Are We Running Out of Trademarks?
An Empirical Study of Trademark Depletion and Congestion

Barton Beebe* & Jeanne C. Fromer†

Abstract

American trademark law has long operated on the assumption that there exists an inexhaustible supply of unclaimed trademarks that are at least as competitively effective as those already claimed. This core empirical assumption underpins nearly every aspect of trademark law and policy. This Article presents empirical evidence showing that this conventional wisdom is wrong. The supply of competitively effective trademarks is, in fact, exhaustible and has already reached severe levels of what we term trademark depletion and trademark congestion. We systematically study all 7 million trademark applications filed at the U.S. Patent and Trademark Office (PTO) from 1985 through 2016 or already registered at the PTO as of 1985. We analyze these data in light of the most frequently used words and syllables in American English, the most frequently occurring surnames in the U.S., and an original dataset consisting of phonetic representations of each word mark filed at the PTO from 1982 through 2015. We further incorporate data consisting of all 128 million domain names registered in the .com top-level domain and an original dataset of all 2.1 million trademark office actions issued by the PTO from 2003 through 2016. These data show that rates of word mark depletion and congestion are increasing and have reached chronic levels, particularly in certain important economic sectors. The data further show that new trademark applicants are increasingly being forced to resort to second-best, less competitively effective marks. Yet registration refusal rates continue to rise. The result is that the ecology of the trademark system is breaking down, with mounting barriers to entry, increasing consumer search costs, and an eroding public domain. In light of our empirical findings, we propose a mix of reforms to trademark law that will help to preserve the proper functioning of the trademark system and further its core purposes of promoting competition and enhancing consumer welfare.

* John M. Desmarais Professor of Intellectual Property Law, New York University School of Law.
† Professor of Law, New York University School of Law. The authors thank David Abrams, Allen Adamson, Arnaud Ajdler, Richard Arnold, Stefan Bechtold, Jose Bellido, Joshua Blank, Ryan Bubb, Christopher Buccafusco, Colleen Chien, Adam Cox, Kevin Davis, Ben Depoorter, Deven Desai, Shari Seidman Diamond, Peter DiCoca, Graeme Dinwoodie, Rochelle Dreyfuss, Rebecca Eisenberg, Eric Feder, Joshua Fischman, David Franklyn, Deborah Gerhardt, Robert Gomulkiewicz, Scott Hemphill, Julia Hirschberg, Jeffrey Lefstin, Mark Lemley, Daryl Levinson, Paul Levy, Jake Linford, Kate Litvak, Glynn Lunney, William McGeveran, Kathleen McKeown, Willjaeanne McLean, Florencia Marotta-Wurgler, Mark McKenna, Donna Mirman, Signe Naeve, Neil Netanel, Sean O’Connor, Laura Pedraza-Farina, Dragomir Radev, Lisa Ramsey, Richard Revesz, Betsy Rosenblatt, Zahr Said, Adam Samaha, Bhaven Sampat, David Schwartz, Jeremy Sheff, Peter Siegelman, Christopher Sprigman, Richard Sproat, Joel Steckel, Martyn Tipping, Rebecca Tushnet, Jeremy Waldron, Steven Wilf, Felix Wu, and Katrina Wyman, and participants in colloquia at the Cardozo School of Law, Hanken School of Economics, New York University School of Law, Northwestern Pritzker School of Law, Oxford University, St. John’s University School of Law, UC Hastings College of the Law, UCLA School of Law, University of Connecticut School of Law, University of Sheffield School of Law, University of Washington School of Law, the 2017 Munich Summer Institute, the 2016 Workshop of the International Society for the History and Theory of Intellectual Property, the 2016 Conference of the Society for Institutional & Organizational Economics, the 2015 Works in Progress in Intellectual Property Colloquium, and the 15th Annual Intellectual Property Scholars Conference for their exhaustive comments. Thanks also to Jordan Joachim, Ryan Lawson, Caitlin Millat, Doran Satanove, and Kayla Wieche for excellent research assistance. The authors gratefully acknowledge support from the Filomen D’Agostino and Max E. Greenberg Research Fund.
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Introduction

American trademark law has long operated on the assumption that there exists an inexhaustible supply of unclaimed trademarks that are at least as competitively effective as those already claimed. With respect to word marks in particular, the conventional wisdom holds that we will always enjoy a surplus of preexisting words, and in any case trademark adopters can simply coin new words, the supply of which is thought to be effectively “infinite.” This empirical assumption—that the supply of good, competitively effective trademarks is inexhaustible—has long formed the foundation of important theoretical conjectures at the core of trademark law and policy. The most significant of these is that when we grant exclusive rights in a trademark, the cost to competitors, consumers, and more generally to the public domain is inconsequential.

Contrary to the conventional wisdom in trademark law, however, popular media has lately begun to make the opposite empirical claim: that the supply of good trademarks is, in fact, exhaustible and that we have very nearly exhausted it. For example, The New York Times recently asserted that “[a]most every naturally occurring word has been claimed, which is why namers so often arrive at portmanteaus (Accenture derives from ‘accent’ and ‘future’) or drop vowels (Flickr and Tumblr) or change letters (Lyft).” For its part, BloombergView recently featured the headline “We’re Going to Run Out of Company Names.” The article recalled an entrepreneur’s description of his efforts to find a name for his new company: “Every name we liked, either somebody already had it or it wasn’t trademarkable or it meant something pornographic in another language.” For the Chicago Tribune, the focus was craft beer and the headline was “Craft Beer Makers Running Out of Names. How About Flip Donkey Doodleplunk?” NPR has further reported that “virtually every

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1 See, e.g., Stephen L. Carter, The Trouble with Trademark, 99 YALE L.J. 759, 769 (1990) (discussing the widespread assumption that “the set of marks appropriate to a given product category is practically infinite.”); William M. Landes & Richard A. Posner, Trademark Law: An Economic Perspective, 30 J. L. & ECON. 265, 276 (1987) (“The distinctive yet pronounceable combinations of letters to form words that will serve as a suitable trademark are as a practical matter infinite, implying a high degree of substitutability and hence a slight value in exchange.”); Frank Schechter, The Rational Basis of Trademark Protection, 40 HARV. L. REV. 813, 833 (1927) (“All the rest of infinity is open to defendant.” (quoting Coca-Cola Co. v. Old Dominion Beverage Corp., 271 F. 600, 604 (4th Cir. 1921)). For further examples of the conventional wisdom, see note 66 below and accompanying text.


4 Id.

large city, notable landscape feature, creature and weather pattern of North America—as well as myriad other words, concepts and images—has been snapped up and trademarked as the name of either a brewery or a beer."6 For The Guardian, the focus was band names under the headline "FKA twigs, Slaves, Deers: are we running out of band names?"7 The article observed that "[a]ll the best monikers have been taken, and now the lawsuits are flying."8 Reports suggest that the cosmetics industry is facing similar challenges: "The beauty industry has literally run out of names to use for new product[s]. Why, even the name 'There Aren't Anymore Names for This' is taken."9 Popular television series have also taken up the theme. Futurama and South Park have each featured plots in which nearly all words or word combinations have already been trademarked.10

Meanwhile, free speech advocates have grown increasingly vocal about the pervasive trademarking of everyday words. The YouTube duo the Fine Bros recently announced that they had applied to register the word “react,” after their series of videos.11 The public reaction was critical and merciless. One commenter threatened to register the word "the" and “anyone who says it gets sued.”12 The commenter was no doubt unaware that at the time there were already eleven active trademark registrations claiming just the word THE. Another commenter stated simply: “REACT

http://www.chicagotribune.com/news/opinion/huppke/ct-craft-beer-names-huppke-talk-0107-20150107-story.html (reporting that “craft beer brewers are struggling to find beer names that haven’t already been used, occasionally even getting in legal fights over trademarked titles”).

6 Alastair Bland, Craft Brewers Are Running Out of Names, and into Legal Spats, NPR, Jan. 5, 2015, http://www.npr.org/sections/thesalt/2015/01/05/369445171/craft-brewers-are-running-out-of-names-and-into-legal-spats. Bland reports that nearly every beer pun, like “Hopscotch” or “Bitter End,” has also already been claimed. Id. In response to the depletion of beer brand names, one scientist developed a software program using artificial intelligence to come up with new names for beers, such as Yamquak, Dang River, Toe Deal, and Oarahe Momnilla Day Revenge Bass Cornationn Yerve of Aterid Ale. Ryan F. Mandelbaum, We’ve Run Out of Beer Names and AI Is Here To Help, GIZMODO, Aug. 3, 2017, http://gizmodo.com/weve-run-out-of-beer-names-and-ai-is-here-to-help-1797480178. Needless to say, some of these names seem more competitively effective than others. See infra section II.B (discussing what makes a "good" trademark).


8 Id.


10 See Futurama: The Problem with Popplers (Fox television broadcast May 7, 2000); South Park: Go Fund Yourself (Comedy Central television broadcast Sept. 24, 2014).


12 Brian Ashcraft, Popular YouTubers Try To Trademark ‘React’ [UPDATE], KOTAKU (Feb. 1, 2016, 8:00 am), http://kotaku.com/popular-youtubers-try-to-trademark-react-1756331442.
is not yours to trademark.”13 And perhaps it wasn’t: there were already three active registrations of the word in the particular class of services in which the Fine Bros applied and 37 active registrations overall.14 In response to the furor, the Fine Bros withdrew their trademark application.15

To the extent that legal and popular commentary has engaged the question of the exhaustibility of the supply of trademarks, the discussion has been based at best on anecdata and at worst on raw assertion. This Article seeks to move beyond both by systematically studying all 7 million trademark applications filed at the U.S. Patent and Trademark Office (PTO) from 1985 through 2016 or already registered at the PTO as of 1985, which is made possible by the PTO’s recently released Trademark Case Files Dataset.16 We analyze the PTO data along two dimensions, which we term “trademark depletion” and “trademark congestion.” Trademark depletion is the process by which a decreasing number of potential trademarks remain unclaimed by any trademark owner.17 By contrast, trademark congestion is the process by which, for any particular mark that has already been claimed, that mark is claimed by an increasing number of different trademark owners. This Article focuses specifically on word marks and thus on word mark depletion and word mark congestion. Overall, the data show that the conventional legal wisdom is wrong and the conventional popular wisdom is right. The supply of word marks that are at least reasonably competitively effective as trademarks is finite and exhaustible. This supply is already severely depleted, particularly in certain sectors of the economy, and levels of depletion continue to rise. Those marks that are registered are growing increasingly congested. The result, as the data reveal, is that new trademark applicants are increasingly being forced to resort to second-best, less competitive marks, and the trademark system is growing increasingly—perhaps inordinately—crowded, noisy, and complex.

Specifically, the data present compelling evidence of substantial word mark depletion, particularly with respect to the sets of potential marks that businesses prefer most: standard English words, short neologisms that are pronounceable by English speakers, and common American surnames. Together with the PTO dataset, we use the Corpus of Contemporary American English dataset of the 100,000 most frequently used words in American English and the U.S. Census’s list of the 151,672 most frequently occurring surnames in the U.S. to show the extraordinarily high proportion of English words and common surnames that are already registered as trademarks. We further show the remarkably low proportion of words and surnames

13 Id.
15 Machkovech, supra note 11.
16 See infra Part II (discussing this dataset in greater detail).
17 Note, as we discuss below, that we do not use the term “depletion” to refer necessarily to a decreasing number of potential marks that are actually available for adoption as trademarks. See infra section II.A (analyzing word mark depletion). Rather, as we use the term, depletion refers to a decreasing number of potential marks that are unclaimed by any trademark owner. That said, the two concepts are connected: Increased rates of depletion can readily lead to increased unavailability of marks.
that would not likely be found confusingly similar with already registered marks. With respect to short neologisms, we use Carnegie Mellon University’s Pronouncing Dictionary and LOGIOS Lexicon tool to construct a phonetic representation of each word mark applied for from 1982 through 2015. Based on these data, we show that the supply of short neologisms not confusingly similar with already registered marks is substantially declining. Finally, because many trademark applicants prefer to be able to register any new mark as a domain name in the .com top-level domain, we use Verisign’s .COM Zone File consisting of some 128 million currently registered domain names in the .com top-level domain to illustrate the near-total depletion in that space of standard English words, common American surnames, and short neologisms.

Given these conditions, new applicants are increasingly resorting to suboptimal marks. The data indicate that applicants are applying less often for standard English words and common surnames and more often for more complex marks, as measured by character, syllable, and word count. We think that applicants are modifying their conduct in this manner primarily to avoid applying for marks that the PTO would refuse to register on the basis of section 2(d) of the Lanham Act, which denies the registration of a mark that due to its similarity with an already registered mark would confuse consumers as to source. Yet applicants appear to be increasingly unsuccessful in avoiding such refusals. We use our original dataset of all 2.1 million trademark office actions issued by the PTO from 2003 through 2016 to report the increasing rate at which the PTO is refusing applied-for marks on the basis of section 2(d). Despite these trends, one class of applicants appears to be doing fine. Incumbent applications (those based on previous registrations) continue to apply for non-neologisms at a rate substantially higher than non-incumbent applications and continue to enjoy very low section 2(d) refusal rates.

The data also reveal compelling evidence of substantial word mark congestion. Consistent with increasing section 2(d) refusal rates, trademark applicants are increasingly resorting to what we term “parallel registrations.” Two firms can use exactly the same mark provided that their uses would not confuse consumers as to source (for example, DELTA for faucets and DELTA for airlines). Nevertheless, a trademark owner would prefer to be at best the only firm in the economy using a particular mark and at least the only firm in its economic sector doing so. Parallel uses may not confuse consumers as to source, but each use destroys the uniqueness and

18 See 15 U.S.C. § 1052(d) (denying registration of any mark “which so resembles a mark registered in the Patent and Trademark Office, or a mark or trade name previously used in the United States by another and not abandoned, as to be likely, when used on or in connection with the goods of the applicant, to cause confusion, or to cause mistake, or to deceive”).

19 We use the term “parallel registrations” to refer to this phenomenon rather than “concurrent registrations.” The latter are a subset of the former. Concurrent registrations are registrations issued under section 2(d) of the Lanham Act, id., that allow two or more different parties operating in different regions of the country to register the same mark for similar goods or services when each party’s use is sufficiently geographically separate from each other party’s use that no confusion will result. See 3 J. Thomas McCarthy, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 20:81 (4th ed. 2016). Concurrent registrations are exceptionally rare. The PTO data indicate that for all 5.9 million Principal Register applications from 1985 through 2014, only 604 resulted in registrations subject to concurrent use.
blurs the distinctiveness of the other, particularly for newer entrants. They also increase consumer search costs. Yet the data show steady increases in parallel registrations of frequently used English words and common surnames both across classes and within classes of goods and services. Firms appear to be increasingly settling for sharing marks with others.

These findings urge a rethinking of many of the fundamental assumptions underlying trademark law. Most importantly, they emphasize that the granting of trademark rights imposes real costs on the ecology of the trademark system, and that as we begin to test the limits of this ecology, these costs are mounting. New market entrants face significant barriers to entry in the form of the cost of searching for an unclaimed mark and in the ongoing cost of using a less effective mark. Consumers must cope with an ever more crowded field of trademarks consisting of increasingly complex marks that may refer to multiple different sources. The public domain must cope with the fact that, as we report below, when we use our language, about three-fourths of the time we are using a word that someone has claimed as a trademark.

These findings also counsel fundamental reforms of trademark law and doctrine. For example, given the costs a trademark registration imposes on the rest of the trademark system, particularly when the registration consists of a desirable word like a standard English word, we could heighten the use requirement for registrants and, as the PTO has already begun to do, we could enforce the use requirement more aggressively. We could also elevate the required showing of secondary meaning that an applicant must make when seeking to register a descriptive mark. In general, we could institute various schemes of congestion or peak pricing with respect to application, maintenance, and renewal fees to compel registrants to internalize more of the costs that their registrations impose on competitors, consumers, and the public domain. We could also take the degree of trademark depletion and congestion in particular sectors into account in the protectability, infringement, and trademark fair use analyses. The challenge in all cases will be to ensure that these reforms do not impose even greater costs on entrants. To be sure, many of these reforms may strike current trademark owners as unthinkable. But they are unthinkable only if we continue to fall back on the conventional wisdom that the trademark system is based on an inexhaustible resource, or in any case, that our economy could never reach a stage of development that would begin to test the limits of this resource. As we show, this conventional wisdom is wrong, and we must begin to consider ways of adapting to the limits of the trademark system.

Part I provides background on the trademark registration process and addresses the question of how to define the universe of good trademarks. Of course, the supply of possible trademarks, like the supply of possible personal names, is theoretically infinite. At the extreme, new firms could simply adopt alphanumeric codes of indefinite length to identify themselves. We explain why this is the wrong way to think about the universe of potential trademarks and why marketers rightly see this universe in very different terms. Part II describes our datasets. Parts III and IV present
evidence of word mark depletion and word mark congestion, respectively. Though we draw upon “big data,” our evidence takes the form of straightforward descriptive statistics showing clear trends over time. Part V sets out the implications of our findings for trademark law and policy.

I. Background

Trademark law protects brands, which almost always appear in the form of words as brand names, but may also manifest in other indicia of source including symbols, images, and sometimes a product’s packaging or design.21 A properly functioning trademark system is crucial to a fair and efficient marketplace.22 The theory underlying trademark law is that producers will invest in product quality only if they can benefit from the reputation-related rewards of that investment.23 Trademarks enable producers to build goodwill and trademark protection prevents others from trading on that goodwill.24 Trademarks also allow consumers quickly and assuredly to find the products they seek. A trademark serves as shorthand for the complex of qualities of which a product consists, qualities that are often difficult to discern before purchase or use—and sometimes even after use, as with some pharmaceuticals.25 Trademarks reduce consumer search costs—consumers’ costs of finding product characteristics of interest—because consumers can search for the easily perceivable trademark rather than a product’s often more elusive characteristics.26 Trademark law, then, benefits both consumers and producers. The primary way it does so is by preventing any firm from using a trademark that is so similar to another firm’s mark that consumers will be confused as to the true source of one or both of the firms’ goods.

In this Part, we provide background on trademark law and in particular on the trademark registration process. We also review both the legal and marketing considerations that limit the universe of potential trademarks.


23 See Schechter, supra note 1, at 818 (“The true functions of the trademark are ... to identify a product as satisfactory and thereby to stimulate further purchases by the consuming public.”).


25 See, e.g., Landes & Posner, supra note 1, at 268-69 (“Suppose you like decaffeinated coffee made by General Foods. If General Foods’s brand had no name, then to order it in a restaurant or grocery store you would have to ask for ‘the decaffeinated coffee made by General Foods.’ This takes longer to say, requires you to remember more, and requires the waiter or clerk to read and remember more than if you can just ask for ‘Sanka.’”).

26 Id. at 269–70.
A. The Trademark Registration Process

To qualify for registration at the PTO, a trademark must meet three basic requirements. First, it must be “distinctive” of the source of the goods or services with which it is used. Second, it must be used in commerce. Third, it must not violate any of the Lanham Act’s various statutory bars to protection. For our purposes, the most important bar to registration is the section 2(d) bar against the registration of any mark that is confusingly similar with an already registered mark. As we show in Part III, a significant and increasing proportion of applications are being refused on this ground.

A trademark need not take any particular form to qualify for registration. The PTO has registered as trademarks words, phrases, two-dimensional images, both moving and still, three-dimensional shapes including building exteriors, sounds, scents, textures, and even particular motions. Nevertheless, a very high

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28 See infra section 3 (elaborating on the requirements of section 2(d)). Our dataset of all Office Actions issued by the PTO from 2003 through 2016 shows that other bars to registration rarely form a ground for rejection. Of the 3,376,150 applications for registration on the Principal Register filed from 2003 through 2014, only 0.08% were met with an office action refusing registration on the ground that the mark was functional, 0.02% on the ground that the mark was disparaging, and 0.06% on the ground that the mark was scandalous. In Matal v. Tam, 137 S.Ct. 1744 (2017), the Supreme Court held that the Lanham Act’s disparagement bar to registration was unconstitutional under the First Amendment’s Free Speech Clause. Id. at 1751. It is probable that the scandalousness bar to registration will also be found to be unconstitutional. See In re Brunetti, No. 2015-1109 (Fed. Cir. filed Nov. 6, 2015).
29 See, e.g., APPLE, Registration No. 1,078,312 (for computers); AMAZON, Registration No. 2,832,943 (for online retailing services); NIKE, Registration No. 978,952 (for athletic shoes).
30 See, e.g., JUST DO IT, Registration No. 1,875,307 (for clothing).
31 See, for example, for online entertainment services, “[t]he mark consists of a moving image mark, consisting of an animated sequence showing a series of rectangular video screens of varying sizes, that fly inward in whirlwind fashion, as if from the viewer’s location, toward the center of the viewer's screen, where they coalesce into the word ‘HULU’. The drawing represents three (3) stills (freeze frames) from the animated sequence.” Registration No. 4,129,188.
32 See, for example, a “wing” design for sports bags. Registration No. 1,145,473.
33 See, for example, for mobile phones, where “the mark consists of the configuration of a rectangular handheld mobile digital electronic device with rounded corners.” Registration No. 3,457,218.
34 See, for example, the design of a building for restaurant services. Registration No. 1,045,614.
35 See, for example, Tarzan’s yell for toy action figures, Registration No. 2,210,506, and for canned and frozen vegetables where the mark consists of “the sound of a deep, male, human-like voice saying ‘Ho-Ho-Ho’ in even intervals with each ‘Ho’ dropping in pitch,” Registration No. 2,519,203.
36 See, for example, for office supplies in which the mark consists of a vanilla scent. Registration No. 3,143,735.
37 See, for example, for wines in which “[t]he mark consists of a velvet textured covering on the surface of a bottle of wine.” Registration No. 3,155,702.
38 See, for example, for automobiles in which “[t]he mark consists of the unique motion in which the door of a vehicle is opened. The doors move parallel to the body of the vehicle
proportion of registered trademarks consist in whole or part of text. As of the end of 2016, there were 2,094,051 active trademark registrations on the PTO’s Principal Register. Of these, 95.7% included text; 75.6% consisted only of text.

Among the various requirements that a trademark must meet in order to qualify for registration, a few merit further discussion below. Where appropriate, our discussion focuses on the doctrine applying to marks containing text because they constitute the great majority of trademarks and are the focus of our study.

1. The Distinctiveness Requirement

The most important requirement by far that a mark must meet to qualify for registration is that it be perceived by consumers as distinctive of its source. To determine if a word mark qualifies as distinctive, trademark doctrine generally classifies the mark into one of five categories: (1) “fanciful” marks, which are coined words that bear no clear semantic relation to the goods or services to which they are attached (such as EXXON for gasoline or KODAK for photographic film); (2) “arbitrary” marks, which are preexisting words that bear no clear semantic relation with their goods or services (APPLE for computers or AMAZON for online retail services); (3) “suggestive” marks, which are evocative but not directly descriptive of their products’ characteristics (such as CUPERTONE for suntan oil or IVORY for soap); (4) “descriptive” marks, which describe their products’ characteristics (such as IPHONE for mobile phones); and (5) “generic” marks, which refer to the type of product to which they are affixed (such as ESCALATOR for moving staircase or ASPIRIN for acetylsalicylic acid).

Trademark law holds that fanciful, arbitrary, and suggestive marks possess “inherent distinctiveness” of their source—and thus meet the distinctiveness requirement on that basis—because consumers immediately interpret them as designations of source rather than as descriptions of the goods to which they are

but are gradually raised above the vehicle to a parallel position.” Registration No. 2,793,439. So-called “non-traditional marks” of this nature are very rare. Of the 2,094,051 active registrations on the Principal Register in 2016, only 199 were for non-traditional marks, of which most were sound marks.

