc. v. Columbia Cascade Co., 70 F.3d 251, 36 U.S.P.Q.2d (BNA) 1790 (2d Cir. 1995) (containing both the junior producer’s testimony that its customers asked it to copy the senior producer’s design and other evidence that the design provided a unique combination of grace and durability).
E. PRODUCT MARKET DEFINITION

The *TrafFix* litigation disclosed that the senior producer originally manufactured a portable wind-resistant sign stand used to display advertisements at gas stations or other places of business. Subsequently it modified the design to produce portable wind-resistant traffic warning sign stands. Thus, the product market in *TrafFix* might have been defined as the market for portable wind-resistant traffic warning sign stands or, more broadly, the market for all portable wind-resistant sign stands.

There are many functionality opinions in which judges refer to “product markets” and employ related terminology such as “market foreclosure” and “monopoly.” This practice may seem appropriate because product market supply and demand and product characteristics are relevant both to functionality analysis and to defining a product market for antitrust purposes. In addition, denial of the use of a choice design feature effectively would seem to keep a junior producer out of a senior’s product market. If the junior producer is so foreclosed, then the senior producer seems to have a monopoly. At least one court has suggested that a broad product market definition may tend to render a choice design feature nonfunctional and susceptible to trademark protection by broadening the range of functionally-equivalent alternative design features available to junior producers. Conversely, a narrow definition might reduce this range.

201 See, e.g., *American Greetings*, 807 F.2d at 1148-49 (referring to market foreclosure and monopolizing).
202 See generally supra Part III (discussing the nature of cost, quality, and commercial success effects and the trouble with *TrafFix* from an economic standpoint); 2A PHILLIP E. AREEDA ET AL., ANTITRUST LAW ¶ 562a (Rev. Ed. 1995) (stating that a product market includes identical products, products with such negligible physical or brand differences that buyers regard them as the same product, and products that buyers consider to be close substitutes).
204 See Topps Co. v. Gerrit J. Verburg Co., 1996 U.S. Dist. LEXIS 18556 at *23, 41 U.S.P.Q.2d (BNA) 1412 (S.D.N.Y. Dec. 13, 1996) (stating that courts define product lines rather broadly for purposes of determining functionality so that an infringer cannot assert functionality on the theory that the senior producer’s design constitutes a narrow product line with which the infringer can compete only by copying the choice design feature).
FUNCTIONAL DESIGN FEATURES

The TraffiX litigation apparently assumed the relevant product market to be the “traffic control field” or the “traffic control work zone market.” Thinking about functionality in product market terms is not necessarily a bad practice, but it can divert a court’s focus away from the ultimate issue: whether a junior producer can compete by employing alternative design features that are functionally equivalent to a choice design feature employed by a senior producer. Courts should concern themselves with evidence of the cost, quality, or commercial success effects of choice and alleged alternative design features; burden of proof; and procedural posture. Two opinions illustrating both the importance of these considerations and that product market definition can be an unnecessary distraction are Brandir International, Inc. v. Cascade Pacific Lumber Co. and Leatherman Tool Group, Inc. v. Cooper Industries, Inc.206

In Brandir, the senior producer produced a useful and attractive bicycle rack made of undulating tubing. Its design originated from the design of a wire sculpture. The question on appeal to the Second Circuit was whether the junior producer was entitled to a summary judgment permitting it to copy the choice design free of the senior’s trademark rights. The court reversed after concluding that summary judgment was inappropriate because there may be many alternative bicycle rack designs. Their nature, price, and usefulness were material issues of fact not suitable for summary determination. The court ordered that on remand the issue should be viewed broadly in terms of bicycle racks in general, not one-piece undulating bicycle racks specifically.210

207 Summary judgment must be granted when there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. See FED. R. Civ. P. 56(c). The moving party must identify those portions of the record that demonstrate the absence of a genuine issue of material fact. See Celotex v. Catrett, 477 U.S. 317 (1986). The burden then shifts to the nonmoving party to go beyond the pleadings and by its evidentiary materials designate specific facts showing there is a genuine issue for trial. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242 (1986).
208 Brandir, 834 F.2d at 1149.
209 For example, the court had no way of knowing whether the size and weight of the pipes employed by the senior producer were the best or the most economical, or whether the dimensions of the bends in the senior’s design were dictated by a standard formula. It doubted that any of these considerations rendered the senior producer’s design functional. Id.
210 The court suggested in dictum that trees, parking meters, fire plugs, and other objects can support
Leatherman considered the functionality of a choice design feature consisting of the overall appearance of a multifunction pocket tool containing pliers and other tool blades. The question on appeal to the Ninth Circuit was whether the district court should have granted the junior producer's motion for judgment as a matter of law. The standard of review was whether there was substantial evidence to support the jury's verdict that the overall appearance of the junior producer's tool infringed upon the senior producer's trademark rights. Evidence disclosed that the junior producer's multipurpose tool was an almost exact copy of the senior's.

There were many other multifunction tools in a variety of sizes and appearances that were highly useful, perhaps even as useful as the senior producer's. However, none of the alternatives offered precisely the same services as the senior's. The Ninth Circuit reversed, concluding that the senior did not have the right to prevent competition "in any particular subset of the overall market." The Ninth Circuit in Leatherman suggested that its narrow product market definition might be irreconcilable with the Second Circuit's broad definition in Brandir. However, the two cases can be reconciled by giving a bicycle. Id. at 1149 n.5.

211 Leatherman, 199 F.3d at 1011. In the Ninth Circuit, denial of a motion for judgment notwithstanding the verdict results in the appeal being taken from the judgment entered on the verdict. Therefore, the standard of review for denial of J.N.O.V. is the same as the standard for reviewing a jury verdict: both the verdict and the denial of the motion must be reversed if there is not substantial evidence to support the verdict. Substantial evidence is such relevant evidence as reasonable minds might accept as adequate to support a conclusion even if it is possible to draw two inconsistent conclusions from the evidence. Neither the trial court nor the appellate court may weigh the evidence or assess the credibility of witnesses in determining whether substantial evidence exists. See Landes Constr. Co. v. Royal Bank of Canada, 833 F.2d 1365, 1370-71 (9th Cir. 1987).

212 Few, if any, differences in appearance were readily noticeable without a close inspection. Leatherman, 199 F.3d at 1011 n.4.

213 Leatherman court thought the two cases might be reconciled because while Brandir stated it would be appropriate to examine a broad product line, nothing in it suggested that after examination one could not conclude that "widely" different products did not fulfill the same functions, or fulfill them as well. But the Leatherman court also stated that to the extent that the Second Circuit's Brandir opinion suggests that a product feature is nonfunctional if there is any alternative design that competes to any
due regard to evidence, burden of proof, and procedural posture. Product market definition adds nothing helpful.

In Brandir, the junior producer may have copied the senior’s bicycle rack because the choice design feature, the rack’s overall design, enabled the rack to provide both aesthetic and useful services. The rack both was attractive and supported parked bicycles. The court could not separate the design’s aesthetic contributions from its useful contributions because both form and function were fused into the same design. To the extent that the design’s contribution was aesthetic, there probably were functionally-equivalent alternative designs because choice design features enabling a product to provide aesthetic services often have sufficient alternatives. To the extent that the design enabled the product to provide useful services, there probably were functionally-equivalent alternative designs that would support parked bicycles just as well as the choice design. The junior producer failed to meet its burden of demonstrating that there was no genuine issue concerning the lack of suitable alternative designs, so it was not entitled to summary judgment.

In Leathernan, the senior producer began in 1983 to market its pocket tool that improved upon the classic Swiss army knife in several ways. The senior largely created the market for multifunction pocket tools. The junior producer introduced its tool in 1996, but the senior continued to dominate the market for pocket tools generally resembling its product despite vigorous competition by several well-known manufacturers. The degree, it is inconsistent with the functionality doctrine as applied in the Ninth Circuit. Leathernan, 199 F.3d at 1014.

215 The junior also might have copied the bicycle rack design because of its value as a trade symbol. The district court had not determined whether the design so served. Brandir, 834 F.2d at 1148 n.4.

216 It was for this reason that the design was not protected under copyright law. Id. at 1147. The Copyright Act draws a line between uncopyrightable industrial design and copyrightable works of applied art. See 17 U.S.C. § 101 (defining pictorial, graphic, or sculptural work). See generally MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW § 3.12 (3d ed. 1999).

217 See supra note 105.

218 In the Second Circuit, functionality was a defense that had to be pleaded and proved by the junior producer. See Landscape Forms, Inc. v. Columbia Cascade Co., 70 F.3d 251, 253 (2d Cir. 1995). Brandir was decided before Congress amended the Lanham Act to generally place the burden of proving nonfunctionality on senior producers. See supra Part II.C.1.

219 Leathernan, 199 F.3d 1009. One very important improvement was the inclusion of pliers which unfolded to nearly the equivalent of regular-sized nonfolding pliers. Id. at 1010.