Marks that meet all requirements for registration are registered on the Principal Register. 15 U.S.C. §1052. Non-inherently distinctive marks that are “capable of distinguishing applicant’s goods or services” but that have not yet developed acquired distinctiveness are registrable on the Supplemental Register provided that they meet all other requirements for registration. Id. §1091. Registration on the Supplemental Register is of very limited value. See In re Federated Dept Stores, 3 U.S.P.Q.2d 1541, 1987 WL 124292, at *2 (T.T.A.B. 1987) ("It is overwhelmingly agreed that a Supplemental Register registration is evidence of nothing more than the fact that the registration issued on the date printed thereon.... It is entitled to no presumptions of validity, ownership or priority."). We study registrations only on the Principal Register to ensure that our findings are based on marks that have been determined to be distinctive of source.


See Abercrombie & Fitch Co. v. Hunting World, 537 F.2d 4 (2nd Cir. 1976) (setting out these categories).
affixed. For example, as a matter of basic consumer literacy, consumers will very likely immediately perceive a neologism like LENOVO embossed on the bezel of a computer monitor as a designation of source. In contrast, consumers would very likely interpret a descriptive term like “high-definition” embossed on the bezel as a non-source-specific description of the product.

Unlike its treatment of fanciful, arbitrary, and suggestive marks, trademark law holds that descriptive marks are not inherently distinctive of source because consumers may interpret them as mere descriptions of their products. To be registrable, descriptive marks must develop “acquired distinctiveness” of source (also often called “secondary meaning”). They typically do so over time through advertising and use in the marketplace, which educate consumers that these marks are designations of source rather than mere descriptions of their products’ characteristics.

Finally, because they are understood to be incapable of source designation, generic marks cannot be registered at the PTO.

2. Classification of Goods and Services

In addition to demonstrating a trademark’s inherent or acquired distinctiveness, a trademark applicant must specify the goods and services in connection with which the applicant claims the exclusive right to use the mark.

The applicant must do so in the form of a verbal description of the goods and services and also by reference to one or more of the forty-five categories of goods and services contained in the International Classification of Goods and Services for the Purposes of the Registration of Marks, otherwise known as the “Nice Classification” after the French city where it was established in 1957. Now in its eleventh edition, the Nice Classification is idiosyncratic. The different classes are not of comparable scope, as the list of Nice Class Headings provided in Appendix A suggests. For example, Class 26 narrowly covers “Lace and embroidery, ribbons and braid; buttons, hooks and eyes, pins and needles; artificial flowers; hair decorations; false hair.” Similarly, Class 34 covers “Tobacco; smokers’ articles; matches.” Meanwhile, Class 1 broadly covers “Chemicals used in industry, science and photography, as well as in agriculture, horticulture and forestry” and Class 12 covers “Vehicles; apparatus for locomotion by land, air or

\[42\] Sally Beauty Co. v. Beautyco, Inc., 304 F.3d 964, 976 (10th Cir. 2012).
\[43\] Id.
\[44\] Id.

\[47\] For a study of how classification schemes generally encode particular, often idiosyncratic, points of view invisibly, see generally GEOFFREY C. BOWKER & SUSAN LEIGH STAR, SORTING THINGS OUT: CLASSIFICATION AND ITS CONSEQUENCES (2000) (analyzing a myriad of classification schemes, including the International Classification of Diseases and race classification in South Africa under apartheid).
water.” Figure 1 shows the relative significance of the various Nice Classes for all active trademark registrations at the PTO in 2016. The data suggest that the most important classes, as measured by active trademark registrations, are Class 9 (electronics goods, including software), Class 16 (printed matter), Class 25 (apparel goods), Class 35 (business administration services), Class 41 (education, entertainment, and cultural and sporting activities services), and Class 42 (computer-related services). Though less heavily populated, another economically important class is Class 5 covering pharmaceuticals. In our analysis of trademark depletion and congestion in Parts III and IV, we often focus on certain of these classes and compare their class-specific data to data drawn from all classes. We do so to illustrate the implications of depletion and congestion for the most important economic sectors.

48 There is a strong correlation between the number of trademark registrations in a particular Nice class and the economic importance of that class. As a 2016 U.S. government study of IP-intensive industries shows, trademark-intensive industries account for the largest number of IP-intensive industries in the U.S. and contribute the most employment from such industries to the U.S. economy. ECONOMICS & STATISTICS ADMINISTRATION & U.S. PATENT & TRADEMARK OFFICE, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE ii, 8-9, 34-45 (Sept. 2016), https://www.uspto.gov/sites/default/files/documents/IPandtheUSEconomySept2016.pdf.

49 We used keywords to create our own classes of goods and services in certain areas of interest, such as by combining beverages across Nice classes or by limiting a Nice class to a smaller subset like software or automobiles. These bespoke classes yielded results sufficiently similar to Nice class results that we report only the latter.

50 To avoid overwhelming and confusing the reader, we do not consistently present class-specific results for all classes or even for the economically most important classes. We present such results only when we think it is instructive. When we do not, it is safe to assume that the class-specific results generally follow the contours of the results for the overall population of applications or diverge from those overall results in insignificant ways.
3. The Bar to the Registration of Marks Confusingly Similar with Already Registered Marks

Not all distinctive marks are registrable. Section 2(d) of the Lanham Act bars the registration of a mark that is sufficiently similar to an already registered mark “as to be likely, when used on or in connection with the goods of the applicant, to cause confusion, or to cause mistake, or to deceive.”\(^5\) For example, on the basis of section 2(d), the PTO has recently refused to register COW CREEK for beer in light of the preexisting mark BULL CREEK BREWING for beer,\(^5\) EMERALD COOL for air conditioners in light of the preexisting mark EMERALD AIRE for air conditioners,\(^5\) 2GOOD for chocolate candy in light of TOOGOOD for various goods including candy,\(^5\) and LYTNING for protective industrial boots in light of LIGHTNING GLOVES for disposable latex gloves.\(^5\) By contrast, the PTO has recently allowed the registration of RANDAKK’S CYCLE SHAKK for online retailing of motorcycle parts, including electric motors, notwithstanding the preexisting mark RANDAX for electronic motors for land vehicles.\(^5\)

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\(^{52}\) In re BWBC, Inc., Serial No. 76711077 (T.T.A.B. May 19, 2015).


\(^{54}\) In re August Storck KG, Serial No. 79119647 (T.T.A.B. May 15, 2015).


\(^{56}\) In re Randakk’s Cycle Shakk, LLC, Serial No. 86128904 (T.T.A.B. Apr. 22, 2015).
Section 2(d) also bars the registration of any mark that is confusingly similar to an unregistered “mark or trade name previously used in the United States by another and not abandoned.”\(^\text{57}\) In practice, however, due to the practical difficulties of identifying “previously used” unregistered marks and determining whether they continue to be used in commerce, the initial ex parte examination of the trademark application reviews only registered marks for conflicts.\(^\text{58}\)

The PTO refers to a number of factors to determine if an applicant’s mark is confusingly similar to an already registered mark. The most important of these factors are (1) “[t]he similarity or dissimilarity of the marks in their entireties as to appearance, sound, connotation and commercial impression”; and (2) “[t]he relatedness of the goods or services as described in the application and registration[s].”\(^\text{59}\) The PTO also considers such factors as the similarity of trade channels used by the applicant and registrant, the sophistication of the relevant consumers, and “the number and nature of similar marks in use on similar goods” (on the assumption that if the already registered mark exists in a crowded field of similar marks, it is entitled to only a narrow scope of protection).\(^\text{60}\)

4. The Protection of Unregistered Marks

The Lanham Act will protect any trademark that is distinctive, used in commerce, and not statutorily barred from protection even if the trademark is not registered at the PTO.\(^\text{61}\) Nonetheless, the law provides several important incentives to encourage


\(^{58}\) See TMEP, supra note 46, at § 1207.03.

\(^{59}\) Id. at § 1207.01.

\(^{60}\) The considered factors are not dissimilar to some of the factors in the courts’ multi-factor test for trademark infringement, which measures the likelihood of confusion between the goods or services at issue. It asks whether real consumers are actually confused and also looks to other factors, like similarity of the marks, proximity of the goods or services, the sophistication of consumers, and the defendant’s intent in selecting the mark. See, e.g., AMF Inc. v. Sleekcraft Boats, 599 F.2d 341, 348-49 (9th Cir. 1979). See generally Barton Beebe, An Empirical Study of the Multifactor Tests for Trademark Infringement, 94 CALIF. L. REV. 1581 (2006) (reporting on the factors on which courts rely in finding trademark infringement).

\(^{61}\) See 15 U.S.C. § 1125(a) (providing anti-confusion protection to both registered and unregistered marks). The Lanham Act’s protection of both registered and unregistered marks provokes the important question whether marks that are refused registration might nonetheless be protected as unregistered marks. In a thorough and thoughtful recent article on trademark registration, Rebecca Tushnet addresses how the American scholarly approach of “treat[ing] registration like a borrowed civil law coat thrown awkwardly over the shoulders of a common law regime” leaves unanswered important questions like the status of a refused registration. Rebecca Tushnet, Registering Disagreement: Registration in Modern American Trademark Law, 130 HARV. L. REV. 867, 871 (2017). Tushnet’s analysis leads her to understand “[r]egistration’s core problem [of trying] to serve two goals that are only partially compatible: helping businesses order their affairs and matching rights with consumer understanding.” Id. at 916. To fix this problem, registration either needs to become more procedural or more substantive. Id. at 929-40.
trademark owners to register their marks, including nationwide priority in the mark from the date of application and enhanced remedies.62

Yet if federal case law is any indication, trademark owners routinely assert exclusive rights in unregistered marks.63 The Principal Register thus very likely significantly understates the number of commercial signifiers that federal law actually protects as trademarks. For this reason, even a study of the 1.9 million trademarks currently registered on the Principal Register that contain text will likely allow only the most conservative estimate of the full severity of any problem of word mark depletion and congestion. We think that this makes the empirical evidence of depletion and congestion we present in Parts III and IV, based as it is only on marks registered on the Principal Register, all the more powerful.

B. The Finite Universe of “Good” Trademarks

With this background on trademark law set out, we now turn to the legal and marketing considerations that limit the universe of potential trademarks. Before doing so, we probe the conventional wisdom recited by courts and commentators alike that there is an infinite stockpile of possible trademarks.

1. The Conventional Wisdom Clarified

As we stated above, courts and commentators have long professed the belief that the supply of potential trademarks is inexhaustible.64 They have done so since the inception of modern trademark law in the nineteenth century65 and they continue to do so.66 Typically no evidence or analysis is presented to support this claim.

62 See id. §§ 1057(c), 1072 (nationwide constructive use conferring priority); id. § 1117(b) (enhanced remedies); id. § 1065 (possibility of the mark becoming incontestable after five years).
64 See, e.g., Florence Mfg. Co. v. J.C. Dowd & Co., 178 F. 73, 75 (2d Cir. 1910) (“It is so easy for the hard-working business man, who wishes to sell his goods upon their merits, to select from the entire material universe, which is before him, symbols, marks and coverings which by no possibility can cause confusion between his goods and those of competitors …”); supra note 1 and accompanying text.
65 See, e.g., Cuervo v. Owl Cigar Co., 68 F. 541, 541 (C.C.S.D.N.Y. 1895) (claiming that the defendant had “an almost infinite variety of designs to choose from or to devise”).
66 See, e.g., Stork Rest. v. Sahati, 166 F.2d 348, 361 (9th Cir. 1948) (“This thought that a newcomer has an ‘infinity’ of other names to choose from without infringing upon a senior appropriation runs through the decisions like a leitmotiv.”); Ambrosia Chocolate Co. v. Ambrosia Cake Bakery, 165 F.2d 693, 697 (4th Cir. 1947) (“[A] man of ordinary intelligence could easily devise a score of valid trade-marks in a short period of time.”); Lettuce Entertain You Enters., Inc. v. Leila Sophia AR, LLC, 703 F. Supp. 2d 777, 791 (N.D. Ill. 2010) (“[T]here are infinite other names [than 'lettuce'] under which defendants may continue to operate their restaurant.”); Aveda Corp. v. Evita Mktg., Inc., 706 F. Supp. 1419, 1429 (D. Minn. 1989) (“An inference of an intent to trade upon the plaintiff’s good will arises if the defendants, with knowledge of plaintiff’s mark, chose a mark similar to that mark from the infinite number of possible marks.”); cf. Ann Oliver McGeehan, Trademark Registration of a Celebrity Persona, 87
Stated in its most basic, unqualified form, the theoretical conjecture that the supply of trademarks is inexhaustible is, like the claim that there are infinitely many numbers, trivial. Firms can obviously coin new words or phrases of ever increasing length to avoid conflicts with already registered marks. But it is just as obvious that given the limits of human cognition and communication, incumbent firms using shorter, less complex, more familiar, more easily pronounced, and more evocative marks will enjoy a significant competitive advantage over new firms that must resort to brand names that are less effective along these dimensions and for that reason remain unclaimed. In a seminal article on the economic analysis of trademark law, William Landes and Richard Posner explained the advantages of a short, memorable trademark: "Suppose you like decaffeinated coffee made by General Foods. If General Foods’s brand had no name, then to order it in a restaurant or grocery store you would have to ask for ‘the decaffeinated coffee made by General Foods.’ This takes longer to say, requires you to remember more, and requires the waiter or clerk to read and remember more than if you can just ask for ‘Sanka.’” Landes and Posner were comparing a product branded SANKA to the same product bearing no trademark at all. It is certainly possible to imagine some Borgesian infinite universe of theoretically possible trademarks, but much of this universe consists of trademarks that are comparable to, if not worse than, no trademark at all.

The more interesting conjecture is that we will never exhaust the supply of trademarks that are at least as competitively effective as those already claimed. For shorthand, we refer to such marks as “good” marks. This conjecture is not theoretical but empirical. It recognizes that the universe of good trademarks is finite, but it asserts that as a practical matter we will never exhaust it. Focusing on word marks, the strong form of this conjecture is that there would still be a surplus of good trademarks even if each firm in the economy wished to use a unique word mark not confusingly similar with the word mark of any other firm in the economy. A weaker form of the conjecture is that we will never exhaust the supply of good trademarks even if each firm operating in a particular class of goods or services wished to use a mark not confusingly similar with the mark of any other firm operating in that class.

Both the strong and weak forms of the inexhaustibility conjecture require some understanding of what constitutes a good, competitively effective trademark. It is to this issue that we now turn.

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TRADEMARK REP. 351, 352-54 (1997) (positing an infinite number of image marks). But see Hans Peter Kunz-Hallstein, Trademarks in 2017: Their Creation and Protection, 82 TRADEMARK REP. 880, 899 (1992) (suggesting that, because there are a finite number of letters, there are a finite amount of potential trademarks). See also supra note 1 and accompanying text.

67 Landes & Posner, supra note 1, at 268-69.

2. The Characteristics of Good Trademarks

There is an enormous literature on how to choose a good brand name and on branding strategy more generally. Not all of its advice is consistent. But the literature does agree on a number of general principles concerning what makes some trademarks more effective than others. We emphasize that these are general principles. There are extremely successful brands that violate one or all of them, and practices may vary by industry (for example, pharmaceuticals). But on the whole, taking into account the entire population of brand names, those that adhere to these principles tend to do better than those that do not.

The first is that brand names that are unique are significantly more effective than brand names that lack uniqueness. A brand name may be unique in two respects. It may be unique in the sense that only one firm in the economy uses the name. By contrast, brand names that suffer from parallel uses, even when those uses do not confuse consumers as to source, are less distinctive of their various owners. As the trademark literature has recognized in a related context, consumers must “think for a moment” upon exposure to the brand name to determine to which company it refers. Parallel owners also face the risk that another parallel user may tarnish the brand name, with the damage spreading to all of its users. A brand name may also be unique in the sense that it is significantly different from any other brand name in the economy. This is the form of brand name uniqueness on which marketers typically focus. GOOGLE is now a classic example of such a unique mark. So-called “copycat” brand names that pattern themselves after leading brands in their fields are generally thought to be ineffective. All else equal, owners of unique trademarks,

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69 This literature also leads to the conclusion that trademark’s conventional distinctiveness spectrum is misguided in multiple important ways, a topic well beyond the scope of this project but which one of us is exploring separately. See Jeanne C. Fromer, Overhauling Trademark Distinctiveness (unpublished manuscript).

70 ELI ALTMAN, DON’T CALL IT THAT 187 (2013); ALEXANDRA WATKINS, HELLO MY NAME IS AWESOME: HOW TO CREATE BRAND NAMES THAT STICK 23-25 (2014).

71 See Richard Posner, When Is Parody Fair Use?, 21 J. LEGAL STUD. 67, 75 (1992) (“A trademark seeks to economize on information costs by providing a compact, memorable and unambiguous identifier of a product or service. The economy is less when, because the trademark has other associations, a person seeing it must think for a moment before recognizing it as the mark of the product or service.”). But cf. Rebecca Tushnet, Gone in Sixty Milliseconds: Trademark Law and Cognitive Science, 86 TEX. L. R. 507, 527-43 (2008) (expressing skepticism about this line of thinking).


73 See, e.g., ALTMAN, supra note 70, at 312.

74 See WATKINS, supra note 70, at 23 (emphasizing that “[c]opycat names are lazy, lack originality, and blatantly ride on a competitor’s coattails,” and can risk trademark infringement). That is not to say that what makes a name unique and memorable is static. In fact, once other companies have chosen names, to avoid being a copycat, one might need to look for a different type of name. For example, Alexandra Watkins notes recent copycat trends to avoid, such as ______Monkey, ______Rocket, ______Daddy, ____ly, i_____, e_____, double ‘o’ (as in
both unique to their owners and unique as against all other marks, enjoy a considerable competitive advantage.

Second, common English words when used in an arbitrary or suggestive manner are generally more competitively effective than coined words. In comparison to neologisms, common words such as APPLE for computers or KIND for snack bars more readily impart a feeling of familiarity and authenticity, and have proven themselves to be relatively easy to pronounce, hear, read, and remember.75 These are all crucial characteristics of effective trademarks—the nonsense naming of comic strip "xkcd" notwithstanding.76 Firms also generally require less effort to instill common words with brand meaning,77 especially when the words’ meanings and connotations sync with the brand’s message.78 Relatedly, if a coined word is used, it tends to be more effective when it calls to mind other positively charged or brand-appropriate words more familiar to the consumer. For example, VERIZON calls to mind “horizon,” suggesting a forward-looking brand; INTEL suggests “intelligent;” and VIAGRA calls to mind, all at once, “vigor,” “vitality,” “aggression,” and “Niagara” (suggesting both water and honeymoons).79 Words that invoke other negatively charged words should be avoided. In a classic example, the brand name for Ford’s ill-fated EDSEL automobile invoked “weasel” and “pretzel” in association tests.80

Third, shorter trademarks are more effective than longer trademarks. George Zipf observed a century ago that more common words tend to be shorter than less common words.81 He hypothesized that this maximized the efficiency of the language

Google or Yahoo), fruit names (like Apple and Blackberry), Cloud_____, and _____zilla. WATKINS, supra, at 24-25, 29.

75 See WATKINS, supra note 70, at 20, 34-37; Leslie Collins, A Name To Conjure With: A Discussion of the Naming of New Brands, 11 EUR. J. MKTG. 337 (1977). But cf. ALTMAN, supra note 70, at 298 (“Not understanding something right away is a great reason for someone to pay attention.”); Tushnet, supra note 71, at 533 (“High-frequency words are easy to process, and thus we do not encode them distinctively, meaning that we do not pay much attention to them. If they are used as brand names, we will have trouble remembering the brand…. Given that advertisers have trouble getting consumers to pay attention to advertising in general … low-frequency words seem more desirable as marks.”).

76 Aboutxkcd.com, http://xkcd.com/about/ (last visited Mar. 15, 2016). Randall Munroe, the creator of xkcd, explains the name of his web comic: “It’s not actually an acronym. It’s just a word with no phonetic pronunciation—a treasured and carefully-guarded point in the space of four-character strings." Id.

77 See Fox, supra note 3 (“Actual things that make sense to people in the English language make more sense than trying to get people to align behind a seven-letter word you just invented.” (quoting Eli Altman)).

78 WATKINS, supra note 70, at 6-7; accord ALTMAN, supra note 70, at 492, 503.


81 GEORGE KINGSLEY ZIFF, THE PSYCHO-BIOLOGY OF LANGUAGE 28-29 (1935) (reasoning that “high frequency is the cause of small magnitude” of word length). See also Landes & Posner, supra note 1, at 274 (discussing Zipf).
because shorter words require less effort to use. The same reasoning applies to trademarks—and is a further reason why brand names consisting of common English words are preferred. Studies confirm that recognition and recall is better for shorter words and shorter brand names. This explains why, as a complex brand name becomes more successful, consumers will often try to simplify it to make it easier to use—and the brand owner will then often register the abbreviation as its trademark. Consider, for example, CHEVY for CHEVROLET, COKE for COCA-COLA, FEDEX for FEDERAL EXPRESS, and KFC for KENTUCKY FRIED CHICKEN. A commonly asserted rule of thumb is that marks should be no longer than two syllables or seven letters.

Fourth, certain phonemes are more effective than others depending on the circumstances. A variety of sound symbolism studies strongly support the proposition that sounds convey a range of properties, including weight, speed, rigidity, activity, width, size, femininity, friendliness, and sharpness. (This ought not

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82 ZIPF, supra note 81, at 38 (positing that the allocation of short words to commonly occurring ones maximizes efficiency, by taking less effort to produce). See also Landes & Posner, supra note 1, at 274 (discussing Zipf).

83 See Landes & Posner, supra note 1, at 274. Chinese law in fact bars companies from registering names that take the form of paragraphs or long sentences, such as “A Group of Youths in Baoji Holding a Cherished Dream That Under the Leadership of Uncle Niu They Will Create the Miracle of Life Network Technology Company Ltd.,” which is thirty-nine characters long in the original Chinese. Ailin Tang, In China, Your Company’s Name Can’t Be a Mouthful, N.Y. TIMES, Aug. 18, 2017, https://www.nytimes.com/2017/08/18/business/chinese-company-names-too-long.html.

84 See, e.g., Alan D. Baddeley, Neil Thomson & Mary Buchanan, Word Length and the Structure of Short-Term Memory, 14 J. VERBAL LEARNING & VERBAL BEHAVIOR 575 (1975) (finding when controlling for word frequency that five-syllable words are harder to recall than one-syllable words); Bruce G. Vanden Bergh, Janay Collins, Myrna Schultz & Keith Adler, Sound Advice on Brand Names, 61 JOURNALISM & MASS COMMUNICATION Q. 835, 838-39 (1984) (showing that it is easier to recall and recognize one-syllable brand names than for three-syllable ones).


86 Margot Bushnaq, How To Choose a Business Name, Part 6: Length, BRANDBUCKET, https://www.brandbucket.com/blog/how-to-choose-a-business-name-length (July 10, 2013); Marty Zwilling, 10 Rules for Picking a Company Name, FORTUNE, Dec. 15, 2011, http://fortune.com/2011/12/15/10-rules-for-picking-a-company-name. But cf. Eli Altman, Longer Is Better and Don’t Invent Words: Picking the Right Name for Your Business, GUARDIAN, Aug. 22, 2017, https://www.theguardian.com/small-business-network/2017/aug/22/longer-is-better-and-dont-invent-words-picking-the-right-name-for-your-business (“One of the most common requests branding professionals receive for new names is that they must be ‘short and memorable.’ This is a contradiction in terms. Short names are inherently less memorable. There’s less to grab onto. Longer names give you more freedom of expression; are easier to trademark and find URLs for; and are generally more memorable. Short names are ... short. Look at the depth of feeling that can be created with slightly longer names: Comme Des Garçons, Outdoor Voices, Teenage Engineering, 23 and Me.”).