220 Id. It had sold over seven million tools since introducing its product.

221 The senior producer came forward with seventeen alternative tool designs that contained many of the same components and performed many similar functions. Id. Competitors included Vitrinox, Gerber,
senior’s design for the overall appearance of its tool contributed only to the tool’s usefulness, not to its aesthetics; and evidence demonstrated that the tool provided superior performance.\textsuperscript{222} Given these facts, the Ninth Circuit correctly concluded that the jury’s verdict for the senior producer was not supported by substantial evidence. The senior producer bore the burden of proving nonfunctionality, and failed to demonstrate that other designs were functionally-equivalent alternatives for the senior’s choice design.\textsuperscript{223} Thus, the junior producer was entitled to copy it.\textsuperscript{224}

F. PRODUCT MARKET SHARE

Like product market definition, product market share also may be a distraction in functionality litigation. For example, Leatherman might suggest a direct relationship between market share and functionality: the larger a senior producer’s market share, the more likely it is that the senior is benefitting from a functional design feature that should be available to its junior competitors.\textsuperscript{225} However, a nondominant senior producer also may employ a functional choice design feature. Epic Metals Corp. v. Souliere is illustrative.\textsuperscript{226}

\textsuperscript{222} No witness pointed to any feature of the senior’s tool that was “ornamental” or intended to identify source with the exception of the senior’s name. \textit{Id.} at 1013. The copyright portion of the Brandir opinion discusses a spectrum of shapes and forms reflecting varying degrees of aesthetic or useful concerns. Brandir, 834 F.2d at 1145. A similar spectrum can be employed in functionality analysis. See Stormy Clime, Ltd. v. Progroup, Inc., 809 F.2d 971, 977, 1 U.S.P.Q.2d (BNA) 2026, 2031 (2d Cir. 1987). While the bike rack in Brandir reflected both aesthetic and useful concerns, the tool in Leatherman would fall close to the useful end of the spectrum. So would the dual-spring feature of the sign stand considered in Traffix.


\textsuperscript{224} The junior producer distinctively marked and packaged its product. Leatherman, 199 F.3d at 1014. These steps may not have eliminated post-sale confusion. Leatherman, 1996 U.S. Dist. LEXIS 21976, at *5 n.1.

\textsuperscript{225} See \textit{supra} Part IV.D. Market dominance may be attributable to consumers’ tastes for the dominant firm’s product or to the superiority of that product. United States v. Grinnell Corp., 384 U.S. 563, 574-75 (1966). Market dominance also may reflect the ability of a firm’s management to make decisions concerning manufacturing processes, distribution, and financing. See \textit{generally} 3 \textsc{Areeda et al.}, \textit{supra} note 202, ¶ 638.

\textsuperscript{226} 99 F.3d 1034, 40 U.S.P.Q.2d (BNA) 1705 (11th Cir. 1996).
In *Epic Metals*, the senior producer developed steel flooring that employed a dovetail design.²²⁷ The choice design feature was the flooring’s profile. It was designed so that concrete could be poured onto the flooring. The hardened concrete and steel flooring formed a composite deck in which the two materials were bound together by interlocking joints. The junior producer’s product mimicked the profile of the senior’s, having the same dimensions and employing dovetail ribs. Following a bench trial, the magistrate judge found that there were numerous alternative composite steel floor profiles competing with the senior’s product. The magistrate then formulated a market share analysis. He reasoned that the senior producer had a very small market share of about two percent of the composite steel floor industry. Therefore, the design must be nonfunctional. A functional design logically would have a much larger market share.²²⁸

The Eleventh Circuit disagreed, concluding that market share is not the definitive factor in evaluating a choice design’s functionality.²²⁹ A product with a small market share may yield enormous revenue and profits because it employs a choice design feature enabling it to provide superior services for which some purchasers are willing to pay a premium. Other designs are not sufficient alternatives because they yield services that are inferior, albeit satisfactory to many other purchasers. The court concluded that the magistrate’s finding of nonfunctionality clearly was erroneous because there was considerable evidence that the senior’s choice design was better than the design of other steel flooring used in composite deck systems.²³⁰

²²⁷ “Dovetail” refers to a fan-shaped tenon that forms a tight interlocking joint when fitted into a corresponding mortise. *Webster’s II New Riverside Dictionary*, supra note 43, at 401 (1988). When concrete was poured onto the senior’s product, its dovetail ribs together with the concrete created the flaring tendon and mortise. *Epic Metals*, 99 F.3d at 1036.

²²⁸ See *Epic Metals*, 99 F.3d at 1040.