87 See Richard R. Klink & Lan Wu, The Role of Position, Type, and Combination of Sound Symbolism Imbeds in Brand Names, 25 MKTG. LTR. 13, 14-15 (2014) (reviewing the literature). See also Patrice L. French, Toward an Explanation of Phonetic Symbolism, 28 WORD 305 (1977);
to be surprising. Compare, for example, the miniature Lilliputians with the giant Brobdingnagians in Jonathan Swift’s *Gulliver’s Travels.* Or compare the aggressiveness of VIAGRA with the calmer, more sensual CIALIS, both for drugs treating erectile dysfunction using very different marketing approaches coinciding with their respective names. The link between certain sounds and particular meanings transcends language and culture (and even species). Studies show that the [a] sound (as in “Frosh”) is shown to connote smoother, richer, and creamier ice cream than the [i] sound (as in “Frish”). The [u] sound in “dull” tends to suggest disgust or dislike, which might be why the company behind Smucker’s jelly developed the slogan, “With a name like Smucker’s, it has to be good.” Because of its combination of sounds, “BlackBerry” connotes speed, reliability, accessibility, smallness, and relaxation, while “Strawberry” connotes many of those same features but no relaxation and slowness rather than speed. More generally, vowels symbolically convey brand meaning better than consonants, and brands that start with a plosive—a consonant that is a stop, namely, B, D, G, K, P, T, or a hard C—are easier to remember and recognize.


See Jonathan Swift, *Gulliver’s Travels* (Jones & Co. 1826) (1726).


Klink, supra note 87, at 6; Klink & Wu, supra note 87, at 14; J. Shrum & Tina M. Lowrey, *Sounds Convey Meaning: The Implications of Phonetic Symbolism for Brand Name Construction*, in PSYCHOLINGUISTIC PHENOMENA IN MARKETING COMMUNICATIONS 39, 39-42 (Tina M. Lowrey ed., 2007); Eric Yorkston & Geeta Menon, *A Sound Idea: Phonetic Effects of Brand Names on Consumer Judgments*, 31 J. CONSUMER RES. 43, 44 (2004). For example, “high-front vowels (e.g., ee in flea and i in fly) represent associations with smaller size and less power than low-back vowels (e.g., the ow in bout and oo in boot), which, in turn, connote greater size, and more power.” Yorkston & Menon, supra, at 44. Research suggests that animal sounds also carry symbolic meaning, such as creation of an impression of great or small size by using low-back or high-front vowels, respectively. Eugene S. Morton, *Sound Symbolism and Its Role in Non-Human Vertebrate Communication*, in SOUND SYMBOLISM (Hinton, Nichols & Ohala eds. 1994); John Ohala, An Ethological Perspective on Common Cross-Language Utilization of FO of Voice, 41 PHONETICA 1 (1984).

Yorkston & Menon, supra note 90, at 45-48.

Shrum & Lowrey, supra note 90, at 43, 55.

Begley, supra note 79.

Id.

Vanden Bergh, Collins, Schultz & Adler, supra note 84.
Fifth, ideally a brand name owner should be able to register its brand name as a domain name in the .com top-level domain.96 However, as new top-level domains become available and consumers increasingly rely on search to navigate the internet, the advantages of such a registration may be lessening.97

Opinions are mixed on other characteristics of more effective brand names. Marketing experts (and trademark lawyers) generally advise against descriptive terms.98 Yet one study shows that more descriptive brand names unsurprisingly result in higher consumer recall of the benefit described by the brand name.99 Experts also advise against using the business owner’s own name on the grounds, among others, that consumers may not know the owner and that the brand may be more difficult to sell to other owners at some point in the future.100 Yet personal names, like common words, also convey authenticity and familiarity, and company owners often have non-pecuniary reasons to prefer to use their own name.101 Furthermore, while experts invariably emphasize that good brand names are unique, it can also be beneficial for a new brand name to share characteristics with other brand names in its product space, because this helps to inform consumers about the nature of the new brand and its product.102 One recent example is the use of the “-ndr”/“-nder” suffix for dating apps: Tinder, Grindr, Blendr, AdultFriendFinder, Lavendr (a gay dating app), Binder (an app to break up with one’s significant other), and the until recently named 3nder (an app for those seeking threesomes).103

Finally, we note a line of reasoning that regularly appears in the branding literature and that runs contrary to the principle that brand names should consist of common English words. Experts reason that new market entrants should consider coined words or less commonly used English words but not because such words are

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96 Watkins, supra note 70, at 49.
97 Altman, supra note 73, at 161, 173.
98 Watkins, supra note 74, at 30-31 (stating that descriptive terms “don’t challenge, excite or mentally stimulate” and “reveal nothing about the personality of your brand”); accord Altman, supra note 73, at 104 (noting that descriptive marks “say nothing about [a business’s] point of view”).
100 Watkins, supra note 74, at 8-9.
more appealing to consumers. Instead, the experts are essentially offering legal advice. Their reasoning is that such words are less likely already to be claimed by others and more likely to be registrable as trademarks.\textsuperscript{104}

In sum, the branding literature strongly supports the proposition that the supply of good, competitively effective trademarks is not just finite, but far more limited than might generally be appreciated. The branding literature further emphasizes what the economics literature\textsuperscript{105} often seems to fail to appreciate: that brand names are not fungible. Some are better than others. A good brand name may not guarantee success, but a bad brand name will often doom a product or company to oblivion, as the example of EDSEL is often cited to show.\textsuperscript{106} Uniqueness is prized above all. Common English words are more effective, as are shorter, less complex words. Certain phonemes more readily convey desirable meanings. Marks that can be registered as domain names in the .com top-level domain have an advantage. Proprietors may want to use their own name. All of these factors suggest means of measuring the degree and rate of depletion and congestion of the supply of good trademarks. We pursue these measures in Part III and IV below.

C. Applicants’ Mark Selection

Not only do marketing and branding principles influence applicants’ mark selection, but so does trademark law and practice. Before applying to register a particular mark, a firm typically engages in a process of trademark clearance to determine if the mark it wishes to register is already claimed either by a competitor or indeed by anyone else in the economy. Since well before the time frame of the data studied here, applicants have been able to use commercial trademark clearance services, which maintain their own databases of previously and currently used trademarks drawn from a variety of sources, such as trademark applications and registrations at the federal and state level, state corporate registration listings, and phone books.\textsuperscript{107} Since 2000, the PTO has made freely available online the Trademark Electronic Search System (TESS), an easy-to-use database allowing applicants to

\textsuperscript{104} See, e.g., ALTMAN, supra note 70, at 319. For the same legal reasons, experts sometimes recommend that businesses adopt longer marks, which are more likely to be available as trademarks. E.g., Altman, supra note 86.

\textsuperscript{105} See, e.g., WILLIAM A. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 208 (2003) (asserting with respect to licensing fees for the use of prestigious brands that because “the number of prestigious names is so vast” and “virtually every prestigious name will be a substitute for every other in the market,” competition “would drive the fees to zero”).

\textsuperscript{106} John Brooks, The Edsel: II—Epitome, NEW YORKER, Dec. 3, 1960, at 199, 216-17 (discussing the view of “a sizable group of laymen who tend to attribute the collapse [of the Edsel] to the company’s decision to call the car the Edsel (after the son of the original Henry Ford and the father of Henry Ford II) instead of giving it a brisker, more singable name, reducible to a nickname other than ‘Ed’ or ‘Eddie,’ and not freighted with dynastic connotations”).

identify trademark applications and registrations that might conflict with the applicant’s prospective trademark.\textsuperscript{108} Since about the same time, applicants have typically also consulted internet search engines, such as Google, to determine how their prospective marks are being used, if at all.\textsuperscript{109} Particularly over the past decade, trademark clearance has become significantly less expensive and time-consuming.\textsuperscript{110} The result is that trademark applicants are increasingly likely to be aware of conflicting "senior" applications and registrations. For this reason, we would expect such applicants to be increasingly likely to avoid applying to register trademarks that conflict, at least directly, with already registered marks.

The fact that applicants will already have taken into account some degree of trademark depletion and congestion in choosing marks has important implications. Most significantly, because applicants are typically applying with knowledge of which marks are already claimed, we should not expect depletion or congestion to cause a dramatic decline in the annual publication rate of trademark applications.\textsuperscript{111} And indeed, as Figure 2 shows, though there has been an extraordinary increase in the annual rate of trademark applications over recent decades (represented by the bars and right axis in the figure), annual publication rates have remained steady


\textsuperscript{110} See \textsc{Stephen Elias \& Richard Stim}, \textsc{Trademark: Legal Care for Your Business \& Product Name} 100-06 (10th ed. 2013).

\textsuperscript{111} If the PTO determines that the trademark application satisfies all requirements for registration, including that it does not conflict under section 2(d) with an already-registered mark, the PTO will approve the mark for publication in the \textit{Official Gazette}. 15 U.S.C. § 1062(a). The public then has one month from the date of publication to oppose the registration. \textit{Id.} § 1063(a). If no opposition is brought or succeeds, use-based applications (applications based on the applicant's current use of the mark) will automatically proceed to registration. \textit{Id.} § 1063(b). Applications based on an intent to use the mark require that a statement of actual use be filed before the registration will issue. \textit{Id.} § 1051(d). We focus on publication rates rather than registration rates because many intent-to-use applications succeed to publication, but then fail to register because the applicant fails to file a statement of use. \textit{See} Barton Beebe, \textit{Is the Trademark Office a Rubber Stamp?}, 48 HOUS. L. REV. 751, 773, 774 tbl. 9 (2011).

Oppositions are very rare. For applications filed from 1985 through 2014, only 2.10% were opposed and only 0.90% were opposed successfully. Interestingly, however, opposition rates have been steadily declining over this period, from a high of 3.42% of applications filed in 1987 receiving an opposition to a low of 1.63% of applications filed in 2014 receiving an opposition. Annual rates of successful oppositions have also been slightly declining over this period. We tentatively suggest that these trends, which deserve further study, may reflect the effects of increasing section 2(d) refusal rates discussed below in Part III.D.
Even during the Internet boom, which largely accounts for the spike in applications in 1999 and 2000, publication rates declined from only 0.75 in 1998 to 0.68 in 2000, and then quickly recovered.

Figure 2: Applications and Publication Rate by Year, 1985-2016

Instead, we should expect to see especially stark evidence of trademark depletion and congestion in changes in the characteristics of the marks for which applicants are applying. To be sure, many factors other than depletion and congestion may affect which marks applicants will choose to prosecute, chief among them trends in marketing. But further complicating matters, there is good evidence to suggest that these trends may themselves emerge out of an awareness of depletion and congestion. Finally, some less sophisticated applicants may be entirely unaware of the resources available to them that may aid them in finding or understanding the legal implications of preexisting, conflicting marks, while other highly sophisticated applicants may use those resources, discover conflicting marks, and plough ahead fully aware of the risk of a section 2(d) refusal. We address these issues further in Parts III and IV.

II. The Datasets

We use six datasets. The main dataset for this study is the PTO’s Trademark Case Files Dataset, which the PTO made publicly available in 2012 and has since updated annually. The dataset provides detailed information about all 6.9 million...
trademark applications filed at the PTO from 1982 through 2016, including data on applicant and mark characteristics, prosecution events, and ownership and renewal history.\textsuperscript{115} The dataset also provides more limited information on the 208,105 applications already registered at the PTO as of 1982 that were based on applications filed before 1982. Derived directly from the PTO’s own internal database and curated by the Office of the Chief Economist of the PTO, the dataset is of very high quality.

A significant limitation of the Trademark Case Files Dataset, however, is that it does not indicate on what grounds the PTO refused applications when it did so. We therefore developed a second, original dataset of all office actions issued by the PTO from 2003, when the PTO began posting its office actions online, through 2016. This entailed systematically downloading some 2.1 million office actions from the PTO website and autocodering them for certain characteristics, most importantly, whether the PTO refused registration on the section 2(d) basis that the applied-for mark was confusingly similar with an already registered mark.

In order to study applications and registrations for common English words, we use the Corpus of Contemporary American English (COCA) rank order of the 100,000 most frequently used words in American English.\textsuperscript{116} COCA is the largest structured

\textsuperscript{115} The dataset also provides partial information about a significant proportion of trademark applications filed from 1870 through 1981. See Beebe, supra note 111, at 760 (discussing the differences between observations in this dataset dated before the early 1980s and those dated after). In much of the statistical analysis that follows, we limit our findings to a population consisting of applications from 1985 through 2016 and applications already registered at the PTO as of 1985. We exclude the years 1982 through 1984 because of a variety of anomalies in the data for that period (for example, rapid shifts in annual publication rates) that may be of historical interest but are not central to the study of trademark depletion and congestion.

\textsuperscript{116} See Mark Davies, The Corpus of Contemporary American English as the First Reliable Monitor Corpus of English, 25 LITERARY & LINGUISTIC COMPUTING 447 (2010). COCA’s rank order does not include the trademarks “iPad,” “Gucci,” or “Microsoft,” but it does include “surface,” “apple,” and “polo,” when they are used as common nouns, as the 1,131st, 2,388th, and 10,336th most frequently used words, respectively. Nor does the rank order include the proper noun “America,” but it does include the adjective “American” (160th). More generally, the corpus excludes proper nouns but might include, depending on usage frequency, proper adjectives and a very limited number of words that originated as trademarks but grew into common usage, such as “google” (ranked as the 17,894th most frequently used word, and putting aside the word “googol,” from which it was derived).
The version of COCA we use consists of more than 450 million words of text drawn from television and radio broadcasts, fiction, popular magazines, newspapers, and academic journals over the years 1990 through 2012, with approximately 20 million words from each year. (From this corpus, we learn such important information as that Americans use the word “no” more frequently (our 91st most frequently used word) than “yes” (188th), “hell” (1,261st) more frequently than “heaven” (3,111th), and “war” (191st) more frequently than “peace” (810th).) COCA ranks the frequency with which a word appears in the form of a particular part of speech. Thus, a word like “can” may appear multiple times in the ranking (“can” as a verb and “can” as a noun). For purposes of this study, we collapsed these multiple rankings into one ranking based on the raw frequency of the word regardless of part of speech. This resulted in a rank order of 86,408 words, which is the rank order we used for our statistical analysis and to which we will refer in what follows. We use the terms “standard English words” or “common English words” to refer to all words that appear in this rank order.

COCA’s frequency ranking also provides an estimate of the proportion of overall word usage consisting of a particular word in a particular part of speech. As we did with COCA’s frequency ranking, we collapsed these estimates to establish the raw proportion of overall word usage consisting of the word regardless of part of speech. Doing so allows us in Part III to estimate not just the precise number of the 86,408 most frequently used words that are already claimed as trademarks, but also the proportion of word usage that these already claimed words represent. This is important because word frequency roughly follows a power law distribution known
as Zipf’s law.\textsuperscript{118} COCA’s data indicate that the ten most frequently used words account for 21.4\% of word usage; the 100 most frequently used words, 44.9\%; and the 1,000 most frequently used words, 65.4\%. Meanwhile, the 10,000th to the 86,408th most frequently used words account for only 4.9\% of word usage. (Overall, COCA’s list of the 86,408 most frequently used words account for 89.1\% of word usage.) Depletion and congestion of very high-frequency words arguably have a far more significant impact on competitors, consumers, and the public domain than does depletion and congestion of lower frequency words.

To assess surname depletion and congestion, we use the U.S. Census Frequently Occurring Surnames from the Census 2000 dataset, which ranks the frequency of all 151,671 surnames appearing 100 or more times in the Census 2000 returns.\textsuperscript{119} The Census data also provide an estimate for each surname of the proportion of the U.S. population using that surname. These data enable us to estimate both the proportion of surnames already claimed as trademarks as well as the proportion of the population that uses those surnames. (Overall, the Census data cover 89.8\% of the population, with the 1,000 most commonly occurring surnames covering 40.6\% of the population.\textsuperscript{120}) We use the term “common American surnames” to refer to all surnames in the Census rank order.

Because trademark applicants now typically also seek to determine if the trademarks they wish to register are already registered as domain names,\textsuperscript{121} we use Verisign’s .COM TLD Zone File, which lists all .com domain names, to study the proportion of common English words, common American surnames, and short neologisms that are already registered as domain names in the .com top-level domain.\textsuperscript{122}

Finally, to study the depletion of potential neologisms, we use an original dataset comprising phonetic representations of all words included in all trademark applications from 1982 through 2015. To develop this dataset, we used the Carnegie Mellon University Pronouncing Dictionary, which provides the pronunciation broken down by phonemes for some 134,000 American English words.\textsuperscript{123} For words

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{118}See Steven T. Piantadosi, Zipf’s Word Frequency Law in Natural Language: A Critical Review and Future Directions, 21 PSYCHON BULL. & REV. 1112 (2014).
\item \textsuperscript{119}The Census 2000 data are available at http://www.census.gov/topics/population/genealogy/data/2000_surnames.html. The Census does not list names occurring less than 100 times because of privacy concerns. See David L. Word, Charles D. Coleman, Robert Nunziata, & Robert Kominski, Demographic Aspects of Surnames from Census 2000, at 16, available at http://www2.census.gov/topics/genealogy/2000surnames/surnames.pdf. We use the Census 2000 data rather than the more recent Census 2010 data because the former describes the U.S. population more at the midpoint of the timespan covered by our trademark data, which runs from the mid-1980s to the present.
\item \textsuperscript{120}Word, Coleman, Nunziata & Kominski, supra note 119, at 16.
\item \textsuperscript{121}See supra text accompanying notes 96-97.
\item \textsuperscript{123}This dictionary is available at http://www.speech.cs.msu.edu/cgi-bin/cmudict. Phonemes are recorded in the ARPAbet phoneme set developed for speech recognition use.
\end{itemize}
\end{footnotesize}
appearing in a trademark application but not in the Pronouncing Dictionary, we used the Carnegie Mellon University LOGIOS Lexicon Tool to infer a phonetic representation of the word.124 We combined these data with COCA to develop a list of the 10,753 unique syllables found in COCA, encoded phonetically, along with their frequency data.125 We use this list to assess the depletion and congestion of phonetically possible American English words, particularly neologisms.126

III. Word Mark Depletion

The concept of trademark depletion is not new to trademark law. We adapt it from the U.S. Supreme Court decision in *Qualitex Co. v. Jacobson Products Co.*,127 which held that the Lanham Act permits the registration of a mark consisting of a single color if it otherwise meets the requirements for trademark protection.128 In so holding, the *Qualitex* Court rejected Jacobson’s argument that allowing the registration of single colors “will ‘deplete’ the supply of usable colors to the point where a competitor’s inability to find a suitable color will put that competitor at a significant disadvantage.”129 The Court reasoned that “[w]hen a color serves as a mark, normally alternative colors will likely be available for similar use by others. Moreover, if that is not so—if a ‘color depletion’ or ‘color scarcity’ problem does arise—the trademark doctrine of ‘functionality’ normally would seem available to prevent the anticompetitive consequences that Jacobson’s argument posits, thereby minimizing that argument’s practical force.”130 Yet functionality doctrine would not prevent the kind of color mark depletion that Jacobson was describing in *Qualitex*, which was the depletion by many different competitors of non-functional colors, such as the green-gold color for dry-cleaning press pads at issue in the case.131 Instead, at the core of the Court’s rejection of the color depletion argument was simply the assumption that Qualitex and its competitors would never exhaust the supply of colors that may be used as single-color trademarks.

We think the case that word mark depletion has begun to have anticompetitive consequences is substantially stronger than the comparable case was for color mark

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124 This dictionary uses a total of 39 different phonemes. *Id.* It usefully contains the correct pronunciation of many well-known marks, such as “Chanel,” “Google,” and “Mattel.”

125 The tool is available at http://www.speech.cs.cmu.edu/tools/lextool.html.

126 We encoded COCA’s words phonetically also using the Pronouncing Dictionary, supplemented by the LOGIOS Lexicon Tool when necessary. We syllabified these words using the results of a syllabification algorithm that was run on the Pronouncing Dictionary. See Susan Bartlett, Grzegorz Kondrak & Colin Cherry, *On the Syllabification of Phonemes*, HUMAN LANG. TECHS.: 2009 ANN. CONF. N. AM. CHPTR. ACL 308 (2009) (describing the algorithm). The results are available at http://webdocs.cs.ualberta.ca/~kondrak/cmudict.html. We supplemented this data with post-processing to syllabify COCA words that do not appear in that dictionary.


128 *Id.* at 162.

129 *Id.* at 168.

130 *Id.* at 168-69 (citation omitted).

131 There can be no depletion of functional color marks because the functionality doctrine would bar their registration in any case.
depletion in *Qualitex*. We make that case in this Part. We begin in section A by outlining a framework for evaluating word mark depletion. Section B then shows that a strikingly high proportion of frequently used words, frequently occurring surnames, and one-syllable words—among the most desirable categories of marks—are already claimed by at least one trademark registrant either as a single-word mark or as part of a multi-word mark. We further show that an even higher proportion of frequently used words are claimed in the .com top-level domain space. In sections C and D, we turn to historical trends in applicant behavior, specifically, in the kinds of word marks for which applicants are applying and which they are ultimately registering. These trends are consistent with applicants' own recognition of and attempt to adapt to the problem of word mark depletion. Section E focuses on the increasing proportion of applications that fail to pass the examination stage of the registration process because they conflict with already registered marks. Even while applicants are generally attempting to adapt to word mark depletion, many are still applying for and failing to register marks that others have already claimed. Finally, section F shows that incumbent applications (those based on preexisting registrations) have to some extent been able to avoid the problem of word mark depletion by taking advantage of associated preexisting registrations. The benefits of incumbency reveal the severity of the problem of word mark depletion for market entrants, an issue we analyze in greater depth in Part V.

A. A Framework for Evaluating Word Mark Depletion

Word mark depletion is the process by which a decreasing number of potential word marks remain unclaimed by any trademark owner. Note that because an entity may in some instances register a mark that has already been claimed by another, depletion does not necessarily entail a decline in the number of potential marks that remain available for registration. That said, the two concepts are closely connected: Increased rates of depletion can readily lead to increased unavailability of marks. Understood in its broadest sense, word mark depletion describes the depletion of the set of all possible word marks with respect to the set of all classes of goods and services. But word mark depletion may take more specific forms. A particular set of word marks (for example, common English words) may be depleted with respect to a particular class of goods and services (for example, apparel). Depletion may take even more specific forms. Individual words may be depleted in individual classes. The concept of depletion is highly flexible, but the process of depletion is best evaluated in two dimensions, in terms of the depletion of a set of marks with respect to a set of goods or services.

In what follows, we focus on the aspects of word mark depletion that are most relevant to assessing the degree of depletion of “good,” competitively effective marks. As for the sets of marks on which we focus, the marketing literature identifies three

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132 We can generalize our analysis of depletion and congestion to categories, or sets, of words that are infinite, such as the set of all possible words made from the English alphabet or the set of all phonetically and orthographically possible English words. It complicates the explication of the framework but not the analytical framework itself. To simplify the explication, we therefore continue with an analysis only of finite word categories.
sets of particular interest: common English words; all possible short, pronounceable neologisms; and surnames. As for the sets of goods and services, because marks unique to only one firm in the economy are especially effective, we assess depletion with respect to the set of all classes of goods and services. But because firms will often settle for being the only user of a particular mark merely within their class, we also assess depletion by class.

Adding to the complications that attend the concept of word mark depletion are two further considerations. The first is that a particular word mark registration in a particular class depletes not simply the word it identically matches with respect to that class. It also constructively depletes all similar words in that class whose use would confuse consumers as to source. For instance, a registration for BLUE in Class 25, for apparel, would likely disallow another entity from registering in that class BLU, BLEU, BLUE MAN, and quite possibly even similar-sounding marks such as BLOW as well. Furthermore, even if consumers might not be confused by such marks or in any case even if the PTO might allow their registration, applicants may consider them unavailable because the prior registration and use of BLUE impairs the uniqueness of all marks similar to it. BLUE makes BLU, BLEU, BLUE MAN, and BLOW less distinctive, less different from other marks. Thus, a proper evaluation of depletion must incorporate some method for assessing not just identity, but also non-identical similarity between already claimed marks and the overall supply of possible marks. As we explain further below, to do so we use Jaro-Winkler distance, which is a quantitative measure of the similarity between two strings.

A second complication of word mark depletion is that the depletion of some words may have a more significant effect on competition than the depletion of others. The costs of depletion, in other words, are not linear.

Courts and commentators have long recognized that the depletion of generic and descriptive terms in particular can be especially damaging to competition, as they are especially important for all competitors in a particular space to use in the course of
doing business. For this reason, generic terms are barred from registration. Descriptive terms are registrable, but depletion concerns arguably underlie both trademark law’s requirement that these terms acquire distinctiveness in order to receive protection and the law’s descriptive fair use defense. While the acquired distinctiveness requirement is largely based on the law’s underlying limitation that it will grant exclusive rights only in signs that consumers perceive as designations of source, it also reflects the law’s cognizance of the cost of granting exclusive rights in key terms that businesses need to use extensively to operate. Similarly, the descriptive fair use defense permits a business to use a competitor’s protected descriptive mark so long as this use is “in good faith only to describe [the business’s] goods or services.” This defense recognizes that fair competition requires access to descriptive terms and thus limits the scope of trademark protection for descriptive marks.

The example of generic and descriptive marks counsels that any analysis of depletion should attempt to incorporate some measure of a word mark’s importance to competition and to the public domain. Though our measure is rough, for common English words we use the frequency rank of the word and the proportion of overall

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133 See, e.g., Am. Cyanamid Corp. v. Connaught Labs., Inc., 800 F.2d 306, 308 (2d Cir. 1986) ("Consumers will not benefit ... if trademark law prevents competitors from using generic or descriptive terms to inform the public of the nature of their product. Were the first user of a generic or descriptive term, say 'bicycle,' able to exclude later entrants from use of that term, the former would be able not only to identify itself as the maker of the bicycle and to capitalize on whatever good will it has built up—legitimate purposes of trademark protection—but also to impair the ability of competitors to describe their product as bicycles—a wholly counterproductive result so far as consumers are concerned."); Lisa P. Ramsey, Descriptive Trademarks and the First Amendment, 70 Tenn. L. Rev. 1095, 1099 (2003) ("Free speech interests are harmed ... when competitors of Fox News cannot use the descriptive phrase 'Fair & Balanced' as part of a slogan or domain name. As this phrase provides information about the attributes of the news services regardless of whether the public associates the term with Fox News, trademark restrictions on use of the term 'Fair & Balanced' suppress expression that is relevant to consumers. Like generic terms, such as 'News,' descriptive terms should be available for use by everyone in a particular industry."); Alexandra J. Roberts, How To Do Things with Word Marks: A Speech-Act Theory of Distinctiveness, 65 Ala. L. Rev. 1035, 1040 (2014) ("Speech-act theory provides a helpful lens for understanding how trademarks work and illustrates why overprotecting descriptive terms undermines the goals of trademark law and hurts competition."). But see Park 'N Fly, Inc. v. Dollar Park & Fly, Inc., 469 U.S. 189, 200-01 (1985) (dismissing the concern that protecting descriptive marks, like “Park 'N Fly” for long-term parking lots near airports, can be anticompetitive).

134 See supra text accompanying note 44. This bar is essentially a functionality doctrine for words, akin to the functionality doctrine for utilitarian or aesthetic product features referenced in Qualitex. See, e.g., Jerre B. Swann, Genericism Rationalized, 89 Trademark Rep. 639, 649-50 (1999) (comparing the doctrines).

135 See supra text accompanying note 43.

136 See Ramsey, supra note 133, at 1099.


138 KP Permanent Make-Up, 543 U.S. at 122 (explaining the defense’s origin as grounded in “the undesirability of allowing anyone to obtain a complete monopoly on use of a descriptive term simply by grabbing it first”).
word usage for which the word is responsible as an indicator of the cost the depletion of the word imposes on the trademark system. Similarly, with respect to surnames, we use the frequency rank of the surname and the proportion of the population who use the surname. For neologisms, we use the frequency rank of the syllable and the proportion of all syllable usage for which the syllable is responsible.

B. Evidence of Word Mark Depletion in Words Already Registered

For purposes of exposition, we begin in section 1 by presenting data on identical matches between active trademark registrations, on the one hand, and common English words, common American surnames, and possible one-syllable words, on the other. Even these data present compelling evidence of word mark depletion. But they only hint at the extent of the problem. We present in sections 2 and 3 more disturbing evidence of depletion in the form of data concerning the proportion of words and surnames that are not identical to, but still confusingly similar with already registered marks, either because the word or surname is only slightly different from the registered mark or because the word or surname appears within the mark. Section 4 then focuses on domain names in the .com top-level domain.

1. Identical Matches

In evaluating the proportion of words and surnames that identically match an already registered mark, we necessarily study the registration of such words and surnames in the form of single-word marks. Single-word registrations are significant because they potentially yield a considerable competitive advantage to their owners. They do so, first, because, all else equal, they typically form the basis of broader rights than multi-word registrations, whose exclusivity is limited only to uses that are confusingly similar with respect to all of the words registered.\textsuperscript{139} For example, the registration of the single word FUTURE claims a broader scope of exclusivity than the registration of the words FUTURE QUEST. At least in principle, the former is potentially infringed by any use of or use similar to FUTURE either alone or with any other words including QUEST. In contrast, FUTURE QUEST is potentially infringed only by uses of or uses similar to both FUTURE and QUEST in combination. Single-word registrations are also competitively advantageous because of their low word count. All else equal, single words are typically easier to remember than multiple words strung together.\textsuperscript{140} Easier recall by consumers makes single-word marks attractive to businesses.

a. Frequently Used Words

A strikingly high number of the most frequently used words in American English are already registered as single-word trademarks. As Table 1 indicates, in 2016, 816 of the 1,000 most frequently used words identically matched an active single-word mark, and 6,188 (61.9\%) of the 10,000 most frequently used words did so. Overall,
20,295 (23.5%) of the 86,408 most frequently used words in American English were claimed as single-word marks.141 These 20,295 words account for 74.0% of all word usage. In effect, when we use our language, nearly three-quarters of the time we are using a word that someone has claimed as a trademark.

Table 1: Proportion of Most Frequently Used Words Matching Active Single-
Word Marks in 2016

<table>
<thead>
<tr>
<th>Number of Most Frequent Words</th>
<th>Number Registered as Single-Word Marks</th>
<th>% of Number of Most Frequent Words</th>
<th>% of All Word Usage Claimed by Single-Word Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>816</td>
<td>81.6</td>
<td>60.0</td>
</tr>
<tr>
<td>5,000</td>
<td>3,471</td>
<td>69.4</td>
<td>69.8</td>
</tr>
<tr>
<td>10,000</td>
<td>6,188</td>
<td>61.9</td>
<td>72.3</td>
</tr>
<tr>
<td>86,408</td>
<td>20,295</td>
<td>23.5</td>
<td>74.0</td>
</tr>
</tbody>
</table>

Figure 3 shows the dramatic increase since 1985 in the proportion of all word usage consisting of words claimed as single-word marks. In only 32 years, that proportion has increased from 58.3% of all word usage in 1985 to 74.0% in 2016.

What words remain unclaimed? Studying the registration status of the 1,000 most frequently used words may offer some insight. In 2016, 187 of these words remained unclaimed. Most of these words would not likely succeed as trademarks, either because they carry negative connotations (such as DESPITE, DIED, DIFFICULT, DISEASE, KILLED, LACK, LOSS, OLDER, PROBLEMS, VIOLENCE), questionable sales appeal (such as LEAST, PERHAPS, PROBABLY, TRYING), or strong basic meanings that would likely impede successful branding (such as DRUG, RELIGIOUS, WANTS). Also notable is the large number of words relating to gender and family that are frequently used but not claimed as trademarks (such as HUSBAND, WIFE, MARRIED, MALE, WOMAN, DAUGHTER, HERSELF, HIMSELF).

These data indicate that it is becoming more difficult for entrants to claim frequently used English words that no other firm is using anywhere in the economy. But firms will often settle for a parallel use provided that other firms that are using

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141 We first standardized registered marks by correcting misspelled words, by placing appropriate spacing between concatenated words, and by removing punctuation and other symbols.
the mark are doing so in a different economic sector and in a non-confusing manner. For this reason, we also look more specifically at the proportion of the most frequently used words that are claimed as single-word marks within particular classes of goods and services.\footnote{142}

Figure 4 shows, for each Nice class of goods and services, the proportion of word usage consisting of words claimed as single-word trademarks in that class. Certain classes show significant degrees of word mark depletion—specifically, Class 9 (electronics goods), Class 25 (apparel goods), Class 35 (general business services), and Class 41 (education, entertainment, and cultural and sporting activities services).

\footnote{142 In presenting class-by-class results in this Article, we make a simplifying assumption that a registration in one Nice class will not deplete, congest, or cause confusion with any potential mark in another class. This assumption makes our results conservative because goods and services in different classes may be sufficiently closely-related that the registration of a mark in one class may preclude another’s registration of the same mark in another class. For example, a mark registered in Class 25 (apparel goods) may preclude another’s registration of the same mark in Class 14, which includes jewelry. On the other hand, in presenting our class-by-class results, we also make the simplifying assumption that a registration in one Nice class can deplete, congest, or cause confusion with other potential marks in that same class, even though that is not always the case, particularly for classes that are massive and combine many disparate goods or services, such as Class 35 (general business services). Cf. Tushnet, supra note 61, at 880-81 (discussing the same two possibilities, and how registrations therefore do not provide sufficient notification of the extent of infringement liability). Finally, we make another simplifying assumption by treating all marks containing text similarly. However, text marks can consist of standard character marks that make no claim “to any particular font style, size, or color,” 37 C.F.R. § 2.52(a), stylized character marks in which the registration claims rights in the text only in its particular stylized font, and image marks containing text. See PATENT & TRADEMARK OFF., Representation of the Mark, https://www.uspto.gov/trademarks-getting-started/trademark-basics/representation-mark (last visited Feb. 11, 2017). For the years 1985 through 2016, 72.4% of applications consisted of only standard character marks, 5.3% consisted of only stylized character marks, and 19.1% consisted of image marks containing text. Standard character marks potentially have the broadest scope because they are not limited to a particular stylization, whereas the other two categories tend to be narrower because of the stylization or design elements that appear with them. Cf. supra text accompanying notes 139-140 (applying a similar principle to one- versus multi-word marks).}
Figure 4: Proportion of All Word Usage Consisting of Words Identically Matching an Active Registration by Nice Class in 2016, Full Marks and Marks with Disclaimed Language Removed

Note that we have focused so far on identical matches between frequently used words and the whole mark recorded in the registration, including disclaimed words. Thus, in our identical matching protocol, the frequently used word “apple” would not identically match the registered mark APPLE COMPUTERS, INC., even though the registration disclaimed COMPUTERS and INC.¹⁴³ We designed the protocol in this

¹⁴³ Registration No. 2,273,661. As per the trademark statute, the PTO “may require the applicant to disclaim an unregistrable component of a mark otherwise registrable. An applicant may voluntarily disclaim a component of a mark sought to be registered.” 15 U.S.C. § 1056(a). Applicants disclaiming portions of word marks do so typically because they are generic or descriptive (without the requisite secondary meaning). See, e.g., Brandon Meyer, What Happens If I Can’t Get Away with It?: Disclaimer Law and Practice, 19 J. CONTEMP. LEGAL ISSUES 125, 126 (2010). Nonetheless, a disclaimer does not prejudice an applicant’s common-law rights or any future rights that might arise as to disclaimed words. 15 U.S.C. § 1056(b). Furthermore, disclaimed language still might be protectable, because courts evaluate it together with non-disclaimed language in assessing trademark infringement. E.g., Juice Generation, Inc. v. GS Enters. LLC, 794 F.3d 1334, 1341 (Fed. Cir. 2015); Shen Mfg. Co. v. Ritz Hotel, Ltd., 393 F.3d 1238, 1243 (Fed. Cir. 2004).
manner because trademark examiners are instructed to include disclaimed language in their section 2(d) assessment of mark similarity. However, if we exclude disclaimed language from the mark, this enables our matching protocol to focus on the dominant portion of the mark, which is undoubtedly APPLE in our example. This focus is appropriate. In their section 2(d) assessment of similarity, examiners are also instructed to consider the dominant portion of the mark.

When we test for identical matches between frequently used words and registered marks with their disclaimed language removed, the proportion of words already claimed increases. In 2016, of the 86,408 words listed in our word frequency table, 24,702 (28.6%) identically matched a registered mark with disclaimed language removed. These 24,702 words account for 78.9% of all word usage in American English. This percentage has been increasing over time, but not as dramatically as shown above in Figure 3 with respect to identical matches to full marks. This is because already in 1985 65.9% of all word usage consisted of a word identically matching a registered mark with disclaimed language removed. That percentage steadily increased each year to the 78.9% figure for 2016.

For the 1,000 most frequently used words in particular, 899 identically matched registrations with disclaimed language removed. As for particular Nice classes, Figure 4 shows that the proportions of already-claimed words are often nearly double those reported for marks with disclaimed language included. The dramatic difference between the results of identical matching of words to full marks and identical matching of word to marks with disclaimed language removed hints at how severe the problem of word mark depletion actually is—especially when we take into account, as we do in a moment, non-identical similarity.

In our data, of the 5,107,791 applications filed from 1985 through 2016 that succeeded to publication, 26.9% (or 1,376,168) contained disclaimed language. This is a sizeable number. We have collected significant data about trademark disclaimers and plan to study them, their legal effect, and the desirability of potential protection for disclaimed language in future work.


145 TMEP, supra note 46, at § 1213.10 (“Typically, disclaimed matter will not be regarded as the dominant, or most significant, feature of a mark.”).

146 We note that there is also significant depletion of individual letters and short letter combinations. In 2016, all 26 letters identically matched an active registration in some class of goods or services. In each of the economically most significant classes (5, 9, 25, 35, and 41), each letter was claimed as a single-letter mark by at least one registrant and often by multiple registrants. Of the 676 possible two-letter combinations, all but four (IY, UJ, XU, and YQ) identically matched an active registration in 2016 in some class of goods or services—and UJ has since been registered (Registration No. 5,243,465) while YQ and XU are the subject of applications currently under review (Application Nos. 79196783 and 86900821, respectively). As for specific classes, in Class 9, 85.5% of all two-letter combinations were claimed; in Class 25, 80.6%; in Class 35, 78.7%; and in Class 41, 73.8%. Overall, 58.9% of the 17,576 possible three-letter combinations identically matched an active registration in 2016 in some class of goods or services, and 5.1% of the 456,976 possible four-letter combinations were claimed in some class of goods or services.
b. Frequently Occurring Surnames

As mentioned above, the U.S. Census data allow us to estimate the proportion of the U.S. population that carries a surname already claimed as a registered mark.\textsuperscript{147} We thus measure surname depletion according to this metric. The Census data list 151,671 surnames. Of these, 22,125 identically match a mark registered in 2016. Census data indicate that these 22,125 surnames represent 55.4\% of the U.S. population. Thus, over half of all Americans carry a surname that has already been claimed as a single-word trademark. Figure 5 shows the steady increase over time in the proportion of the population carrying a surname claimed as a trademark.

![Figure 5: Proportion of U.S. Population Carrying a Surname Registered as a Single-Word Trademark, 1985-2016](image)

With respect to the registration of surnames as single-word marks in specific classes of goods and services, certain classes show significant depletion. For Class 9 covering electronics goods, 30.3\% of the population carries a surname triggering an identical match. For Class 25 covering apparel goods, 22.4\% of the population does so. With respect to Class 35 covering general business administration services, a little over one in four Americans (26.6\% of the population) carry surnames already registered as single-word marks. Interestingly, in Classes 6 and 7, covering metal goods and machine goods respectively, surname depletion is also significant, at 20.5\% and 23.6\% of the population, respectively.

When we compare the most frequently occurring surnames to marks with disclaimed language removed, we find a higher proportion of the population carrying surnames already claimed as single-word marks. In 2016, 61.5\% of the population carried a surname identically matching a registered mark with disclaimed language removed. The proportions are similarly higher with respect to specific classes of goods and services. For example, for Class 9 (electronics goods), 35.4\% of the population carried a surname triggering an identical match, while 39.1\% did so for Class 35 (business administration services), and 27.7\% for Class 25 (apparel goods).

\textsuperscript{147} See supra Part II (describing this dataset).
c. One-Syllable Words

It is often assumed that the supply of trademarks is inexhaustible because new firms can simply coin new words.\textsuperscript{148} Yet the supply of new words that may serve as competitively effective trademarks is limited. Firms that choose neologisms generally prefer short, easily pronounceable, familiar-sounding, and reasonably euphonious terms.\textsuperscript{149} Our data indicate that this limited supply of new words is itself being depleted.

To study this form of depletion, we focus on all potential one-syllable words in English.\textsuperscript{150} To estimate a list of such terms, we use a frequency table of the 10,753 distinct syllables appearing in the words of the Corpus of Contemporary American English. We then compare these syllables to all applied-for and registered marks. Here, our matching protocol is based not on identical string matching but on identical phonetic matching. We are interested primarily in matching syllables that sound the same. In sum, we study identical matches between the phonetic representations of syllables appearing in the corpus and the phonetic representations of syllables appearing in the trademark application and registration data. For example, the words “Phil” and “fill” would match phonetically even though they are spelled differently, while the “ant” in “ant” and “variant” would not match phonetically even though they have the same spelling.

Overall, of the 10,753 most frequently used syllables in American English, 5,532 (51.4\%) are claimed as one-syllable marks. These 5,532 syllables account for 76.4\% of all syllable usage in the language. Figure 6 shows the extraordinary increase over time in proportion of syllable usage consisting of a syllable claimed as a single-word mark, from a low of 56.2\% in 1983 to our present condition in which over three-quarters of the syllables we use are registered as one-syllable marks.

Figure 6: Proportion of All Syllable Usage Consisting of Syllables Registered as Single-Word Trademarks, 1982-2015

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\textsuperscript{148} See supra section I.B.1 (elaborating on this conventional wisdom).

\textsuperscript{149} See supra section I.B.2.

\textsuperscript{150} We could study all potential two- and three-syllable English words as well, but the computational constraints are sufficient that we focus on one-syllable English words to give a sense of the proportion of the supply of plausible neologisms that conflict with already registered marks.
Which syllables remain unclaimed? Just as we did for frequently used words, looking at which syllables remain unclaimed among a subset of the most frequently used syllables may offer some insight. Of the 100 most frequently used syllables, 23 were free of conflicts with a registered mark in 2015. Table 2 lists them. It is not surprising that these syllables remain free. Better-suited to multisyllabic words, none would serve as an effective single-syllable trademark.

Table 2: Syllables Among the 100 Most Frequently Used Syllables Not Registered as Single-Syllable Trademarks in 2015

<table>
<thead>
<tr>
<th>Frequency Rank</th>
<th>Arpabet Phonetic Transcription</th>
<th>Pronunciation Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>AA</td>
<td>father</td>
</tr>
<tr>
<td>7</td>
<td>AH</td>
<td>but</td>
</tr>
<tr>
<td>18</td>
<td>DIH</td>
<td>din</td>
</tr>
<tr>
<td>24</td>
<td>BIH</td>
<td>bin</td>
</tr>
<tr>
<td>31</td>
<td>SAH</td>
<td>support</td>
</tr>
<tr>
<td>32</td>
<td>RIH</td>
<td>wrt</td>
</tr>
<tr>
<td>37</td>
<td>TAH</td>
<td>tut</td>
</tr>
<tr>
<td>39</td>
<td>IH</td>
<td>big</td>
</tr>
<tr>
<td>41</td>
<td>NAH</td>
<td>nut</td>
</tr>
<tr>
<td>44</td>
<td>MAH</td>
<td>nut</td>
</tr>
<tr>
<td>45</td>
<td>SIH</td>
<td>signal</td>
</tr>
<tr>
<td>47</td>
<td>DH ER</td>
<td>other</td>
</tr>
<tr>
<td>53</td>
<td>RAH</td>
<td>rut</td>
</tr>
<tr>
<td>58</td>
<td>TAH D</td>
<td>stud</td>
</tr>
<tr>
<td>60</td>
<td>IY</td>
<td>shg</td>
</tr>
<tr>
<td>69</td>
<td>PAH</td>
<td>put</td>
</tr>
<tr>
<td>76</td>
<td>LIH</td>
<td>Linda</td>
</tr>
<tr>
<td>78</td>
<td>MEH</td>
<td>men</td>
</tr>
<tr>
<td>79</td>
<td>MAH NT</td>
<td>arrangement</td>
</tr>
<tr>
<td>85</td>
<td>MIH</td>
<td>minnow</td>
</tr>
<tr>
<td>92</td>
<td>SH AH N Z</td>
<td>stations</td>
</tr>
<tr>
<td>93</td>
<td>TIH</td>
<td>tin</td>
</tr>
<tr>
<td>96</td>
<td>AE</td>
<td>fast</td>
</tr>
</tbody>
</table>

The kinds of syllables listed in Table {} are representative of the larger population of the 5,232 syllables appearing in the corpus that remain unregistered as one-syllable marks. A broader look at this population typically shows such unlikely one-syllable brand names as “wuh,” “duh,” “gehn,” “gehnst,” “yurz,” “erf,” and “gloud.”

Comparing single-syllable marks to all syllables appearing in the corpus also shows what syllables have, in essence, been coined by trademark registrants. Here too we find a large number of almost comically obtuse brand names: GLOG, SKIDE, TSUGE, ZOOT, KNIRPS. It may certainly be the case that some firms may seek to distinguish themselves by the relative awkwardness of their brand names, but this cannot be an effective strategy for all new trademark registrants. When taking into account the marketing goals of typical firms, we see

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151 Registration No. 4,277,734.
152 Registration No. 4,453,072.
153 Registration No. 4,006,436.
154 Registration No. 4,522,397.
155 Registration No. 4,632,239.
156 Registration No. 2,343,707.
157 Registration No. 4,103,506.
significant depletion of neologisms that promise to be at least minimally competitively effective.

Finally, Figure 7 shows by Nice class the proportion of syllable usage consisting of syllables claimed as one-syllable marks. As with common English words and common American surnames, certain classes are especially depleted. In Class 9 (electronics goods, including software), 59.8% of all syllable usage consists of syllables claimed as one-syllable marks. In Class 35 (business administration services), 53.3% of syllable usage is claimed, and in Class 25 (apparel goods), 48.9% of syllable usage is claimed.

Figure 7: Proportion of All Syllable Usage Consisting of Syllables Registered as Single-Word Marks in 2015 by Nice Class

2. Jaro-Winkler Similarity Matches

When we move from an analysis of the data based on identical matching to an analysis based on confusing similarity, the results are much starker—and help to explain why, as we show below, applicants are increasingly shifting away from applying for common words and surnames.

To assess non-identical similarity, we employ the Jaro-Winkler measure of the edit distance between two strings. Edit distance is a measure of the number of operations, such as insertions, deletions, or transpositions, required to transform one string into another. For example, “chat” needs one deletion and nothing further to
transform it to “cat.” We use the Jaro-Winkler distance measure because it incorporates character transpositions into its measure of distance and places more weight, as people do, on the initial characters of the strings being compared.\(^\text{158}\) Jaro-Winkler distance is normalized such that a distance of 1 indicates an exact match and a distance of 0 indicates no similarity. We use a conservative threshold of 0.875 to indicate a confusingly similar match.\(^\text{159}\) To further tighten our similarity-matching protocol, we use the full mark (including disclaimed language) as the basis of our comparisons with frequently used words and frequently occurring surnames.