²²⁹ *Id.*

²³⁰ The senior producer had the burden of proving nonfunctionality. It could not do so in light of evidence of functionality found in its promotional and marketing materials extolling the useful benefits of the dovetail profile and its president’s testimony that the shape of the dovetail rib and its dimensions played a critical role in enhancing the quality of a composite concrete/steel deck. *Id.* at 1040-42.
G. FUNCTIONALITY AND MULTIPLE DESIGN FEATURES

Products are comprised of multiple design features. For example, the sign stand and the sign in the TrafFix litigation included five primary design features: (1) a base, (2) a pair of vertically arranged closely spaced coil springs attached to the base, (3) multiple legs attached to the base and extending from it at angles, (4) an upright attached to the coil springs, and (5) a sign attached to the upright. A sixth important design feature was the overall appearance of the entirety of the five primary design features. As among multiple design features such as these, which should be the focus of an inquiry into functionality?

The answer seems straight forward. To obtain relief for trademark infringement, a senior producer generally must demonstrate that a design feature (1) serves as a source identifier; (2) causes likely confusion when copied by the junior producer; and (3) is nonfunctional. The senior producer must satisfy all three elements of a trademark infringement cause of action for the same choice design feature before it is entitled to relief against a junior producer that copies that feature. Thus, one might expect a senior producer to claim that a design feature is a source identifier, and that feature would be the focus of any eventual functionality analysis.

However, things may not be so simple. A senior producer’s arguments or evidence concerning the identity of the choice design feature may be ambiguous. Even if a senior producer clearly designates one design feature as a source identifier, that feature’s functionality may turn on its cooperation with other design features that may or may not be functional in their own right. Additionally, a senior producer might argue in the alternative that two or more design features serve as source identifiers and that each of them is nonfunctional. Complications like these caused some of the trouble with TrafFlex because they were not fully appreciated by the courts that considered the senior producer’s claim.

231 See supra Part III.B.
233 See supra Parts I and II.C.1.
234 See supra Part III.E.
The district court in the *TrafFix* litigation concluded that the design feature in issue was the dual-spring design feature because the senior producer conceded in its motion for summary judgment that it was the sign stand's only possible source identifier. The court also reasoned that the dual-spring design feature was the only feature capable of source identification because it was the only significant difference in appearance between the senior producer's product and its competitors. Once defined as the choice design feature, the dual-spring design feature became the focal point for the district court's functionality analysis.

The Sixth Circuit reversed the district court, concluding that the choice design feature was the overall appearance of all five of the primary design features. The district court had incorrectly focused on the dual-spring feature because every other competitor used the four other primary design features. It had failed to recognize that all the senior producer's other competitors lacked the dual-spring feature and did not emulate it. Therefore, if the junior producer wished to employ the dual-spring feature, it must find some other way to distinguish its product to avoid confusing the public. The junior might do this, suggested the Sixth Circuit, by employing

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235 *TrafFix*, 971 F. Supp. at 265.
236 *Id.* at 273. The district court was not 100 percent consistent in identifying the dual-spring feature as the choice feature. It generally referred to the dual-spring feature as the choice design feature in its discussion of secondary meaning and functionality, although its ultimate conclusion was that no reasonable trier of fact could conclude that the senior producer established secondary meaning in its "sign stand design." The court also concluded that, although it was itself firmly convinced that no likelihood of confusion existed, it could not say as a matter of law that there was no likelihood of confusion between the "trade dress" of the senior producer's "sign stand" and the junior producer's "sign stand." *Id.* at 272.
237 *Id.* at 272-76. The district court ultimately found that the dual-spring feature was functional and granted the junior producer's motion for summary judgment. The district court's reasoning concerning the functionality of the dual-spring feature seems convincing. Two expired utility patents attributed the sign stand's ability to withstand high winds to the dual-spring feature. *Id.* at 272. The dual-spring feature made the sign stand more stable in winds up to 75 miles per hour by controlling the sign's bending and twisting. *Id.* at 275-76. Alternative design features would need to contribute the same quality to the sign stand, and there was insufficient evidence that alternatives existed. *Id.* The dual-spring feature also reduced the size of the sign stand's base making it more compact and lighter, and lowered the cost to manufacture the sign stand. *Id.* Other evidence of functionality included a Michigan Department of Transportation sign standard (*id.* at 275 n.14) and the senior producer's advertising. *Id.* at 276. Concerning the senior producer's motion for rehearing, the district court stated that the senior failed to demonstrate a palpable defect that would result in a different disposition of its motion for summary judgment. *Id.* at 282.
238 *TrafFix*, 200 F.3d at 937. The appeals court applied a de novo standard of review because the district court granted summary judgment rather than conducting a trial. *Id.* at 933.
239 *Id.* at 940.
240 *Id.*
different leg (e.g., U-shaped or parallel), upright (e.g., twin poles or A-shaped), or spring (e.g., tri or quad or hidden) design features. They would create an entirely different overall look when combined with or substituted for the dual-spring design feature.