Even when using this very conservative method of matching, we find evidence of extreme word mark depletion. Of the 86,408 words listed in our word frequency table, 83,913 (97.1\%) were confusingly similar with an active trademark registration in 2016. These words account for 89.1\% of all word usage in American English. Of the 10,000 most frequently used words, all but nine are confusingly similar with an

158 For these reasons, the Jaro-Winkler measure is superior to other measures of edit distance, such as Levenshtein distance and Jaro distance. The Jaro-Winkler measure is set out in William E. Winkler, U.S. CENSUS BUREAU, The State of Record Linkage and Current Research Problems (1999), http://www.census.gov/srd/papers/pdf/rr99-04.pdf. Computer scientists have developed much more sophisticated methods of measuring the phonetic and semantic similarity of words. See, e.g., Fatahiyah Mohd Anuar, Rossitza Setchi & Yu-Kun Lai, Semantic Retrieval of Trademarks Based on Conceptual Similarity, 46 IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS 220 (2016); Fatahiyah Mohd Anuar, Rossitza Setchi & Yu-Kun Lai, Trademark Retrieval Based on Phonetic Similarity, 2014 IEEE INT’L CONF. ON SYSTEMS, MAN, & CYBERNETICS 1642; Greg Kondrak, Phonetic Alignment and Similarity, 37 COMPUTERS & THE HUMANITIES 273 (2003) (setting out the ALINE algorithm for assessing phonetic similarity). Anuar, Setchi, and Lai in particular have proposed an algorithm that, by their estimate, significantly improves upon the Levenshtein approach and Kondrak’s ALINE algorithm. In subsequent work, we hope to employ these improved algorithms. But because we use a very conservative threshold for similarity, we expect that these improved algorithms will produce even stronger evidence of word mark depletion among frequently used words.

159 We characterize a 0.875 Jaro-Winkler threshold as conservative for our purposes because it yields very few false positives. But it but does so at the cost of a significant number of false negatives. As compared to the word “apple,” for example, the following words would yield Jaro-Winkler scores under the 0.875 threshold: “crabapple” (0.541), “affle” (0.760), “apfel” (0.827), “appollo” (0.853), and even “appell” (0.867). Meanwhile, words that share initial characters or combinations of characters with “apple” would trigger a Jaro-Winkler match at the 0.875 threshold—for example, “snapple” (0.905), “appal” (0.907), and “bapple” (0.944).

A rough study of opposition proceedings before the PTO’s Trademark Trial & Appeal Board (TTAB) lends further support to the proposition that the 0.875 threshold is relatively conservative. The TTAB maintains a dataset describing all of its opinions since November 1996 at https://e-foia.uspto.gov/foia/TTABReadingRoom.jsp. We studied all 2,587 opposition opinions included in this dataset from November 1996 through December 2016. For each of these opinions, we calculated a Jaro-Winkler score which compared up to the first four words in the opposer’s mark to up to the first four words in the applicant’s mark. The mean Jaro-Winkler score for the 1,587 oppositions we studied that were sustained at least in part was 0.646, while the comparable score for the 932 oppositions we studied that were dismissed at least in part was 0.601. These results suggest that a Jaro-Winkler threshold of 0.875 is highly conservative. The TTAB data is very rich, and we plan further, more refined study of it.
already registered mark. The degree of word mark depletion is also severe for many specific classes of goods and services. Figure 8 shows, for each Nice class, the proportion of word usage that consists of words confusingly similar with active trademark registrations in that class in 2015. By this measure, over half of the Nice classes show word mark depletion over 70% of all word usage, with Class 9 (electronics goods, including software) leading at 88.5% and Class 35 (business administration services) at 87.8%.

Admittedly, because certain classes, such as Class 9 and Class 35, cover a very broad range of goods or services, these data do not show that all words identified as confusingly similar to an already registered mark in a particular class are unavailable in that class. When the marks are merely similar rather than identical and the goods are sufficiently different, it is possible that a registration will issue. At the very least, however, these data indicate an enormous amount of friction in the registration process for applicants seeking to register common English words. They further show the considerable challenges entrants face in finding a mark that will be distinctive in its product space in comparison with other similar marks in that space.

160 These words were, in order of decreasing frequency: vulnerable, unintelligible, unfortunate, disappointment, uh-huh, vulnerability, would-be, unsuccessful, and notwithstanding.
The results for surnames are comparable. Due to computational limitations, we focus on similarity matches with the 10,000 most frequently occurring surnames, covering 68.1% of the U.S population. Of these, all but 19 were confusingly similar with an active registration in 2016. Figure 9 shows the number of the 10,000 most frequently occurring surnames triggering a match by Nice class. As with common words, common American surnames are heavily depleted in a large proportion of Nice classes.

161 These nineteen were: Gutierrez, Yarbrough, O’Rourke, McDuffie, Jankowski, Szymanski, Jablonski, Dalrymple, Grijalva, Olszewski, Piotrowski, Urrutia, McKibben, DiBenedetto, Shropshire, McVicker, Cespedes, Vanlandingham, and Shrewsbury.

162 We do not currently study non-identical matches for one-syllable words. The Jaro-Winkler measure studies distance between alphabetic strings. We cannot use this measure on our one-syllable word data, which is instead represented phonetically. In future work, however, we plan to use our phonetic dataset representing all word marks to measure sound similarity, which is harder, if not impossible, to do accurately with mere alphabetic representations of word marks.
3. Within-Mark Word Matches

The appearance of a word within a currently registered trademark will not necessarily prevent others from using that word in another registered mark even within the same class of goods or services. Nor will it necessarily impair the distinctiveness of the word when used in other marks to the same degree that an already existing single-word mark might. It depends on the mark: There is a good chance that BLUE COMPUTERS would stop all other uses of the mark BLUE in Class 9, whereas BLUE GRASS ELECTRONICS or HIGH-DEFINITION BLUE RAY COMPUTERS are less likely to do so. Stated conservatively, there is an elevated chance that the registration of a mark containing a word will have restrictive effects on others’ use of that word, as compared to a world with no such registration.

Therefore, data on within-mark uses of frequently used words in American English offer additional evidence of the extent of word mark depletion, especially because an extraordinarily high proportion of word usage in American English consists of words already claimed as part of a live trademark registration. As Table 3 indicates, of the 1,000 most frequently used words, only three failed to appear.

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163 Our within-mark matching protocol looked for the appearance of the word as a free-standing word within the mark.
within an active trademark registration in 2016. These were “although,” “showed,” and “seemed.” Of the 86,408 most frequently used words in American English, 38,388 (or 44.4%) appeared somewhere within an active trademark registration in 2015. These 38,388 words account for 86.7% of all word usage in American English.

Table 3: Proportion of Most Frequently Used Words Appearing as Words Within Active Registered Marks in 2016

<table>
<thead>
<tr>
<th>Number of Most Frequent Words</th>
<th>Number Appearing Within Registered Marks</th>
<th>% of Number of Most Frequent Words</th>
<th>% of All Word Usage Claimed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>997</td>
<td>99.7</td>
<td>65.3</td>
</tr>
<tr>
<td>5,000</td>
<td>4,868</td>
<td>96.8</td>
<td>79.4</td>
</tr>
<tr>
<td>10,000</td>
<td>9,386</td>
<td>93.9</td>
<td>83.4</td>
</tr>
<tr>
<td>86,408</td>
<td>38,388</td>
<td>44.4</td>
<td>86.7</td>
</tr>
</tbody>
</table>

Figure 10 shows, for each Nice class of goods and services, the proportion of word usage consisting of words claimed within trademarks in that class in 2016. Particularly high levels of depletion by this measure appear in Classes 9 (electronics goods including software), 16 (printed matter), 25 (apparel goods), 35 (business administration services), 41 (education, entertainment, and cultural and sporting activities), and 42 (computer-related services). Over eighty percent of all word usage consists of words claimed within marks in each of these classes.

Within-mark coverage of surnames is also very high. Of the 1,000 most frequently occurring surnames in the U.S., covering 40.6% of the population, only eleven fail to appear as a word in a registration active in 2016. Of all of the 151,671 surnames listed in the Census data, 38,122 appeared as a word in an active registration in 2016, representing 70.2% of the U.S. population. Figure 10 shows high levels of surname depletion—as measured by the proportion of the population carrying a surname already claimed within a mark—in the same classes that showed high levels of word mark depletion. These data suggest that, in effect, in classes 9, 25, 35, and 41, half of the U.S. population would face significant difficulties in seeking to register their surnames as trademarks.

Finally, an extraordinarily high proportion of syllable usage is covered by within-mark uses of one-syllable words consisting of any syllable appearing in the Corpus of Contemporary American English. Of the 10,753 syllables appearing in the corpus, 7,602 (70.7%) were claimed as a one-syllable word in an active registration in 2015. These 7,602 syllables account for 84.4% of all syllable usage in the corpus. Figure 10 shows very high levels of syllable depletion across a wide variety of classes, most notably in Classes 9, 25, and 35, where one-syllable words accounted for 76.2%, 77.0%, and 77.9% of all syllable usage, respectively. Across most Nice classes, it would appear to be highly unlikely that an entrant could use a neologism consisting of a word whose corresponding syllable appears in the corpus without encountering a strong possibility of a conflict with an already registered mark.

Figure 10: Proportion of All Word Usage and All Syllable Usage Consisting of Words or Syllables, Respectively, Appearing As Words Within an Active

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164 These eleven are: Contreras, Maldonado, Gallegos, Delacruz, McCullough, Blankenship, Rangel, Lowery, Zuniga, Bonilla, and Benitez.
4. The Proportion of Frequent Words Registered as .com Domain Names

We noted above that trademark applicants typically inquire whether a mark they wish to register has already been registered as a domain name and are typically most concerned with whether the mark has been registered in the .com top-level domain. The .com TLD is of course not divided into classes of goods and services; it allows only one registrant of a domain name like “apple.” As a result, word mark depletion in this space can be extreme. Of the 86,408 frequently used words in English, 77,340 are currently registered as domain names in the .com top-level domain. These 77,340 words represent eighty-six percent of all word usage in American English. Of the 10,000 most frequently used words of more than two characters, only four remain unregistered in the .com top-level domain: “two-year” (with a frequency rank of 7,012), “four-year” (7,479), “three-year” (8,457), and “nineteenth-century” (8,691). Moreover, if one allows for the most minor of spelling

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165 See supra section I.B.2.
166 The words “a” and “I,” collectively accounting for 3.2% of all word usage in American English, are not registered as domain names. See infra note 168 (explaining how no single-letter domain names are currently registrable). This helps to explain how, as here, 77,340 words can represent eighty-six percent of all word usage while, as above in our discussion of within-mark matches, 38,028 words can represent eighty-seven percent of all word usage.
variations, these four words are indeed registered as twobutton.com, 4year.com, threeyear.com, and nineteenthcentury.com, respectively. On this count, not one of the 10,000 most frequently used words of more than two characters remains unregistered.

Surname depletion in the .com TLD is even more extreme, bordering on total. Of the 151,671 surnames listed in the U.S. Census data, all but 813 match a domain name listed in Verisign’s .COM TLD Zone File. In effect, at least ninety percent of the U.S. population carries a surname that has already been claimed in the .com space—and because the U.S. Census table lists only those surnames that appeared 100 or more times in the Census data, the percentage is likely higher.

With respect to all letter combinations consisting of four characters or less, all two-letter combinations are registered in the .com top-level domain. According to the Verisign data, all but 36 of the 17,576 possible three-letter combinations are registered under .com, and 99.7% of all possible 456,976 four-letter combinations are registered under .com.

The Verisign data do not indicate the proportion of .com domain name registrations that are held by cybersquatters engaging purely in rent-seeking. It may be that a high proportion of .com domain name registrations are actively for sale. Still, the .com domain name data provide further evidence of the enormous friction that entrants face in developing a new brand name.

* * *

In this section, we have presented evidence of word mark depletion based on what words are already registered. This evidence is stunning. Even using a conservative similarity matching protocol, nearly all the words we use on a daily basis are already registered or are confusingly similar with an already registered mark. The same is true with respect to the surnames of a very high proportion of Americans. Even potential neologisms show high levels of depletion. Across all classes, the evidence shows increasing levels of depletion within each class, with certain important classes experiencing especially severe depletion: Class 9 (electronics goods including software), Class 25 (apparel goods), Class 35 (general business administration services), Class 41 (education, entertainment, and cultural and sporting activities services), and Class 42 (computer-related services). The evidence is particularly compelling because we are studying only registered marks. There is still the broad population of “common law” marks that though unregistered nevertheless enjoy federal protection and can preclude or severely limit new

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167 A random check of several of the 813 surnames that failed to find a match in Verisign’s data suggest that Verisign’s data is incomplete. We reviewed the domain name registration status of ten randomly chosen non-matching surnames at register.com and found that each surname had already been claimed.

registrations that conflict with them. We think this evidence alone confirms the popular wisdom that market entrants now face enormous challenges in developing new marks, challenges that substantially impede competition.\textsuperscript{169} The data also help to explain emerging trends in applicant and registrant conduct, to which we now turn.

C. Evidence of Word Mark Depletion in Which Marks Are Being Applied For and Registered

Even if a strikingly high proportion of frequently used words, surnames, and short neologisms are already claimed as trademarks, it is apparent that this has not prevented applicants from continuing to register trademarks at the PTO. In 2016, for example, the PTO added 221,817 new registrations to the Principal Register, of which 93,060 were single-word trademarks.

But there is good evidence that the overall effectiveness or desirability of the trademarks for which applicants have been applying and which they have been registering has been declining. Applicants have been moving away from frequently used words and surnames and toward neologisms. This shift suggests that businesses, left with fewer standard words from which to choose marks, are constrained to settle for coined words, which tend to be less readily memorable and more costly to imbue with meaning.\textsuperscript{170} They have also been applying for longer marks, as measured by word count, syllable count, and character length. Longer marks are generally more complex and forgettable, leaving them less desirable than shorter marks.\textsuperscript{171} We suggest that these trends are consistent with the effects of word mark depletion on the trademark system. With a high proportion of preferred word marks already claimed, entrants are increasingly resorting to second-best marks.

Figure 11 shows, by filing year, the increasing proportion of single-word applications and registrations that consist of neologisms. For these purposes, we count as a neologism any word not appearing in the Corpus of Contemporary American English list of most frequently used words or in the Census list of the most frequently occurring surnames in the U.S. For applications filed in 1985, 75.3\% of all applications for single-word marks and 77.2\% of such applications that were eventually registered consisted of neologisms. By 2014, 82.8\% of applications and 84.3\% of applications that resulted in registration did so. The data show that this upward trend has been particularly pronounced in Class 25 (apparel goods). In 1985, 62.5\% of single-word applications and 68.0\% of those that were registered consisted of neologisms. By 2014, the percentage of neologisms had increased to 82.0\% of single-word applications and 85.7\% of those that were registered.

\textsuperscript{169} See infra section V.A (exploring in depth the harms of mark depletion, including to competition).
\textsuperscript{170} See supra section I.B.2 (discussing the pros and cons of coined word marks).
\textsuperscript{171} See supra section I.B.2 (discussing ideal mark length).
Figure 11: Applications and Registrations Consisting of Neologisms by Filing Year, 1985-2016

Figure 12 focuses on surnames and shows the declining proportion over time of applications and registrations matching frequently occurring surnames. For applications filed in 1985, 6.3% of applications and 6.2% of those that were registered consisted of a single word matching a surname included in the Census list of the most frequently occurring surnames in the U.S. In 2014, the percentages had dropped to 3.5% of applications and 3.4% of those that were registered.

Figure 12: Proportion of Applications and Registrations for Marks Consisting of Single Words Matching Surnames by Filing Year, 1985-2016

Figure 13 shows the increasing length in word count of applied-for and registered word marks over time, with a focus on Class 25 (apparel goods). Consistent with Figure 13, applications for single-word marks in particular have declined from a high of 47.1% of all word mark applications in 1985 to a low of 38.1% of all such applications in 2005 and continuing at roughly that level through 2016. With respect to overall word count, as Figure 13 indicates, the average word count of all applications in 1985 was 1.94 words, and of all such applications that resulted in registration, it was 1.86 words. By 2014, these averages had increased to 2.26 words for all applications filed that year and 2.23 words for all such applications that resulted in registration. Similarly, for apparel goods, average word count increased from 2.00 words for applications filed in 1985 (and 1.94 words for those that resulted in registration) to 2.37 words for applications filed in 2014 (and 2.26 words for those that resulted in registration).
Finally, Figures 14 and 15 respectively show the increasing length in syllable and character count of applied-for and registered word marks over time.

Figure 14: Length in Mean Syllable Count of Applied-For and Registered Marks by Filing Year, 1985-2016

Figure 15: Length in Mean Character Count of Applied-For and Registered Marks by Filing Year, 1985-2016

This evidence demonstrates that applicants themselves are increasingly seeking marks from what marketing experts consider to be less desirable categories:
neologisms and longer words or phrases. We recognize that these data do not provide conclusive evidence that applicants across the trademark system are resorting to less preferred marks in an effort to cope with word mark depletion. Other factors, such as trends in marketing counter to those described in section I.B.2, may account for applicants’ shift to neologisms or longer marks. Nevertheless, it is striking that each of the trends described in Figures 11 through 15 is directionally consistent with the effects of word mark depletion, which we also demonstrate through the other data presented in this Part.

D. Evidence of Word Mark Depletion in Applications Failing To Succeed to Publication

We have sought to show that applicants are changing their conduct in response to word mark depletion: In an effort to avoid conflicts with already registered marks, they are increasingly applying for and ultimately registering second-best marks. Yet notwithstanding applicants’ apparent efforts to avoid them, conflicts at the PTO have been increasing. As discussed above, section 2(d) empowers the PTO to refuse to register marks that are likely to be confusingly similar with already registered marks. From 2003 through 2014, an increasing proportion of applications have received a section 2(d) refusal—and an increasing proportion of applications receiving a section 2(d) refusal have ultimately failed to succeed to publication.\(^{(172)}\) This is particularly compelling evidence of word mark depletion. As discussed above, applicants may now relatively easily determine the existence of already registered marks that conflict with the marks they seek to register.\(^{(173)}\) Furthermore, applicants appear to be acting on this knowledge by applying for neologisms and longer marks.\(^{(174)}\) Yet the rate of section 2(d) refusals continues to increase. Even while seeking to avoid conflicts, applicants still appear to be increasingly encroaching upon already-claimed marks.\(^{(175)}\)

Figure 16 shows the increasing proportion of applications containing text that triggered at least one section 2(d) refusal from the PTO. Section 2(d) refusal rates in the apparel and beverages sectors have grown especially high, with nearly one in five applications (19.8% in the beverages sector facing a section 2(d) refusal in 2014 as compared to 13.5% eleven years earlier in 2003).\(^{(176)}\)

\(^{(172)}\) Although we have other PTO data on trademark applications and registrations dating back longer, recall that we are able to collect data on section 2(d) refusals only from 2003 forward. See supra Part II.

\(^{(173)}\) See supra section I.C.

\(^{(174)}\) See supra section C.

\(^{(175)}\) Some of these applicants might be relatively unsophisticated and not having done sufficient due diligence, not realize there are mark conflicts. Or some might be highly sophisticated applicants knowingly pushing the envelope in an attempt to register rights in a questionably available mark.

\(^{(176)}\) Some classes, like Class 5 (pharmaceuticals), have lower rates of section 2(d) refusals, though in these classes too, there has been relatively similar increases in the magnitude of section 2(d) refusals (from 9.8% in 2003 to 13.5% in 2014). We think there is an important reason, related to FDA regulations, that pharmaceutical mark applications experience lower rates of section 2(d) refusals, which we discuss below. See infra text accompanying notes 279-284.
Even if an application receives a section 2(d) refusal, the applicant may overcome that refusal by persuading the trademark examiner or ultimately the PTO’s Trademark Trial & Appeal Board that there is no conflict.\(^{177}\) For applications filed from 2003 through 2014, about one-third of applications that received a section 2(d) refusal managed to succeed to publication, though publication rates in this regard have been slowly and steadily declining in recent years—from a high of a 38.4% publication rate for such applications filed in 2007 to a low of 34.9% for such applications filed in 2013. Overall, Figure 17 shows the increasing proportion of applications that both received a section 2(d) refusal and subsequently failed to publish.

Consistent with the data above showing severe word mark depletion with respect to common words and surnames, applications for neologisms tend to do better in avoiding the section 2(d) bar. Figure 18 shows relevant trends over time.

\(^{177}\) 37 C.F.R. § 2.63; TMEP, supra note 46, at § 713.
Specifically, it shows by filing year the proportion of applications that both received a section 2(d) refusal and then failed to publish where those applications consisted either of a single-word neologism or of a common word or common surname. By 2014, 15.5% of single-word applications consisting of either a common word or a common surname received a section 2(d) refusal and then failed to publish. A far lower proportion of neologism applications (7.5%) did so.\textsuperscript{178}

Figure 18: Proportion by Filing Year of Single-Word Applications Containing Text That Triggered a Section 2(d) Refusal and Failed to Publish, Neologisms vs. Non-Neologisms, 2003-2014

Figure 19 further focuses only on single-word applications consisting of a word that matches a frequently occurring surname. Here again, a remarkably high proportion of such applications are now both receiving a section 2(d) refusal and subsequently failing to publish.

\textsuperscript{178} This difference might very well lie in a slower depletion rate for neologisms than for common English words, which is unsurprising given that the former category is larger than the latter and there are many marketing reasons why businesses prefer to choose marks from the latter category, \textit{supra} section I.B.2. Yet our data show that both categories of word marks are increasingly being depleted over time, \textit{see supra} section B, and Figure 18’s upward-trending lines for both non-neologisms and neologisms corroborates this.
Viewed from a different angle, the data indicate that if an application has failed to succeed to publication, it is increasingly likely that it has failed because of a section 2(d) conflict. Figure 20 focuses on applications that failed to reach publication and shows the increasing proportion of such applications that received at least one section 2(d) refusal. This phenomenon is particularly pronounced in certain classes. In 2014, a section 2(d) refusal was issued to over half of all applications that failed to reach publication in Class 25 (apparel goods) and in Classes 32 and 33 (which together cover beverages).

Overall, Figure 20 shows that for those applications failing to succeed to publication, an increasing proportion are failing because they conflict with an already registered mark.179

179 These trends in section 2(d) refusal rates have likely been worsened by the expansion in recent decades in the scope of protection the law affords to trademarks. Many scholars have
E. The Performance of Incumbent Applications at the PTO

One class of applicants continues to do well in the face of word mark depletion: those that apply based on already owned registrations. Applicants must identify whether an application is based on a previous registration and indicate their ownership of that registration. Otherwise that registration might form the basis of a refusal of the new application under section 2(d).\(^{180}\) For example, a Korean company recently applied for the word TRY in Class 25 (apparel goods).\(^{181}\) In doing so, the company cited its prior registration of the word in stylized format in the same class.\(^{182}\) This avoided the possibility of a section 2(d) refusal based on that prior registration.

Over the ten-year period from 2003 through 2014, 13.1\% of applications were based, like the application for TRY, on one or more previous registrations. During this period, incumbent applications enjoyed lower section 2(d) refusal rates, and when they did receive section 2(d) refusals, they tended to be very successful in overcoming them. Overall, for the years 2003 through 2014, 10.5\% of incumbent word mark applications received a section 2(d) refusal, and 78.8\% of these applications overcame that refusal and published. In contrast, 14.2\% of non-incumbent applications received a section 2(d) refusal and only 36.5\% overcame the refusal and published. More generally, over the same time period, incumbent applications enjoyed a substantially higher publication rate, at 0.94, than did non-incumbent applications, at 0.76.

The particular characteristics of incumbent applications also show the benefits of incumbency. The data indicate that incumbents are applying for and registering non-neologisms at a higher rate than non-incumbents. For the ten-year period from 2003 through 2014, 32.4\% of all non-incumbent applications resorted to single-word applications consisting of neologisms as compared to 23.4\% of incumbent applications.\(^{183}\) If non-neologisms are in many respects preferred as trademarks, incumbents are benefiting further from having staked a claim to these marks when they were still available.

See infra text accompanying notes 287-288.

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\(^{180}\) See 37 C.F.R. § 2.36. See also TMED, supra note 46, at §§ 812, 812.38.

\(^{181}\) Registration No. 4,610,405.

\(^{182}\) Id. (citing Registration No. 1,543,608).

\(^{183}\) This difference continues through to the proportion of applications filed from 2003 through 2014 that resulted in registration and that consisted of a single-word neologism. For non-incumbents, 34.6\% of applications filed over this period that resulted in registration consisted of single-word neologisms. For incumbents, it was 25.0\%.
The advantages of incumbency are also clear with respect to the most frequently applied-for marks. Table 4 lists the twenty most frequently applied-for word marks for the period 1985 through 2014, all of which are standard English words. Taking ECLIPSE as an example, Figure 21 shows the substantially higher publication rate for incumbent applications for ECLIPSE as compared to non-incumbent applications. Similar differences appear in specific classes.

Table 4: Most Applied-For Single-Word Marks of Two or More Characters, 1985-2014

<table>
<thead>
<tr>
<th>Word</th>
<th>N</th>
<th>Word</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECLIPSE</td>
<td>579</td>
<td>SMART</td>
<td>406</td>
</tr>
<tr>
<td>TITAN</td>
<td>555</td>
<td>ENCORE</td>
<td>396</td>
</tr>
<tr>
<td>IMPACT</td>
<td>540</td>
<td>APEX</td>
<td>388</td>
</tr>
<tr>
<td>FUSION</td>
<td>504</td>
<td>SPECTRUM</td>
<td>388</td>
</tr>
<tr>
<td>INFINITY</td>
<td>489</td>
<td>QUANTUM</td>
<td>388</td>
</tr>
<tr>
<td>GENESIS</td>
<td>475</td>
<td>MILLENIUM</td>
<td>386</td>
</tr>
<tr>
<td>EXTREME</td>
<td>421</td>
<td>GUARDIAN</td>
<td>385</td>
</tr>
<tr>
<td>ELITE</td>
<td>413</td>
<td>VISION</td>
<td>384</td>
</tr>
<tr>
<td>OASIS</td>
<td>413</td>
<td>INSIGHT</td>
<td>384</td>
</tr>
<tr>
<td>ADVANTAGE</td>
<td>409</td>
<td>REVOLUTION</td>
<td>376</td>
</tr>
</tbody>
</table>

Figure 21: Incumbent vs. Non-Incumbent Publication Rates by Filing Year for the Mark ECLIPSE, 1985-2014

![Incumbent vs. Non-Incumbent Publication Rates](image)

The results for ECLIPSE are representative of the difference in publication rates between incumbents and non-incumbents for words that are the subject of numerous applications. Figure 22 shows the relation between the number of times particular words were applied for from 1985 through 2014 and the average publication rate for

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\[184\] We restrict the period of study to the 30 years from 1985 through 2014 in order to allow for the study of publication rates of applications filed during this period. Applications filed after 2014 may not have been fully processed by 2016.
all applications for those words, for incumbent and non-incumbent applications. For example, for a word applied for only once during this period, the publication rate for all non-incumbent applications was 80.3%. By comparison, the publication rate for incumbent applications for a word applied for only once was 94.6%. The figure shows that with respect to both incumbent and non-incumbent applications, publication rates declined dramatically as a word was applied for more frequently. In nearly all cases, however, the publication rate for incumbent applications was substantially higher than that for non-incumbent applications.

Figure 22: Publication Rate by Frequency of Applications for Particular Single-Word Marks, Incumbent vs. Non-Incumbent Applicants, 1985-2014

This Part has presented evidence showing both that word mark depletion is growing increasingly severe and that new applicants are altering their conduct in an effort to adapt to this condition. Whatever the conventional theoretical view may be on the inexhaustibility of good trademarks, new applicants are revealing in their conduct a different reality. They are increasingly shifting toward neologisms and longer, more complex marks, and thus toward less effective marks. Yet even these efforts are increasingly failing. Section 2(d) refusal rates continue to rise, particularly in certain classes. Only incumbents seem to be immune to the effects of depletion. As we discuss more fully in Part V, the result is a trademark system under severe stress, with mounting barriers to entry, increasing consumer search costs, and an eroding public domain. First, however, we turn to another dimension of the problem, trademark congestion.

IV. Word Mark Congestion

Even if a word mark is already registered, this will not necessarily preclude others from registering the same mark for use in connection with other goods or services. For example, the registration for the single-word mark ACE for adhesive
bandages was issued in 1949 and remains active.\textsuperscript{185} This registration did not prevent a different company from registering the single-word mark ACE for hardware goods in 1985\textsuperscript{186} and then for hardware store services in 1987.\textsuperscript{187} Section 2(d) only bars the registration of marks that will confuse consumers as to source due to their similarity with previously registered marks, but if the previously registered marks are used on unrelated goods, confusion as to source is unlikely. Thus, marks may have multiple different registrants in multiple different classes. This helps to explain how, by 2016, there could be 130 different active single-word registrations for ACE across the various Nice classes owned by approximately 95 different registrants.\textsuperscript{188}

Such parallel uses of word marks constitute word mark congestion. They also impose significant costs on the trademark system in that parallel uses blur the link in consumers’ minds between the mark and any particular source among the many to which the mark refers. We explain these costs in more detail in Part V. First, however, we illustrate in this Part the extent of word mark congestion. Section A outlines a framework for evaluating congestion. Sections B, C, and D focus on the congestion of common English words, common American surnames, and potential one-syllable words, respectively.

A. A Framework for Evaluating Word Mark Congestion

Word mark congestion describes the process by which, for any particular word mark that has already been claimed, that word mark is claimed by an increasing number of different trademark owners. As with word mark depletion, word mark congestion is best understood in two dimensions, in terms of the congestion of a set of marks with respect to a set of goods or services. Congestion occurs at the general level of all goods and services when different entities each use the same mark but in different classes of goods or services (for example as noted above, ACE for adhesive bandages and ACE for hardware store services). Alternatively, and perhaps more troublingly, congestion occurs at the more specific level of a particular class of goods or services when different entities each use the same mark within that class. Congestion as to all classes or a specific class can also be understood as occurring with respect to a set consisting of one or multiple marks. For example, as we report below, the set of the 1,000 most frequently used words shows high degrees of congestion at the general level of all classes of goods and services and indeed also at the more specific level of specific classes of goods or services.

At the level of either all goods and services or a specific class, the new registration of a word mark causes either depletion or congestion but not both. To understand why this is so, consider the example of class-specific congestion. If a business registers a word mark that no one else has yet registered in a class, this causes depletion of the supply of unclaimed word marks in the class. But it does not congest that mark in the class because the mark has only one owner in the class. In contrast,

\textsuperscript{185} Registration No. 507,884.
\textsuperscript{186} Registration No. 1,426,137.
\textsuperscript{187} Registration No. 1,464,025.
\textsuperscript{188} The oldest active registration for ACE issued on May 4, 1920, in connection with combs. See Registration No. 131,017.
if a business registers a mark that another business has already registered in the class, this does not cause depletion because that mark is already depleted. Instead, the mark is congested in the class because it now has more than one registrant in the class.

In essence, depletion is binary. A word mark either is or is not depleted with respect to a class of goods or services. Congestion is continuous. A word mark can become more congested in a class as it is claimed by more and more registrants in the class.

Depletion and congestion are linked conceptually. Once a set of words is entirely depleted with respect to a class, any subsequent claims to any word in that set will of necessity increase congestion of that chosen word. Therefore, congestion always follows complete depletion if marks continue to be chosen from the depleted set of words. The connection can also run in the other direction. Congestion can sometimes lead to marks becoming completely unavailable. In particular, the more a mark is congested—whether within a class or across classes—the more likely it will eventually become entirely unavailable for newer claimants even beyond the particular goods and services for which it is already being used. We think this is especially the case for marks with greater inherent distinctiveness, particularly arbitrary or fanciful marks. That is because the PTO’s rules make it easier to conclude that there is confusion with inherently distinctive marks than with those that are not inherently distinctive. Finally, depletion and congestion are bound together as we

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189 This is mathematically true because each word in the set has already been claimed, so an additional claim to a word in that set will be for a word that has already been claimed and will thereby increase congestion for that word. Cf. Presh Talwalkar, MIND YOUR DECISIONS, 16 Fun Applications of the Pigeonhole Principle, Nov. 25, 2008, http://mindyourdecisions.com/blog/2008/11/25/16-fun-applications-of-the-pigeonhole-principle (“The pigeonhole principle states that if more than n pigeons are placed into n pigeonholes, some pigeonhole must contain more than one pigeon.”).

190 For different sets of goods and services, a new registration can cause depletion and congestion simultaneously in the following sense. If a particular word mark has not already been registered in a particular class, the registration of that mark in that class will cause word mark depletion with respect to that class. At the same time, if another entity has already registered that mark in another class of goods or services, the registration will cause congestion at the level of all classes of goods and services taken together.

191 See, e.g., TMEP, supra note 46, at § 1207.01 (b)(vii) (observing that “consumers would be more likely to perceive a fanciful or arbitrary term, rather than a descriptive or generic term, as the source-indicating feature of [a] mark,” giving it more weight in confusion analysis) (citing In re Dixie Rests., Inc., 105 F.3d 1405, 1407 (Fed. Cir. 1997)); id. at § 1207.01 (b)(ix) (“The Court of Appeals for the Federal Circuit and the Trademark Trial and Appeal Board have recognized that merely descriptive and weak designations may be entitled to a narrower scope of protection than an entirely arbitrary or coined word.”) (citing, inter alia, Palm Bay Imps., Inc. v. Veuve Clicquot Ponsardin Maison Fondee en 1772, 396 F.3d 1369, 1373 (Fed. Cir. 2005)). By contrast, for the same reasons, we suspect that for less inherently distinctive marks, such as geographic designations or prefixes like “EZ,” the trademark system is more likely to tolerate further and further increasing levels of congestion without rendering that mark unavailable.
discuss below with regard to their costs, because over time new applicants increasingly face a catch-22 between exacerbating either depletion or congestion.\textsuperscript{192}

As we indicated above, congestion can occur even when section 2(d) is being properly applied. The primary way in which it can do so is when an applicant registers a mark for goods or services sufficiently different from those for which the same mark is already registered that consumers will not be confused as to source. A second way in which congestion can occur applies to multi-word marks. Section 2(d) will permit the registration of multi-word marks that contain words already claimed in other marks provided that consumers will not be confused as to source by the parallel uses of the particular words. For example, an apparel company would likely be able to register BLUE LAGOON FASHIONS even if another apparel company has already registered FEELING BLUE DESIGNS. Both marks share the word BLUE, so the second registration increases congestion of BLUE for apparel goods. But it is probable that given the contexts in which BLUE is used by the two businesses, consumers would not be confused and no section 2(d) refusal would issue.

\subsection*{B. Congestion of Frequently Used Words}

To assess trends in the degree of congestion of common English words, we focus on single-word registrations identical matching any one of the 1,000 most frequently used nouns or adjectives regardless of Nice class.\textsuperscript{193} Figure 23 shows two trends from 1985 through 2016. The bars (and the right axis) show by year the number of the 1,000 most frequently used nouns and adjectives that were the subject of one or more active single-word registrations. The line (and the left axis) shows by year the average number of different registrants for each such noun or adjective. In 1985, 602 of the 1,000 most common nouns or adjectives were claimed by an average of 2.7 different registrants across the various Nice classes. By 2016, conditions had changed substantially. Of the 1,000 most frequently used nouns or adjectives, 839 were claimed by an average of 7.4 different registrants. We emphasize that these data relate only to trademark registrations that identically matched the frequently used word. The increase in parallel or near-parallel usage of trademarks (PROGRAM and PROGRAMME, for example) by different firms in the economy overall is likely

\textsuperscript{192} See infra section V.A. That applicants have to choose between increasing either depletion or congestion has another implication: Both depletion and congestion can be increasing in parallel over time. Evidence of one will not undercut evidence of the other. Because some applicants prefer to choose a mark that causes further depletion and others prefer to select a mark that causes further congestion, overall depletion and congestion rates can both be rising together.

\textsuperscript{193} We focus in this case on the 1,000 most frequently used nouns and adjectives because the study of parallel ownership of the 1,000 most frequently used words including articles and verbs would require enormous computational resources, particularly when we turn to the study of words appearing within registered marks. Similarly, we recognize that extending our analysis to all 86,408 words in our list of standard English words (or at least all nouns and adjectives in that list) would provide more precise information, but doing so would require even greater computational resources. Our concern here is with general trends over time. We think a focus on the 1,000 most frequently used nouns and adjectives gives us significant insight into these trends. However, in future work, we hope to develop a comprehensive analysis of trademark congestion with respect to all standard English words.
substantially higher. Figure 23 suggests that the trademark system in general is becoming increasingly congested with multiple firms using the same or very similar marks, albeit on different goods or services.

Figure 23: Number of 1,000 Most Frequently Used Nouns or Adjectives Registered as Single-Word Trademarks and Mean Number of Registrants Per Noun or Adjective by Year, 1985-2016

Figure 24 shows the same two trends as in Figure 23 but for the proportion of the 1,000 most frequently used nouns or adjectives that appeared as words within an active registration and the degree of congestion of these words. Evaluated by this metric, the increase in congestion is staggering. In 1985, 961 of the 1,000 most frequently used nouns or adjectives appeared within registrations claimed by an average of 80.2 distinct registrants. By 2016, all 1,000 such nouns or adjectives appeared within registrations claimed by an average of 783.6 distinct registrants.

Figure 24: Number of 1,000 Most Frequently Used Nouns or Adjectives Appearing as Words Within an Active Registration and Mean Number of Registrants Per Word by Year, 1985-2016

With respect to particular classes of goods and services, we would expect to find substantially lower levels of congestion. This is because section 2(d) will likely forestall or filter out applications for marks identical to marks that are already
registered when the applicant’s and the registrant’s goods or services are related. Yet even with respect to particular classes, we find increasing levels of congestion. Figure 25 shows, for active registrations in 2016 identically matching any one of the 1,000 most frequently used nouns or adjectives, the average number of different registrants per word. Classes 9 (electronics goods, including software) and 35 (general business services) are very broad classes, so it is entirely possible that two different companies could use exactly the same single-word mark within each class without creating consumer confusion. In that case, no section 2(d) office action would issue. Class 25 (apparel goods) is more narrowly defined but the same may be true there as well. Even so, the trends represented in Figure 25 suggest steadily increasing levels of congestion within these classes.

Figure 25: Mean Number of Registrants Per Word for Single-Word Trademarks Consisting of 1,000 Most Frequently Used Nouns or Adjectives by Year, 1985-2016

C. Congestion of Surnames

Congestion is also significant with respect to surnames. Here, we focus on single-word registrations identically matching any one of the 1,000 most frequently occurring surnames regardless of Nice class. Just as Figure 23 above did for frequently used words, so Figure 26 shows two trends from 1985 through 2016. The bars show, by year, the number of the 1,000 most frequently used surnames that were the subject of one or more active single-word registrations. The line shows, by year, the average number of different registrants for each such surname. By 2016, 854 of the 1,000 most frequently occurring surnames were claimed as single-word trademarks by an average of 5.5 different registrants. As with words, so with surnames, multiple users in the economy of the same surname as a single-word mark may not be confusing consumers as to source, but they are resulting in substantial congestion of the surnames claimed as single-word marks.
As for uses of the same surname as a word within trademarks registered by multiple different parties, the levels of congestion are extraordinarily high, as Figure 27 shows. In 2016, of the 1,000 most frequently occurring surnames, 990 were claimed within an active registration by an average of 112.5 different registrants.

Finally, Figure 28 focuses on particular classes. The trends are similar to those for standard English words, and equally as suggestive of increasing congestion, particularly in Class 9 (electronics goods, including software).
D. Congestion of One-Syllable Words

We also find significant evidence of congestion with respect to identically sounding one-syllable words including neologisms. Here, we define congestion as the process by which an increasing number of different registrants have registered one-syllable marks that sound the same. To gain some insight into this form of congestion, we focus on the 1,000 most frequently used syllables in the Corpus of Contemporary American English and the number of different registrants for words that sound like those syllables. Like previous figures, Figure 29 shows, by year, both the number of the 1,000 most frequently used syllables that sounded the same as at least one registered mark and the average number of different registrants of words matching each syllable. Thus, in 1982, 490 of the 1,000 most frequently used syllables sound-matched at least one registered mark and each of these syllables sound-matched words registered by an average of 10.1 different registrants. By 2015, 743 syllables sound-matched registered marks owned by an average of 22.1 different registrants.\textsuperscript{194}

\textsuperscript{194} We are currently in the process of studying usage of one-syllable words within marks. Preliminary results suggest that by this metric, the levels of congestion associated with identically-sounding one-syllable words are even higher.
In sum, the data show that even as word mark depletion has been rising to severe levels, word mark congestion has been rising as well. Registrants are increasingly engaging in parallel uses of the same mark, not only across classes, where congestion has reached extraordinary levels for the words, surnames, and syllables studied, but also within classes. We now turn in earnest to a consideration of the damage both of these trends are inflicting on the trademark system.

V. Legal and Policy Implications of Word Mark Depletion and Congestion

Having demonstrated that word mark depletion and congestion have both been steadily increasing and have long since reached substantial levels, we now turn to a more detailed consideration, in section A, of the costs of depletion and congestion and, in section B, of what policies may be pursued to minimize these costs.

A. The Costs of Word Mark Depletion and Congestion

The harms of depletion and congestion are in many ways interrelated. For purposes of exposition, however, we first focus on the costs of word mark depletion in section 1, and then focus on the costs of word mark congestion in section 2.

1. The Costs of Word Mark Depletion

As we stated above, the twin purposes of trademark law are to promote efficient and fair competition and to minimize consumer search costs. Trademark depletion subverts both of these purposes. It also represents a significant hazard to the public domain. We turn first to the harms depletion inflicts on competition.

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195 We discuss a number of these important interrelationships above in text accompanying notes 190-191.
196 See supra Part I (invoking these goals in the context of describing trademark law and practice).
The anticompetitive effects of depletion take several forms. First, as depletion worsens, entrants face higher costs than incumbents had faced earlier in locating or devising a mark that is not confusingly similar with already registered marks and that is competitively effective. Media reports across a variety of industries—including beer, music bands, and cosmetics—confirm that these costs are substantial and represent a significant barrier to entry. Our data show that it is becoming increasingly difficult even to develop neologisms that are free of conflicts with already registered marks. Second, entrants are generally constrained to settle for less effective marks. As depletion has increased, applicants have been shifting away from common English words and American surnames and toward longer and more complex marks, and even then, they are facing higher 2(d) refusal rates. Third, having registered their mark in a particular class of goods or services, incumbents may more easily leverage that registration into new registrations within that class or in other classes. New entrants do not enjoy this advantage. The data suggest that incumbent applications benefit from substantially higher publication rates than new applicants largely because incumbents have already established their rights in increasingly depleted spaces. Fourth and finally, as more and more common words, surnames, and short neologisms are claimed as trademarks, so more and more trademark owners have sought to control—and have often succeeded in controlling—others’ use of these terms in commerce even when these uses are not confusing as to source. For example, Entrepreneur Media has spent over ten years seeking to prevent all uses of the word ENTREPRENEUR with regard to media goods and services addressing small businesses, even when the term is being used descriptively to specify the characteristics of the relevant goods or services rather than as a source signifier. The ENTREPRENEUR example is not unique. Trademark

197 See supra text accompanying notes 2-15.
198 See supra section III.B.1.c.
199 See supra sections III.C – III.E.
200 See supra section III.E.
201 One thing our data does not show is whether newer businesses are trying to overcome this congestion or depletion by licensing more desirable, but already claimed, marks from preexisting businesses having rights in those marks. If this private ordering is happening, newer businesses might not suffer the disadvantages posed here. We are skeptical that this private ordering is taking place, at least on any significant scale, because existing businesses truly competing with newer businesses are unlikely to want to license their marks to them for rival goods and services, thereby possibly diminishing the effectiveness of their marks. See Jeanne C. Fromer, The Unregulated Certification Mark(et), 69 STAN. L. REV. 121, 129-30 (2017) (observing, in contrast to the requirement that certification marks be compulsorily licensed to any business meeting the certifier’s certification standard, that trademarks generally need not be, and for good reason will often not be, licensed to third parties).
202 Leah Chan Grinvald, Shaming Trademark Bullies, 2011 WIS. L. REV. 625, 644 (citing Amy Zipkin, Entrepreneurs Must Choose Their Words with Care, N.Y. TIMES, Oct. 7, 2004). Trademark law typically allows descriptive uses of a word mark by third parties, because to not do so would undercut efficient competition by allowing the markholder to monopolize language needed to describe the relevant good or service. See 15 U.S.C. § 1115(b)(4) (providing a statutory fair-use defense against trademark infringement when a defendant uses a trademark “otherwise than as a mark .... [in a way] which is descriptive of and used
scholars have documented similarly unreasonable conduct by many trademark owners. 203

In the face of the anticompetitive costs of depletion, two arguments are typically adduced in defense of the conventional wisdom that the supply of trademarks is inexhaustible and thus that depletion should never be a problem. The first is that applicants can always resort to neologisms. We do not, however, see neologisms as a solution to the problem of depletion for three reasons. First, the data show that even the supply of potential neologisms that are at least minimally competitively effective—in that they are short, easily pronounced, and euphonic—is being increasingly depleted. 204 Second, while neologisms may make sense in some economic sectors, they are less effective in others. Particularly when new businesses wish to convey authenticity and familiarity, neologisms are not optimal. 205 Third and perhaps most importantly, developing coined words into meaningful commercial symbols for consumers is significantly more costly than familiarizing consumers with non-coined words. 206 This added cost represents a heavy financial burden on market entrants, particularly when their incumbent competitors might have been able, by virtue of having started their businesses earlier, to choose then-available (non-coined) marks that were and remain cheaper to promote.

A second defense of the conventional wisdom is that even if depletion is continuing (and even if neologisms are not a solution), there is no evidence that depletion has reached any kind of critical stage in which competition is being substantially impaired. After all, new firms are still finding trademarks to register and are still managing to compete. But an insidious quality of depletion is that it proceeds gradually, and even though its pace has quickened in recent years, it remains a chronic rather than acute condition. We should expect no tipping point or moment of crisis in which there are suddenly no trademarks left at all and competition grinds to a halt. Instead, we should expect what the data report: a continuous process in which individual applicants are still able to find usable marks, but at ever greater cost in
pursuit of ever less benefit. There will no doubt remain counterexamples, particularly in the form of new, superstar brands, that suggest through saliency bias that everything is fine. For example, if our only evidence is anecdotes from the world of ride-sharing apps with apparently highly effective names like UBER and LYFT, then we will remain insensitive to the severity of depletion. Nonetheless, we feel confident extrapolating from the extensive data reported in Part III that the overall population of new marks will continue to decline in effectiveness.