Finally, in TrafFix the Supreme Court focused on the dual-spring feature as the choice feature because it was the design feature determined to be at issue by the district court. However, the Court's opinion admitted some uncertainty concerning this determination when it subsequently stated that it was the dual-spring feature that the senior producer was "in essence" seeking to protect alone, that it was the "central advance" claimed in the expired patents, and that it was the "essential feature" of the senior's trade dress. As far as the other primary design features were concerned, the senior producer had pointed to nothing "arbitrary" about them or their assembly. The dual-spring design feature's functionality meant that the junior producer was not required to explore "other spring juxtapositions."

These three judicial analyses concerning the identity of the choice design feature resident in the combination of the sign stand plus sign offer three lessons. First, as part of its burden of proof a senior producer should be required to clearly identify the choice design feature or features allegedly wrongfully copied by the junior producer. Those features should be the focus of evidence relating to source identification, likelihood of confusion, and nonfunctionality.

Second, the Supreme Court's TrafFix opinion focused on the functionality of the dual-spring feature. It should not be read to undermine an important principle agreed upon by both the district court and the Sixth Circuit: when a court decides whether a product's overall configuration is functional, that configuration should be viewed in its entirety, and not as discrete individual design features. This principle recognizes that an

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241 Id.
242 TrafFix, 121 S. Ct. at 1258.
243 Id. at 1260, 1262.
244 Id. at 1262.
245 Id.
246 See supra Part IV.D.
247 Id. at 1258.
248 TrafFix, 200 F.3d at 940; TrafFix, 971 F. Supp. at 273.
overall combination of design features may be nonfunctional even if some or all of its constituent design features are functional.249

Third, decision makers should recognize that some or all of the multiple design features comprising a product may be functional due to how they cooperate with each other to enable the product to yield services.250 They also should recognize that it may be difficult to isolate and measure the contribution of a particular design feature to the services provided by a product.251 The district court in the TrafFix litigation came the closest to recognizing the presence of cooperating inputs after the senior producer contended that it was “entitled to consideration of its entire trade dress because the image and ‘look’ which separates it from its competitors is the entire ‘synergistic’ combination of [all five primary design features]. . . .”252 The district court rejected this line of argument, finding it curious because “synergism” is a patent law term reflecting that elements in a combination may cooperate with each other to produce a combined effect of all the elements.253 The district court believed that the senior producer’s argument supported its finding that the dual-spring feature was functional.254 And it did. It was the interaction of the five primary design features that enabled them to provide stable sign services under high winds.255 The dual-


250 See supra Part III.E.

251 See id.

252 TrafFix, 971 F. Supp. at 278 (denying senior producer’s motion for reconsideration).

253 Id. at 278 n.2. The Supreme Court has emphasized that a combination of old elements must achieve a synergistic result to meet patent law’s nonobviousness requirement. However, the federal circuit currently holds that synergy is not a requirement for a patent. See 2 CHISUM, supra note 13, §§ 5.04[5][ii], [c][ii][E].

254 Id.

255 See Sarkisian v. Winn-Proof Corp., 697 F.2d 1313 (9th Cir. 1983), which considered the two utility patents involved in the TrafFix litigation. Concerning the patented sign stand, the Ninth Circuit stated that “[i]t is the unique interaction among [its elements] . . . which enable it to combine the features of lightness and stability”; that “[n]othing in the prior art suggested that combining a pair of extension springs, a frame, a lightweight base and a sign of certain dimensions could result in an unanchored, truly portable, yet stable sign stand”; and that “[n]one of [the prior art] . . . do the spring means have the crucial and complex role which they play in [the patentee’s] . . . invention.” Id. at 1315-16, 1318-19. The infringed patents themselves contained language suggesting that all five primary design features made collective contributions to the sign stand’s stability. For example, they clearly indicated that both the dual-spring feature and the base were important to preventing the wind from tipping the sign stand. The sign stand was designed in accordance with a mathematical formula that incorporated the weight and dimensions of its design features. See U.S. Patent No. 3,662,482 (issued May 16, 1972); U.S. Patent No.
spring feature was designed in relation to the other primary design features, including the dimensions and weight of the base and the sign. The dual-spring feature may have been the most critical element. However most, and possibly all, of the other primary design features were functional too because each was required by the junior producer to create a product yielding cost, quality, and commercial success effects functionally equivalent to the senior's product. The entirety of the five primary design features probably also was functional. The Sixth Circuit did not appreciate the implications of its conclusions that the choice design feature was the entirety of the five primary design features, and that the junior producer should vary leg or other primary design features if it wished to employ the dual-spring feature. Requiring the junior producer to do so likely would have resulted in a product with cost, quality, or commercial success effects functionally inferior to those provided by the senior producer's product.