In addition to gradually damaging competition, trademark depletion also increases consumer search costs—and in a similarly gradual way. Consumers’ ability quickly to link a mark with the source and qualities it is intended to represent is inversely related to how memorable the mark is to consumers.207 As depletion increases, so does trademark length, complexity, and bulkiness. Consumers must cope with less efficient marks. Furthermore, as an increasing number of similar trademarks occupy the same class of goods or services and registrants fill in whatever unoccupied spaces are left, these classes begin to take on the characteristics of “crowded fields”208 of trademarks—or of “trademark thickets.”209 In the infringement analysis, courts have long recognized that certain areas of trademark usage are heavily populated with closely similar marks.210 The Trademark Trial & Appeal Board

207 See supra Part I (discussing the role of consumer search costs in trademark law).
208 See 3 McCarthy, supra note 19, at § 11:85 (discussing “crowded fields” in trademark law). See also Miss World (UK) Ltd. v. Mrs. Am. Pageants, Inc., 856 F.2d 1445, 1449 (9th Cir. 1988) (“We view the beauty pageant industry’s marks as a ‘crowded field’: In a crowded field of similar marks, each member of the crowd is relatively ‘weak’ in its ability to prevent use by others in the crowd. Simply put, a mark which is hemmed in on all sides by similar marks on similar goods cannot be very distinctive. It is merely one of a crowd of marks.” (citation omitted)).
210 See, e.g., Hansen Beverage Co. v. Nat’l Beverage Corp., 493 F.3d 1074, 1079 (9th Cir.), opinion vacated as moot, 499 F.3d 923 (9th Cir. 2007) (noting that “‘aggressive’ graphics and bold accent colors against dark backgrounds… are widely employed in the crowded energy drink market and are therefore unlikely to lead to confusion as to source.”); Moose Creek, Inc. v. Abercrombie & Fitch Co., 331 F. Supp. 2d 1214, 1225 (C.D. Cal. 2004) (noting that “because Plaintiffs’ moose operates in a crowded field, to the extent that the dominant feature of Plaintiffs’ marks is actually the picture of a moose or the word ‘moose,’ those marks are conceptually weak” and finding no infringement); cf. supra text accompanying note 103 (observing similar suffixes for word marks in the dating-app space).
has recognized the same in the section 2(d) analysis.\textsuperscript{211} A crowded field tends to militate against a finding of likelihood of confusion because the assumption is that “customers will not likely be confused between any two of the crowd and may have learned to carefully pick out one from the other.”\textsuperscript{212} This may well be true (or not), but consumers’ efforts in this regard represent increased search costs, precisely the kinds of costs that trademark law is designed to minimize, and for good reason.\textsuperscript{213} The result of the “crowded field” doctrine is that such fields are allowed to become even more depleted and more crowded.

A final, albeit more amorphous, cost of trademark depletion is to the non-commercial public domain, and more specifically to the free use of the English language. Three-quarters of our word usage consists of words registered as marks and four-fifths consists of words confusingly similar with registered marks. In such a situation, we use all of our language in the shadow of trademark rights. To be sure, trademark law allows non-commercial, non-confusing uses of terms claimed by others as trademarks. And Fox News, for example, failed when it sought to force Al Franken and his publisher to remove the phrase “fair and balanced” from the book entitled \emph{Lies and the Lying Liars Who Tell Them: A Fair and Balanced Look at the Right}.\textsuperscript{214} But not all defendants are as well-resourced as Franken’s publisher and even when they are, they may be unwilling to expend the resources necessary to defend against even the most frivolous suits, such as Fox News’s.\textsuperscript{215} The result is that trademark law can often be used as a weapon in what amounts to an “assault on cultural expression and free speech.”\textsuperscript{216} Indeed, this worry appeared to form the basis of the widely negative public reaction to the PTO’s recent publication of the trademark application for the word REACT by the YouTube duo creating and distributing online videos of different groups of people reacting to anything and

\textsuperscript{211} See, e.g., \emph{In Re the Lucky Co.}, 209 U.S.P.Q. 422, 1980 WL 39048, at *1 (T.T.A.B. 1980) (“[T]his complete saturation of the market with somewhat similar stripe and bar designs leaves applicant, registrant and all other manufacturers of athletic shoes engaging in such practice with marks that are extremely weak and certainly entitled to only a very narrow and limited scope of protection.”).

\textsuperscript{212} \emph{Miss World}, 856 F.2d at 1449.

\textsuperscript{213} See Klink, supra note 87, at 5 (“With the purpose of brands being to differentiate one seller’s offerings from another, [rising trademark application rates] suggest that creating new brands distinguishable from others is more difficult today than ever.”). \textit{But cf.} Mark P. McKenna, \emph{A Consumer Decision-Making Theory of Trademark Law}, 98 VA. L. REV. 67, 86-92 (2012) (analyzing how consumers sometimes prefer or should tolerate increased search costs); Alfred C. Yen, \emph{The Constructive Role of Confusion in Trademark}, 93 N.C.L. REV. 77 (2014) (suggesting that trademark law is willing to tolerate certain degrees of confusion among marks, and by doing so, teaches consumers to distinguish between what might otherwise be confusing marks, thereby keeping their search costs manageable).


\textsuperscript{215} See supra note 203 (citing scholarship that examines this sort of trademark bullying).

\textsuperscript{216} See Grinvald, supra note 202, at 652 (quoting DAVID BOLLIER, BRAND NAME BULLIES: THE QUEST TO OWN AND CONTROL CULTURE 129 (2005)).
everything ranging from old technologies to video games. As more and more commonly used words and expressions are registered as trademarks by more and more owners, we can expect this condition only to worsen.

2. The Costs of Word Mark Congestion

The costs of trademark congestion are more subtle than the costs of trademark depletion, but no less important. These costs take two forms.

First, parallel uses increase consumer search costs. Even when they do not confuse consumers as to source, parallel uses of the same mark diminish the mark’s distinctiveness of source. They do so in the sense that parallel uses blur the link between the mark and any one source. Upon exposure to the mark, consumers who are aware that the same mark comes from multiple sources must at the very least “think for a moment” before linking the mark with one of those multiple sources. In other words, parallel uses cause something akin to “dilution by blurring.”

Federal trademark law provides a cause of action against conduct that causes dilution by blurring and also lists it as a basis for third parties to oppose the registration of the mark after it has been published. But in both cases, only “famous” marks qualify for anti-blurring protection. In this sense, the law’s concern with blurring would appear to be misdirected. What little empirical evidence we have on the matter suggests that famous marks are so strong as to be immune to blurring. Instead, the harm of parallel uses arguably affects non-famous marks much more severely. As trademark congestion intensifies, new market entrants that seek to use a mark already in use by others face ever greater difficulties in establishing a link in

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217 See supra text accompanying notes 11-15.
218 Posner, supra note 71, at 75.
219 See 3 McCarthy, supra note 19, at § 24:69 (“Dilution by blurring consists of a single mark identified by consumers with two different sources. One mark: two sources. Traditional trademark infringement involves mistakenly connecting similar marks with the same source or an affiliate source. Similar marks: one source. The ordinary situation of no dilution and no infringement is: two different marks: two different sources.” (footnote omitted)).
220 See 15 U.S.C. § 1125(c)(2)(B) (providing a cause of action against “dilution by blurring”); id. § 1063(a) (establishing “dilution by blurring” as a basis for opposing registration of a mark). At the examination stage of the registration process, the PTO may not refuse registration on the basis that the applied-for mark will dilute an already registered mark. Section 2 of the Lanham Act, id. § 1052, provides no such basis for refusal.
221 See id. § 1125(c)(2)(B) (defining “dilution by blurring” as “association arising from the similarity between a mark or trade name and a famous mark that impairs the distinctiveness of the famous mark”); id. § 1063(a) (establishing “dilution by blurring” as a basis for opposing registration of a mark).
222 See, e.g., Maureen Morrin & Jacob Jacoby, Trademark Dilution: Empirical Measures for an Elusive Concept, 19 J. PUB. POL. & MKTG. 265, 274 (2000) (“It appears that very strong brands are immune to dilution because their memory connections are so strong that it is difficult for consumers to alter them or create new ones with the same brand name.”); Barton Beebe, Roy Germano, Christopher Jon Sprigman & Joel Steckel, Is Trademark Dilution a Unicorn? An Experimental Investigation (unpublished manuscript) (presenting experimental evidence showing no blurring of famous marks after exposing experimental subjects to blurring stimuli).
consumers’ minds between their mark and their source. This constitutes a raised barrier to entry. At the same time, consumers faced with an increasingly congested marketplace find it more difficult to disambiguate marks, particularly those that are non-famous or new. Consider the example of ACE. In 2016, four new single-word registrations for ACE issued to four new registrants, each using the mark in a different class. With 126 ACE registrations preceding them, not to mention two of them—one for adhesive bandages and one for hardware services—being well known, these market entrants will face considerable challenges in establishing an effective link in consumers’ minds between their marks and their respective sources.

The pharmaceutical sector offers a concrete example of this sort of harm from congestion. For pharmaceutical products, trademark congestion can literally kill. If different drugs with distinct effects have the same name, or names that are too similar, it can be too easy for doctors or pharmacists to substitute one for the other to perhaps lethal consequence. In fact, up to twenty-five percent of medication errors are attributed to name confusion. For example, it is not hard to see how, as one commentator notes, “[p]atients can wind up taking the wrong prescription if a pharmacist mistakes Foradil, which treats bronchitis, for Toradol, which relieves pain from arthritis, or mixes up the blood-thinner Plavix with the antidepressant Paxil.”

As we discuss further below, the Food and Drug Administration (FDA) has taken

223 Registration No. 5,089,980; Registration No. 5033663; Registration No. 4,981,322; Registration No. 4,934,824.
224 See supra text accompanying notes 185-188.
225 Dilution by blurring is a controversial subject in trademark law. Many commentators doubt that blurring causes any significant increase in consumer search costs for famous marks that tend to have deeply entrenched associations for consumers. See, e.g., Beebe, Germano, Sprigman & Steckel, supra note 222; Tushnet, supra note 71. By contrast, our discussion here focuses on non-famous marks. We suggest that such marks, particularly when used by market entrants, may suffer significant impairment from parallel uses.


228 Nordrum, supra note 227.
important steps to alleviate congestion in drug marks, from which trademark law can more generally learn.\textsuperscript{229}

The second cost to the trademark system of parallel uses is more subtle. Consider the example of BLUE LAGOON FASHIONS and FEELING BLUE DESIGNS. Assuming both marks are used in full, their parallel uses of the word BLUE would not likely increase search costs. A consumer can rely on the other words in the marks to establish the link between the marks and their sources. Yet the parallel uses of the word BLUE still impose a cost. This cost takes the form of harm to the distinctiveness of both marks as against all other marks. Their shared use of the word BLUE makes each mark less exceptional. From a marketing perspective, each mark is less unique. And if many entities in the apparel sector begin to incorporate the word BLUE into their marks, the marketing power of all of these marks may be severely diminished.\textsuperscript{230}

* * *

All in all, with depletion and congestion happening around them, entrants will seek to choose the best word (or set of words) available to them as a mark. When an entrant’s ideal word or words have already been claimed, the entrant is forced either to choose a less desirable word or words (from the same set or another set of words) as its mark or to seek to use an already claimed word in parallel to other entities’ usage. Later entrants thus are necessarily disadvantaged compared to earlier ones. Just because they arrive on the scene later in time, they are more likely to have to claim less-than-optimal marks: either marks further down on their priority list of unclaimed marks in that trademark space or marks that are already being used in the same trademark space by others but which are permissible to claim in parallel. Neither choice will be as helpful as the entrant’s ideal choice. It will be a less effective signifier, either because it is a less memorable, pronounceable, or meaningful mark for that good or service or because it will be used in parallel with others using the same mark. Either choice, moreover, will contribute yet further to either depletion or congestion.

\textbf{B. Adapting Trademark Law}

Having illustrated the extraordinary degree of word mark depletion and congestion in the trademark system and evaluated their costs, we now consider a number of policy levers available in trademark law that may be used to reduce

\textsuperscript{229} \textit{See infra} text accompanying notes 279-284.

\textsuperscript{230} In many ways, a loss of distinctiveness due to congestion is a more general case of the loss of distinctiveness that comes from marks becoming generic over time. Generic marks lack distinctiveness precisely because they are or become completely congested for the relevant product category: the word is the way all consumers and competitors refer to the category and therefore to each single product within that category. \textit{Cf. supra} section I.A.1. Our analysis underscores that a loss of distinctiveness due to congestion can happen not just to generic marks, as is commonly thought, but also to descriptive, suggestive, arbitrary, or fanciful marks, that is any category of mark on the spectrum of distinctiveness. A major process through which distinctiveness is lost is congestion.
depletion and congestion and minimize their negative effects. We discuss some of our preferred policy levers in depth to exemplify the effects of our suggested changes. We also address how the data we have gathered and analyzed can itself play an important role in adapting trademark law to the challenges posed by depletion and congestion.

Before turning to particular policy levers, however, it is important first to recognize that trademark policymakers may take two alternative overarching approaches to the problem of depletion and congestion. One approach is to adopt across-the-board reforms that apply to all sets of marks and classes of goods and services regardless of their particular degrees of depletion or congestion. A uniform approach would have the benefit of ease of application. Decisionmakers would not be required to determine what kind or degree of depletion or congestion is necessary before particular reforms kick in. A one-size-fits-all approach offers another advantage: It would apply even to areas where there is little to no depletion or congestion. This could help to forestall them from advancing in areas where they have not yet reached chronic levels. Yet this approach also raises concerns. Uniform policies might prove costly if these policies result in making more effective marks less available even in non-depleted and uncongested areas, thereby undermining competition and consumer protection.

An alternative approach is to adopt tailored reforms that operate more strictly precisely in the areas and to the degree that they are undergoing depletion or congestion. Targeted reforms may involve the same substantive legal changes as those pursued in the uniform approach, but only proportionately to the degree of depletion or congestion in a particular class, subclass, or other area of trademark use.

It is further important to recognize that whatever reforms are adopted, they must take account of the fact that there are already over two million currently active trademark registrations. Reforms must not inefficiently and unfairly benefit incumbent registrants over entrants. Imposing prospective rules that simply make it more difficult to register new marks (or a subset of new marks) could exacerbate depletion and its anticompetitive effects by further raising barriers to entry. For this reason, any package of policy reforms must be directed toward both current registrations and new applications.

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231 Cf. Tushnet, supra note 61, at 926-29 (relying on our findings herein to advocate for dedlogging the trademark register to improve the trademark system).


233 Cf. id. at 237 (“This one-size-fits-all approach [in patent and copyright laws] comes at a real cost to society. Specifically, it forces society to pay an excessive price for the production of intellectual assets.”).

234 See supra section A (discussing the harms depletion and congestion cause for new entrants, as compared with earlier rightsholders).

235 Cf. Tushnet, supra note 61, at 918 (“We should register fewer marks and cancel more.”).
With these preliminaries in mind, we now outline a mix of reforms that would help to mitigate depletion and congestion, discussing first reforms directed primarily toward current registrants who wish to maintain their rights in certain marks and then reforms directed toward applicants who wish to claim rights in certain marks. Finally, we consider reforms that bear upon the litigation context.

To alleviate depletion and congestion caused by current registrants, we think it would be beneficial, straightforward, and administrable for the PTO to increase maintenance and renewal fees. These fees are extremely low: $100 per class each decade (though twice in the first decade of registration) to attest to continued use of the trademark and $300-$400 per class each decade to renew the registration. We recommend raising maintenance and renewal fees to alleviate depletion and congestion. By imposing greater financial—and perhaps also administrative—burdens on registrants to maintain their registrations, increased fees may improve the likelihood that registered marks will be released back into the wild by registrants who calculate that it is no longer cost-beneficial to maintain certain registrations.

Moreover, even when trademark owners choose to pay increased fees and thereby retain registered rights in their marks, they are better internalizing the costs their contribution to depletion or congestion is imposing on the trademark system and the public domain.

Current maintenance and renewal fees are uniform regardless of the registered mark’s characteristics or the degree of depletion or congestion in its class. We think it would be administratively simplest to increase maintenance and renewal fees equally across the board. Yet as noted above, this would mean that all mark owners would bear an equally increased financial burden regardless whether their marks are contributing to depletion or congestion. Still, this burden might nonetheless be

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237 We think it is likely that a business will not pay such an increased fee for a mark only when the mark is not sufficiently important—say, because the business is not using the mark heavily—or the business cannot afford the fee regardless of the mark’s importance. We think the latter situation is likely to be rare. Therefore, we think that consumers are unlikely to face materially increased search costs when businesses stop using marks that they do not pay to maintain or renew.

Analogous proposals have been made with regard to patent maintenance fees as a way to release insufficiently valuable patents into the public domain. See Kimberly A. Moore, Worthless Patents, 20 BERKELEY TECH. L.J. 1521 (2005) (studying maintenance of patents through relatively heftier maintenance fees, and finding that over half of patentees allow their patents to expire early by failing to pay these fees); see also Michael W. Carroll, One for All: The Problem of Uniformity Cost in Intellectual Property Law, 55 AM. U. L. REV. 845, 882 (2006) (“By conditioning protection on payment of maintenance fees, the Patent Act forces the patent owner periodically to place an option value on continued protection and to reveal something about that valuation. A patent owner’s decision not to pay the relatively modest maintenance fees is a decision to dedicate the invention to the public domain.”).

238 See supra text accompanying notes 232-233.
justified given how low these fees currently are and the general benefits of raising the probability that desirable marks are freed up for new entrants. It might also be costly to differentiate between markholders that should pay an increased fee and those that need not.

Alternatively, the PTO could increase fees in a more targeted fashion to force just those operating in particularly depleted or congested areas to bear more of the costs that their trademark choices impose on others. The PTO could raise fees, for example, only in classes or industries experiencing significant depletion or congestion or varying fees in proportion to the degree of depletion or congestion in a particular area: The higher the degree of depletion or congestion, the higher the fee.

These targeted increases would impose a form of “congestion pricing,” sometimes also called “peak pricing,” to ensure that registrants in especially depleted or congested areas internalize some of the costs that they are imposing on the trademark system by adding to that depletion or congestion.

239 See supra text accompanying notes 232-233.

240 The term “congestion pricing” is often used in the context of vehicle traffic to mean “the highway toll changes based on the number of drivers using the road. Travelers respond to the higher tolls by shifting nonessential trips to a different time or by carpooling, thus reducing congestion.” Robert Krol, MERCATUS CENTER, GEO. MASON CTR., TOLLING THE FREEWAY: CONGESTION PRICING AND THE ECONOMICS OF MANAGING TRAFFIC, MAY 5, 2016, https://www.mercatus.org/publication/tolling-freeway-congestion-pricing-and-economics-managing-traffic. See generally Jonathan Remy Nash, ECONOMIC EFFICIENCY VERSUS PUBLIC CHOICE: THE CASE OF PROPERTY RIGHTS IN ROAD TRAFFIC MANAGEMENT, 49 B.C. L. REV. 673 (2008) (analyzing the economic advantages of congestion pricing over building new roadways to address road traffic).

We invoke the notion of “congestion pricing” as a system of surcharges not only with regard to trademark congestion but also with reference to trademark depletion. The link between congestion pricing and trademark congestion is straightforward. For trademark depletion, the analogy to traffic congestion is that depletion clogs word categories.

There is another way in which there is a strong link between congestion pricing for traffic and for trademarks: The traditional approach to traffic congestion has been to generate additional roadway capacity, which then tends to become equally or more congested, thereby not solving and sometimes worsening the problem of congestion. Nash, supra, at 694-704. Similarly, some might say that there is additional trademark space that can be generated to stop depletion and congestion, by encouraging the creation of neologisms, which will never be completely depleted. As with additional roadway capacity, we do not see this possibility as an adequate solution to trademark depletion and congestion. See supra text accompanying notes 204-206.


241 Cf. Charles Komanoff, POLLUTION TAXES FOR ROADWAY TRANSPORTATION, 12 PACE ENVT'L. L. REV. 121, 132 (1994) (“The microeconomic rationale [for congestion pricing] is that although drivers endure their own lost time from congestion, they are not charged for the delay costs they create for others. The result ... is that individual drivers continue to enter a roadway, even when the average total cost of their arrival on the roadway exceeds the average benefit of using it. These delay costs can be enormous.” (citations omitted)); Nash, supra note 240, at 725 (“[C]ongestion gives rise to an externality because drivers internalize only their own costs, rather than society's actual costs. Congestion pricing regimes endeavor to remedy this
pricing might also forestall depletion and congestion by dissuading businesses from adopting marks that would significantly increase one or the other.\textsuperscript{242} Relatedly, the threshold for congestion pricing might be set to delay depletion and congestion even in areas not yet experiencing them. The advantage of targeted reform is that, ideally, it intervenes only where necessary. The disadvantage, however, is that it requires a considerable degree of expertise and oversight by policymakers to choose the appropriate threshold conditions for congestion pricing.\textsuperscript{243} Another concern for a congestion-pricing scheme is the regressive effect of its imposition of the same level of fees on entities of differing sizes and levels of market power,\textsuperscript{244} something particularly troubling here if the aim is to lower barriers to entry in ways that help competition and consumers, not raise those barriers further. Generally, there are ways to correct for this effect, such as by using congestion-pricing revenues to pay for services benefiting small- and medium-sized enterprises (SMEs).\textsuperscript{245} This approach might be adapted to trademark fees, for example, by keeping fees lower for SMEs or by channeling increased revenues toward SME business development.\textsuperscript{246}

While closely targeted fee increases would help to force entities to internalize some of the costs of conduct contributing to depletion and congestion, it is difficult to imagine, given administrative and political realities, that a finely tuned scheme could work in practice. Policymakers would have to decide how much depletion or congestion is too much, how different degrees of one or the other would correspond to prices, and which types and categories of depletion and congestion (such as for common words or for shorter words) ought to matter. While an admirable goal, we

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\text{situation by requiring drivers to internalize the costs that otherwise would be externalized.} \quad \text{(citation omitted)).}
\end{align*}

\textsuperscript{242} \textit{Cf.} Nash, supra note 240, at 725 (emphasizing that congestion pricing “reduces uneconomic overuse of roads”); Lior Jacob Strahilevitz, \textit{How Changes in Property Regimes Influence Social Norms: Comodifying California\’s Carpool Lanes}, 75 \textit{Ind. L.J.} 1231, 1243-44 (2000) (“Current policy [without congestion pricing] makes no distinction between those who value[] their time very highly and those with lower valuations—traffic congestion affected all commuters on a road equally, regardless of differentials in how desperately they needed to reach their destinations. Congestion pricing was a scheme developed ... to help correct these inefficiencies.” (citation omitted)).

\textsuperscript{243} As explained with regard to roadway traffic congestion, “[h]ow much to charge under congestion pricing would depend on the extent to which drivers would respond to the higher price to drive. This would depend on the availability and attractiveness of alternative modes, the value placed on peak-period driving, and how much congestion society wishes to eliminate.” Komanoff, supra note 241, at 132.

\textsuperscript{244} See Nash, supra note 240, at 727 (“An ... equity-related point is the perceived distributional impact of a congestion-pricing regime. The burden of a congestion pricing regime might be seen to fall heavily on poorer people. In other words, the regime might be characterized as a regressive tax.” (citations omitted)); cf. Strahilevitz, supra note 242, at 1245-46 (“If all vehicles of the same type are charged the same tolls during the same periods, these tolls will constitute a more significant impediment to travel for those who have less income to spare.” (citation omitted)).

\textsuperscript{245} Cf. Strahilevitz, supra note 242, at 1246-47.