H. JUNIOR PRODUCER'S DUTY TO DEVELOP ALTERNATIVE DESIGN FEATURES

_Traffic_ states that competitors need not explore alternative design features when the choice design feature is functional, a statement that came after the Supreme Court concluded that the choice design feature in that case was

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3,646,696 (issued March 7, 1972). The evidentiary significance of these patents is further discussed _supra_ Part IV.D.1.

256 A single functional design feature employed by a senior producer may be an especially prominent element within the combination of design features comprising the senior's product. If so, it may be impossible for a junior producer to copy the functional feature without causing likely confusion even if the junior alters the product's nonfunctional design features. See, e.g., American Greetings Corp. v. Dan-Dee Imports, Inc., 807 F.2d 1136, 1145, 1147, 1 U.S.P.Q.2d (BNA) 1001 (3d Cir. 1986) (marketing a teddy bear that created likelihood of confusion could only be prohibited if it was feasible for the competitor to design a bear with "tummy graphics" that caused no probability of confusion). The dual-spring feature in _Traffic_ may have been an especially strong element among the sign stand's individual primary design features or within the appearance of the entirety of all of its primary design features.

257 If a product's appearance is composed exclusively of functional elements, that can suggest that the overall appearance of the product should be regarded as unprotectable by trademark law. Jeffrey Milstein, Inc. v. Greger, Lawlor, Roth, Inc., 58 F.3d 27, 33, 35 U.S.P.Q.2d (BNA) 1284 (2d Cir. 1995) (refusing trademark protection for greeting cards employing die-cut photographs).

258 See Publ'ns Int'l, Ltd. v. Landoll, Inc., 164 F.3d 337, 342, 49 U.S.P.Q.2d (BNA) 1139 (7th Cir. 1998) (stating that a product's overall appearance may be dictated by the product's function); W.T. Rogers Co. v. Keene Mfg. Co., 778 F.2d 334, 339, 228 U.S.P.Q. (BNA) 145 (7th Cir. 1985) (stating that "a functional feature is one which competitors would have to spend money not to copy but to design around . . . ").
functional. Of course, a typical junior producer considering copying a design feature does not have the benefit of a prior determination of that feature's functionality by any court, let alone the highest court in the land.

The overarching importance of access dictates that a junior producer should have no legal duty to explore alternative design features. However, a junior producer should recognize that there are benefits to exploring alternatives and that there are risks if it does not.

A benefit of attempting to develop an alternative design feature is that the alternative may prove to be functionally superior to the senior producer's choice design feature. Another benefit is that if the junior producer's efforts to develop or market a product incorporating an alternative design feature are unsuccessful, those efforts may provide evidence of the choice design feature's functional superiority.

One risk of not exploring alternatives is that a court ultimately will hold that the choice design feature is nonfunctional and protected against copying. A junior producer who is enjoined from copying a choice design feature will bear the costs of switching to a noninfringing alternative design feature. In addition, even if the feature is held to be functional, the court may require the junior producer to take precautions to minimize the risk of likely confusion such as adopting distinguishing labeling or a disclaimer if it

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259 TrafFix, 121 S. Ct. at 1262.
260 See supra Part IV.B. But see Vaughan Mfr. Co. v. Brikam Int'l, Inc., 814 F.2d 346, 351, 1 U.S.P.Q.2d (BNA) 2067, 2071 (7th Cir. 1987) (stating that the junior producer expended no money in determining which features were necessary to the function of the product, and that such information costs are not the sort of costs that the functionality defense protects because "[t]hat would be incompatible with the rule that 'one entering a field already occupied by another has a duty to select a trademark that will avoid confusion.'") (quoting Ideal Indus., Inc. v. Gardner Bender, Inc., 612 F.2d 1018, 1026, 204 U.S.P.Q. (BNA) 177, 185 (7th Cir. 1979)).
261 See, e.g., Fabrication Enters., Inc. v. Hygenic Corp., 64 F.3d 53, 60-61, 35 U.S.P.Q.2d (BNA) 1753, 1757-58 (2d Cir. 1995) (considering evidence that the market would not accept an alternative design feature); see also Abbott Labs. v. Mead Johnson & Co., 971 F.2d 6, 22, 23 U.S.P.Q.2d (BNA) 1663, 1675 (7th Cir. 1992) (suggesting that in determining a choice design feature's functionality, it is appropriate to consider whether the junior producer failed to develop in a timely manner or failed to identify alternative design features).
262 See Truck Equip. Serv. Co. v. Fruehauf Corp., 536 F.2d 1210, 1218, 191 U.S.P.Q. (BNA) 79, 85 (8th Cir. 1976) (finding that since the sloping-end walls were nonfunctional and used merely for identification purposes, Fruehauf could not copy them).
263 See Brunswick Corp. v. Spinit Reel Co., 832 F.2d 513, 520-21 n.4, 4 U.S.P.Q.2d (BNA) 1497, 1502-03 n.4 (10th Cir. 1987) (making a different cover could cost competitor $20,000 in tooling costs).
is possible to do so without losing the beneficial cost, quality, or commercial success effects of employing the choice design feature.264

V. AFTER TRAFFIX

TRAFFIX clearly evidences the Supreme Court's desire to narrow the trademark protection afforded to useful design features.265 More specifically, TRAFFIX informs the intellectual property bar and the judiciary that an expired utility patent provides strong evidence that the design features claimed in it are functional; that this evidence adds great weight to the federal statutory presumption that design features are functional until proven otherwise; and that senior producers must carry a heavy burden of showing that these design features are nonfunctional. TRAFFIX also provides some guidance concerning how to identify and weigh patent-related evidence of functionality. A design feature disclosed in an expired utility patent is functional if it serves a purpose within the terms of the patent or is a useful part of the invention.

Whether or not this guidance proves helpful, the TRAFFIX Court's reasoning in providing it is troublesome. The opinion elevates the vague and ambiguous INWOOD Standard from a dictum to a holding applicable to cases in which an expired utility patent bears upon the functionality of useful design features; and to a more robust dictum for cases focusing upon the functionality of useful design features, but which lack evidence from an expired utility patent. In elevating the INWOOD Standard, TRAFFIX seems to cut off judicial inquiry into the functionality of useful design features by means of the fulcrum: that is, by hearing evidence of whether there are alternative design features that are functionally equivalent to a choice design feature. The fulcrum remains available for use in cases involving aesthetic design features, but aesthetic and useful design features can be difficult to distinguish. TRAFFIX also casts a cloud over the principle that when a decision maker decides whether a product's overall configuration is functional, that configuration should be viewed in its entirety, and not as discrete individual design features.

265 This wish comes as no surprise after the Court's opinion in Wal-Mart Stores, Inc. v. Samara Bros., Inc., 529 U.S. 205, 54 U.S.P.Q.2d (BNA) 1065 (2000); indeed, TRAFFIX is the "other shoe dropping." See supra note 30.
This and other troubles with *Tra/Fix* notwithstanding, there is reason to hope that the lower federal courts will continue to apply the functionality doctrine with care, reason, and sensitivity by respecting the doctrine's etymological and economic underpinnings. Many did so after the Court stated its *Inwood* Standard in dictum in 1982. Since *Tra/Fix* the early judicial returns are encouraging.266

A post-*Tra/Fix* court has emphasized that a senior producer must clearly identify the choice design feature so that fact finders can decide whether the senior has met its burden of establishing that the choice feature is nonfunctional.267 The same post-*Tra/Fix* case also recognized that both the *Inwood* and *Qualitex* functionality standards share the purpose of ensuring that trademark law does not unduly stifle competition, and that pre-*Tra/Fix* case law and the Unfair Competition Restatement continue to provide important guidance for achieving this end.268 In addition, a post-*Tra/Fix* case indicates that traditional evidentiary factors remain relevant to deciding whether a choice design feature is functional.269 These include evidence that a design yields a utilitarian advantage, that alternative designs are available, that a design results from a comparatively simple or inexpensive method of manufacture, and that the senior producer's advertising promotes the design's utilitarian advantage.270 Finally, at least one court has refused to read *Tra/Fix* as undermining the principle that a product's overall configuration

266 Several pre-*Tra/Fix* courts quoted the *Inwood* Standard but also employed reasoning concerning competitive need and the availability of functionally-equivalent alternative design features. See, e.g., Knitwaves, Inc. v. Lollytogs Ltd., 71 F.3d 996, 1006 (2d Cir. 1995).

267 Yurman Design, Inc. v. PAJ, Inc., 262 F.3d 101, 117, 59 U.S.P.Q.2d (BNA) 1813 (2d Cir. 2001) ("no juror can evaluate ... nonfunctionality without knowing precisely what the plaintiff is trying to protect"). See also Coach, Inc. v. We Care Trading Co., 2001 U.S. Dist. LEXIS 9879, *4 n.3, *18 (S.D.N.Y. 2001) (senior producer provided varying formulations of the protected design features in pretrial papers, but provided a precise expression of four allegedly protected elements at the final pretrial conference).

268 *Yurman*, 262 F.3d at 115-16.

269 Clicks Billiards, Inc. v. Sixshooters, Inc., 251 F.3d 1252, 1258, 58 U.S.P.Q.2d (BNA) 1881 (9th Cir. 2001) (including references to *Tra/Fix*).

270 The senior producer in *Clicks* claimed that the junior producer unlawfully copied the overall image of the senior's pool halls. The Ninth Circuit concluded that the senior had successfully raised an issue of fact that the trade dress was nonfunctional, and based this conclusion in part on the presence of alternative designs. *Id.* at 1261. The opinion states that the Ninth Circuit has not adopted the idea that a purely aesthetic design feature can be functional. *Id.* at 1260. As authority for the factors enumerated in the text, the court cited cases considering the functionality of useful design features: a parabolic chain on a disc golf hole (Disc Golf Ass'n, Inc. v. Champion Discs, Inc., 158 F.3d 1002 (9th Cir. 1998)); and the multipurpose pocket tool in the *Leatherman* case discussed supra Part IV.E.
should be viewed in its entirety when deciding whether the configuration is functional.²⁷¹

Lower federal courts also may recognize that the conclusion in TrafFix that the dual-spring design feature was functional was based upon strong evidence of functionality including the utility patents, and that the senior producer failed to proffer sufficient evidence or convincingly argue that alternative design features rendered the dual-spring feature nonfunctional.²⁷² Therefore, what TrafFix may teach is that when a senior producer has the burden of proving that a choice design feature is nonfunctional, a junior producer's strong evidence of functionality cannot be overcome by a senior's weak evidence of alternative design features. So read, TrafFix merely recognizes that multiple forms of evidence bear on functionality, and does not rule out considering evidence of alternative design features.²⁷³ Thus, there is reason to hope that the lower federal courts ultimately will burnish away at least some of the trouble with TrafFix.²⁷⁴

²⁷¹ Coach, 2001 U.S. Dist. LEXIS 9879, at *27-28 (S.D.N.Y. 2001) (stating that TrafFix "does not overrule Second Circuit law that a collection of functional features may nonetheless be protectable trade dress"). See also Clicks, 251 F.3d at 1261 (applying the principle).

²⁷² See supra note 237 and Part IV.D.I. In an opinion published as this Article was going to press, the Federal Circuit concluded that TrafFix merely notes that if a choice design feature is found functional based upon considerations such as its cost or quality effects disclosed in a utility patent, then there is no need to consider the availability of functionally-equivalent alternative design features. However, the availability of alternative design features should remain a legitimate source of evidence to determine whether a choice design feature is functional in the first place. In so concluding, the Federal Circuit reaffirmed use of the factors for functionality analysis set forth in the Morton-Norwich opinion discussed supra Part II.C.3. Value Engineering, Inc. v. Rexnord Corp., 278 F.3d 1268, 61 U.S.P.Q.2d (BNA) 1422 (Fed. Cir. 2002).

²⁷³ There may be no sharp line between evidence of alternative design features and other evidentiary factors relevant to deciding whether a design feature is functional. For example, a senior producer's advertising touting the advantages of its product may express or imply that the product incorporates a choice design feature that is superior to alternative design features, or that no alternatives exist.

²⁷⁴ If this happens, it would be reminiscent of events following the Supreme Court's decisions in Sears, Roebuck & Co. v. Stiffel Co., 376 U.S. 225, 232 (1964); and Compco Corp. v. Day-Brite Lighting, Inc., 376 U.S. 234, 238 (1964). These cases and subsequent events are described supra note 98. The trouble with TrafFix also may be addressed through legislation under consideration by the American Intellectual Property Law Association and the Intellectual Property Section of the American Bar Association. A copy of the draft legislation is on file with the author.