\textsuperscript{246} Analogously, in the European Union\’s recent trademark fee increases, it has sought to avoid the regressive effect of congestion pricing by keeping prices down for options likely to be chosen by small- and medium-sized enterprises. \textit{See infra} note 247.
are not yet convinced it is practically viable. More realistic might be a form of tiered pricing, with a limited number of tiers painted with a broader brush, for different degrees or categories of depletion and congestion.\textsuperscript{247}

Another important policy lever directed toward current registrants that the PTO should adjust is the use requirement in trademark law, which should be tightened and more strictly enforced. As noted above, American trademark law affords protection only to marks that are used in commerce in connection with particular goods or services.\textsuperscript{248} Not only is this requirement present as a constitutional basis for Congress’s authority to enact trademark law pursuant to the Commerce Clause,\textsuperscript{249} but it also helps ensure that trademark rights are granted in words or other symbols only when they are affixed or associated with goods or services in a way that will promote the goals of efficient competition and consumer protection.\textsuperscript{250}

The PTO has already begun to move in the direction of seeking to declutter the register through the cancellation of marks not in use. In 2012, the PTO instituted a two-year pilot program which randomly audited a statistically significant sample of trademark registrations to determine if they actually met the statutory requirement of use with respect all or even any of the goods or services specified in the registration.\textsuperscript{251} The PTO justified the program out of concern that the trademark register was cluttered with unused marks that new entrants might otherwise wish to adopt, a concern that aligns with the harms caused by depletion and congestion:

The accuracy of the trademark register as a reflection of marks that are actually in use in the United States for the goods/services identified in the registration

\textsuperscript{247}Recently, the European Union increased trademark fees with a tiered approach as a way to accomplish analogous goals. See Commission Regulation 2015/2424, 2015 O.J. (L 341) 21. Its Intellectual Property Office implemented “a fee structure where a separate ‘class’ fee is paid for each additional product class applied for beyond the first” class (whereas it had required this additional payment previously only beyond the third class). EUROPEAN COMMISSION, Package To Modernise the European Trade Mark System (Apr. 21, 2015), http://europa.eu/rapid/press-release_MEMO-15-4824_en.htm. The fee increase had multiple goals. First, this change sought to lower registration fees for small- and medium-sized enterprises, which would pay less for application and renewal if registering a mark in only one class. Id. (“The agreed changes will allow in particular businesses that seek to prolong protection of their registered European Union trade marks beyond an initial period of 10 years to benefit from savings up to 37%.”). More relevantly, by charging applicants differently whether they file for one, two, three, or more classes, the hope has been that “it will help to reduce the potential of [clutter] of the EU trade mark register by diminishing broad claims for goods and services not really required by the trade mark proprietor, and ensure a more balanced and harmonious trade mark system overall.” Id.


\textsuperscript{249}Graeme B. Dinwoodie & Mark D. Janis, Confusion over Use: Contextualism in Trademark Law, 92 IOWA L. REV. 1597, 1610-11 (2007) (citing In re Trade-Mark Cases, 100 U.S. 82 (1879)).

\textsuperscript{250}Id. at 1613-15; Dogan & Lemley, supra note 248, at 1676. See also Tushnet, supra note 61, at 918-21 (discussing the concerns raised by registered marks that are not truly in use).

\textsuperscript{251}Changes in Requirements for Specimens and for Affidavits or Declarations of Continued Use or Excusable Nonuse in Trademark Cases, 77 Fed. Reg. 30,197, 30,197 (May 22, 2012) (to be codified at 37 C.F.R. pts. 2, 7) [hereinafter PTO Pilot Program Rule].
serves an important purpose for the public. The public relies on the register to clear trademarks that they may wish to adopt or are already using. Where a party searching the register uncovers a similar mark, registered for goods or services that may result in confusion of consumers, that party may incur a variety of resulting costs and burdens, such as changing plans to avoid use of the mark, investigative costs to determine how the similar mark is actually used and assess the nature of any conflict, or cancellation proceedings or other litigation to resolve a dispute over the mark. If a registered mark is not actually in use in the United States, or is not in use on all the goods/services recited in the registration, these types of costs and burdens may be incurred unnecessarily. Thus, accuracy and reliability of the trademark register help avoid such needless costs and burdens, and thereby benefit the public.252

At the conclusion of the two-year pilot period, the PTO reported the results of the audit program.253 Of the 500 audited registrations, approximately half could not be verified as being in use as claimed.254 As a result, 16% of the audited registrations were cancelled and an additional 34% were amended to narrow the registration's specification of the goods or services in connection with which the registered mark was claimed to be used.255 In light of the significant proportion of "deadwood" registrations that the pilot program revealed, the PTO has recently finalized a rule change that makes its auditing efforts permanent. Under the rule, the PTO will each year randomly audit up to ten percent of continuing-use affidavits filed that year "in which the mark is registered for more than one good or service per class."256

Our findings very strongly support the continuation and intensification of the PTO's auditing efforts. Indeed, our findings suggest that the PTO should focus its efforts on those areas of the trademark system that are most in need of clearing, namely, areas with high levels of depletion or congestion. Assuming that the pilot sample is representative of the Principal Register, a staggering number of registrations either ought to be removed from the register or are overbroad. Clearing out these unused marks not only helps ensure the register's integrity but also decreases depletion and congestion by making available unused—and likely desirable—marks for reuse by new entrants. In fact, the PTO could make the use requirement more muscular in additional ways. For example, the PTO could provide

252 PTO Pilot Program Rule, supra note 251, at 30,197.
254 Id. at 1.
255 Id.
256 Changes in Requirements for Affidavits or Declarations of Use, Continued Use, or Excusable Nonuse in Trademark Cases, 82 Fed. Reg. 6,259, 6,262 (Jan. 19, 2017).
257 Tushnet, supra note 61, at 869, 918.
a streamlined process for third parties to petition the PTO to cancel a mark based on non-use, something the PTO is currently considering.

Because of the harms that depletion and congestion inflict, we also advocate that the PTO be more cautious, as Rebecca Tushnet otherwise advocates, in granting incontestability to registered marks. Trademark law allows a registered mark in continuous use for five years following registration to become incontestable, so long as certain conditions are met, such as there being no final decision adverse to the mark’s continuing registration. Once the PTO grants incontestability to a mark, the mark is susceptible to invalidation only on a limited number of grounds. Most importantly, the mark can no longer be invalidated for being descriptive and lacking the requisite secondary meaning. Tushnet presents evidence of marks undeserving of incontestability status that are allowed to claim it. This is troublesome generally and particularly so for descriptive marks. Given the severe costs associated with the depletion of descriptive terms, the PTO might be more parsimonious in its granting of incontestability.

Certain reforms directed toward new applicants may also help to alleviate depletion and congestion by making it tougher to register marks, with similar benefits and costs to those discussed above for existing registrants. For example, registration fees could be increased, perhaps in proportion to the degree of depletion or congestion in a particular area. As for the use requirement, just as the PTO plans to do with current registrants, so with applicants the PTO could more strictly enforce the requirement through an auditing program. Relatedly, the PTO could also tighten the relatively permissive standard allowing the extension of time in which an intent-to-use applicant must file a statement of use. The PTO might also insist on


260 See Rebecca Tushnet, Fixing Incontestability: The Next Frontier?, 23 B.U. J. SCI. & TECH. L. (forthcoming 2017). It might also be worthwhile to eliminate the possibility of incontestability, but we recognize that is more radical.


262 Id. § 1115(b).


264 Tushnet, supra note 260.

265 Supra section A.1.

266 See Seifter, supra note 258, at 163-65 (proposing such a program).

267 See 15 U.S.C. §1051(d) (establishing a six-month period, extendible upon application for an additional thirty months, in which an intent-to-use applicant must file a statement of use).
more robust and direct evidence that applied-for descriptive marks have acquired distinctiveness.\textsuperscript{268} Currently, the PTO allows acquired distinctiveness to be established circumstantially, through evidence of advertising expenditures, sales, prior registrations, and long-term use of the mark in commerce.\textsuperscript{269} This evidence can often be quite weak.\textsuperscript{270} Given the severe costs associated with the depletion of descriptive terms,\textsuperscript{271} the PTO might either require direct evidence of acquired distinctiveness, likely in the form of survey evidence, or at least establish an adverse inference that the lack of such evidence weighs heavily against a finding of acquired distinctiveness.\textsuperscript{272}

The reforms suggested above—to curtail depletion and congestion by making it more expensive or harder both to maintain registrations in existing marks and to earn them for new ones—are those we think are most practical, least costly, and most beneficial to the trademark system. They are, however, not the only policy levers that might be adjusted to diminish depletion and congestion. We set out three other potential reforms, although we think they are suboptimal in that their costs likely exceed any benefit.

First, one might repeal the constructive nationwide priority that is a benefit of mark registration.\textsuperscript{273} That is, registration would confer no priority beyond the area over which the common law confers it for unregistered marks: to the first to use the mark distinctively in time, over the geographic area in which the user has penetrated the market plus any natural zone of expansion.\textsuperscript{274} The benefit of this change would be diminished depletion, because adopted marks would have depleting effect only in the perhaps narrower geographic region over which the mark user has priority. However, we think the likely costs of this change outweigh this benefit. For one thing, this change would open the door to increased congestion on a nationwide basis via concurrent uses of the same marks. For another, the administrative ordeal of resolving conflicting priority claims would increase substantially for all registered marks, whose priority currently is evaluated simply to be first in time and nationwide. Additionally, it is not clear how much such a rule revision would change the state of

\textsuperscript{268} See supra text accompanying note 43 (summarizing the rule of “acquired distinctiveness” for descriptive marks to be protectable).

\textsuperscript{269} See TMEP, supra note 46, at §§ 1212, 1212.04-1212.04(e), 1212.05(d), 1212.06-1212.06(b). Some courts similarly accept such circumstantial evidence as proof of secondary meaning. 1 McCarthy, supra note 19, at § 15:30 (citing cases).


\textsuperscript{271} Supra section A.1.

\textsuperscript{272} The PTO’s rules emphasize that such evidence is probative of acquired distinctiveness, but they do not currently require or prioritize it. See TMEP, supra note 46, at §§ 1212, 1212.06(d).

\textsuperscript{273} 15 U.S.C. § 1057(c); supra text accompanying note 62.

depletion: In this internet age, many businesses that once would have been local now have nationwide reach via their online presence.275

Another option with a similar cost-benefit calculus might be to move toward a system adopted in some other jurisdictions like the United Kingdom, in which there is no examination for confusing similarity as a prerequisite to registration.276 Like removing constructive nationwide priority, this change would tend to keep registered marks available for others to use subsequently, thereby diminishing true unavailability of marks. Yet it would tend also to increase congestion by permitting parallel registrations that would have once been refused as confusingly similar. In the United Kingdom, existing registrants could oppose new applications when there is a genuine commercial conflict,277 which imposes monitoring and other costs on registrants. Moreover, it leaves lurking conflicts unresolved, which can be costlier to resolve down the line if they emerge.

Similarly, one might diminish depletion—yet again increase congestion—by breaking up the Nice classification system into yet smaller classes. This would ameliorate class-specific depletion by making it more expensive to cover multiple markets, thereby preserving more space for new entry. Yet it would increase congestion on a general basis via increased parallel registrations. It would also boost the odds that some of these parallel registrations—despite being in different classes—are confusingly similar, at a reduced probability of detection.

There is good reason to expect that changes like those we propose here would significantly inhibit trademark depletion and congestion. FDA rules that suppress trademark congestion for drugs, a harmful situtation we discuss above,278 provide an instructive case. The FDA, tasked with safeguarding public safety with regard to drugs, not only regulates which drugs are to be approved for the market but also in recent years which mark a business might use to market and sell drugs once approved.279 Applicants submit up to two proposed names for evaluation, along with their intended pronunciation, their possible derivations, intended meaning of any prefixes or suffixes, and the pharmacologic category.280 The FDA uses a rigorous

276 See Trade Marks Act, 1994, c. 26, § 3 (Eng.).
277 Id. § 8.
278 See supra text accompanying notes 226-229.
279 See Hannah Brennan, The Cost of Confusion: The Paradox of Trademarked Pharmaceuticals, 22 Mich. Telecom & Tech. L. Rev. 1, 17-18 (2015). Medications may be referred to by one of their three separate names: their chemical name, their generic (non-proprietary) name, and their brand (proprietary) name. Id. at 16. As Brennan notes as example, “Tylenol[] is the brand name of the drug that has the chemical name N-(4-hydroxyphenyl) acetamide and the generic name acetaminophen.” Id. Doctors and pharmacists use principally brand names and sometimes generic names to refer to drugs, FDA EVALUATION OF PROPRIETARY NAMES, supra note 226, at 4; Brennan, supra, at 17-18, which is why diminishment of congestion for both types of names is important.
280 FDA EVALUATION OF PROPRIETARY NAMES, supra note 226, at 10-11. Applicants can file proposed names for approval as early as after completion of a product’s Phase II clinical trials.
multi-pronged approach to identify which submitted names are too confusingly similar to an already existing drug name: a preliminary screening to identify common errors, a search against already established stems of drugs and chemicals, a computerized approximate-matching search for orthographic, phonetic, and handwriting similarities, searches against drug databases, and prescription simulation studies. Of the 500 names reviewed annually, the FDA rejects over one-third. Owing to this review, which keeps pharmaceutical brand names far apart from one another and from preexisting chemical terms, one commentator notes that “prescription drugs notoriously carry some of the most obscure brand names in business,” with recent examples including “Celecoxib, Linezolid and Metaxalone—names that don’t exactly roll off the tongue.”

Not surprisingly, our data show that there is comparatively less congestion and fewer section 2(d) rejections in Class 5 (pharmaceuticals) than other classes.

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Id. at 8. If two names are submitted, one is specified as a first choice and the other as an alternate. Id. at 10. The alternate name is evaluated only if the first choice is found to be unacceptable. Id.

Id. at 5-6. Examples of common errors include numbers in the name, which might incorrectly suggest dosing information, or the use of “TID,” which is an abbreviation for three times a day. Jacqueline P. Scheib & Brendan Witherell, The Basics of Drug and Medical Device Naming, INT’L TRADEMARK ASS’N BULL., No. 15, Sept. 11, 2011, http://www.inta.org/INTABulletin/Pages/TheBasicsofDrugandMedicalDeviceNaming.aspx. The FDA’s name approval process is distinct from the PTO’s trademark registration process. Frances M. Jagla & Boris Umansky, Naming the Product: The Intersection of FDA and Trademark Law, IP LITIGATOR, Jan./Feb. 2009, at 2. The PTO could, in theory, approve a drug mark only to have the FDA reject it, or vice versa. Id. The FDA also does not oversee a new drug’s chemical or generic name. The International Union of Pure and Applied Chemistry creates the chemical name based on an internal set of rules. Scutti, supra note 89. The United States Adopted Name Council assigns a new drug’s generic name, also with rules in place to avoid confusion with other generic drug names. Id.

Scheib & Witherell, supra note 281.

Nordrum, supra note 227; accord Scutti, supra note 89 (observing that recent drug names call to mind “aliens arriving from distant planets”); Luke Timmerman, Why Are Drugs Getting Such Weird Brand Names?, XCONOMY, May 9, 2011, http://www.xconomy.com/national/2011/05/09/why-are-drugs-getting-such-weird-brand-names (“Check a few of the newly-coined drug names—Incivek, Adcetris, Yervoy, Viibryd, Zytiga, Xgeva. Somewhere, the folks who sell Coca-Cola must be giggling at their friends who went into pharmaceuticals. How are you supposed to create an identity for a product, when people can’t even spell or pronounce it, much less have any sense of what it means?”).

Supra sections II.D, IV.B (reporting class-by-class results of congestion of frequently used words and class-by-class section 2(d) refusals). Another reason there is less congestion, and also depletion, in Class 5 is that barriers to entry in this space are high. Drug research is expensive, as is the FDA approval process. Hannah Brennan, Amy Kapczynski, Christine H. Monahan & Zain Rizvi, A Prescription for Excessive Drug Pricing, 18 YALE J.L. & TECH. 275, 279 (2016). Fewer entrants mathematically means less opportunity for depletion or congestion. Compare the relatively higher degrees of depletion and congestion in classes 25 (apparel goods) and classes 32-33 (beers and other alcoholic beverages), where the barriers to entry are significantly lower. Costs of Starting a Clothing Company,
It is crucial to note that all the recommended—and even proposed but rejected—changes set forth above affect only registration of marks. They are not substantive in the sense of reaching out and changing the rules with regard to all marks, whether or not registered. Many changes similar to those we recommend above can be made substantive, either via statutory changes or through implementation in litigation. For example, the law might be more exacting about the standard for and evidence required to show acquired distinctiveness for descriptive marks to prevent their depletion or congestion. More generally, given the costs to the trademark system imposed by the grant of property rights in trademarks, the law could adopt a generally heightened standard in determining whether a mark merits protection. Given the extent of depletion and congestion, courts should also feel empowered to adjudicate more permissively the fair use defense, both in its descriptive and nominative forms. Relatively, with respect to the basic test for the likelihood of consumer confusion, courts may increasingly be compelled to strike a difficult balance between allowing marginally confusingly similar marks to remain in the marketplace in order to promote competition even though they may impose greater search costs on consumers.

Finally, at a minimum, policymakers, judges, and trademark examiners should take into account depletion and congestion data like those we have gathered here in any future reforms of trademark law. For example, the PTO has recently proposed a new “Incapable Informational Matter Exam Guide” that seeks to tighten the standards on the registration of matter that merely provides information about a good or service and is not perceived by consumers as source-denotative. Data like ours not only show the need for this reform but could be used in the future to aid in determining what matter in particular cases should be deemed merely informational because the matter is highly congested.

More radically, we query—but explore more fully in other work—whether the trademark system, which has long been grounded in granting priority in mark ownership to the first in time to use a mark, might be better reoriented to or tweaked

http://www.howtostartaclothingcompany.com/costs-starting-clothing-company (last visited Feb. 4, 2017); Huppke, supra note 5 (low cost of starting a microbrewery).

285 It currently remains an important open question in trademark law whether unregistered “common law” marks, which the Lanham Act protects, supra section I.A.4, ought to be held to the same standards specified in the Lanham Act and developed by courts for registered marks. See Tushnet, supra note 61, at 881-916; supra note 61 (discussing Tushnet’s work).

286 See supra text accompanying notes 268-272.

287 See, e.g., KP Permanent Make-Up, Inc. v. Lasting Impression I, Inc., 543 U.S. 111 (2004) (noting that the “common law of unfair competition…tolerated some degree of confusion” and holding that “some possibility of consumer confusion must be compatible with fair use”).

288 See McKenna, supra note 213, at 86-92.


by other principles, including extensions of those we suggest above, as a way to diminish systemic depletion and congestion.

In sum, the depletion and congestion data clearly show that, going forward, trademark policy must address the degree to which depletion and congestion can impose significant barriers to entry on non-incumbents and undercut the law’s central goals of promoting efficient competition and reducing consumers’ search costs. Though we have only sketched out in this section various reforms that may aid in reducing depletion and congestion and mitigating their harms, we are confident that, whether globally or on a case-by-case basis, the incorporation of data like ours into the trademark policymaking and adjudication process will greatly improve, if not preserve, the trademark system.

**Conclusion**

This Article has defined the phenomena of trademark depletion and congestion, developed frameworks for evaluating their severity, and, with respect to word marks, shown through a wide variety of empirical evidence that both depletion and congestion are becoming ever more serious problems for the trademark system. As we explained above, we do not expect ever to reach a condition in which we have “run out” of trademarks. Firms will likely always be able to find, as they do now, some minimally communicative sign by which to identify and distinguish their goods or services. But as depletion and congestion continue to intensify, firms will do so at greater cost and with less benefit. Incumbent advantages will grow as will barriers to entry for non-incumbents. Consumer search costs will continue to increase. More and more of our daily language, both commercial and non-commercial, will operate in the shadow of trademark property rights. What makes trademark depletion and congestion so dangerous is that we may not fully recognize these trends as they continue to mount—and as we continue to try to adapt. Both processes are gradual. But this cannot be an excuse for inaction. We think the reform proposals we have surveyed above are a good place to start.

In the meantime, further work remains to be done to better understand trademark depletion and congestion, work which we have commenced. Most important but also most challenging will be the study of image mark depletion and congestion. There is already strong anecdotal evidence that both processes have reached chronic levels. A full understanding of depletion and congestion should also incorporate semantic similarity, such as when a mark like TORNADO for wire fencing precludes the registration of the mark CYCLONE for the same goods. Our results have been conservative because we have not included this dimension of

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291 See, e.g., Tushnet, supra note 61, at 928 (invoking as illustration of our large-scale evidence of mark depletion a recent Federal Circuit decision on a registration refusal for a paw print mark for clothing, which noted the multitude of other paw print designs already registered or in use on clothing (citing Jack Wolfskin Ausrustung Fur Draussen GmbH & Co. KGAA v. New Millennium Sports, S.L.U., 797 F.3d 1363 (Fed. Cir. 2015))).

292 See Hancock v. Am. Steel & Wire Co. of N.J., 203 F.2d 737, 740 (C.C.P.A. 1953) (in affirming the PTO’s refusal to register CYCLONE for wire fencing because of its semantic similarity with TORNADO for the same goods, noting that “[t]he meaning of these two words is the crux of the case”).
similarity. We additionally hope to extend our framework and methods to other trademark systems, most notably, the European trademark system, and to other, similar naming regimes, such as the Delaware Corporate Registry. Finally, a great deal of work remains to be done on specific trends revealed by the PTO’s Case File Data Set, such as trends in applicants’ disclaiming of rights in parts of their marks, applicants’ reclaiming of marks abandoned by others, trademark licensing practices, and the effects of registrations containing foreign words.

We expect that such work will further amplify the themes we have pursued throughout this Article, which are that the supply of effective trademarks is not inexhaustible, that the granting of trademark rights is not costless, that the costs of granting such rights have been significantly increasing, and thus that the ecology of the trademark system is undergoing increasing strain. Our hope is that the data we have reported will raise awareness of these facts and help to bring about the reforms they necessitate.
Appendix A

International Schedule of Classes of Goods and Services
(Nice Classification)

Goods

1. Chemicals used in industry, science and photography, as well as in agriculture, horticulture and forestry; unprocessed artificial resins, unprocessed plastics; manures; fire extinguishing compositions; tempering and soldering preparations; chemical substances for preserving foodstuffs; tanning substances; adhesives used in industry.

2. Paints, varnishes, lacquers; preservatives against rust and against deterioration of wood; colorants; mordants; raw natural resins; metals in foil and powder form for use in painting, decorating, printing and art.

3. Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring and abrasive preparations; non-medicinal soaps; perfumery, essential oils, non-medicinal cosmetics, non-medicinal hair lotions; non-medicinal dentifrices.

4. Industrial oils and greases; lubricants; dust absorbing, wetting and binding compositions; fuels (including motor spirit) and illuminants; candles and wicks for lighting.

5. Pharmaceuticals, medical and veterinary preparations; sanitary preparations for medical purposes; dietetic food and substances adapted for medical or veterinary use, food for babies; dietary supplements for humans and animals; plasters, materials for dressings; material for stopping teeth, dental wax; disinfectants; preparations for destroying vermin; fungicides, herbicides.

6. Common metals and their alloys, ores; metal materials for building and construction; transportable buildings of metal; non-electric cables and wires of common metal; small items of metal hardware; metal containers for storage or transport; safes.

7. Machines and machine tools; motors and engines (except for land vehicles); machine coupling and transmission components (except for land vehicles); agricultural implements other than hand-operated; incubators for eggs; automatic vending machines.

8. Hand tools and implements (hand-operated); cutlery; side arms; razors.

9. Scientific, nautical, surveying, photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching apparatus and instruments; apparatus and instruments for conducting, switching, transforming, accumulating, regulating or controlling electricity; apparatus for recording, transmission or reproduction of sound or images; magnetic data carriers, recording discs; compact discs, DVDs and other digital recording media; mechanisms for coin-operated apparatus; cash registers, calculating machines, data processing equipment, computers; computer software; fire-extinguishing apparatus.
10. Surgical, medical, dental and veterinary apparatus and instruments; artificial limbs, eyes and teeth; orthopaedic articles; suture materials; therapeutic and assistive devices adapted for the disabled; massage apparatus; apparatus, devices and articles for nursing infants; sexual activity apparatus, devices and articles.

11. Apparatus for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.

12. Vehicles; apparatus for locomotion by land, air or water.

13. Firearms; ammunition and projectiles; explosives; fireworks.

14. Precious metals and their alloys; jewellery, precious and semi-precious stones; horological and chronometric instruments.

15. Musical instruments.

16. Paper and cardboard; printed matter; bookbinding material; photographs; stationery and office requisites, except furniture; adhesives for stationery or household purposes; artists' and drawing materials; paintbrushes; instructional and teaching materials; plastic sheets, films and bags for wrapping and packaging; printers' type, printing blocks.

17. Unprocessed and semi-processed rubber, gutta-percha, gum, asbestos, mica and substitutes for all these materials; plastics and resins in extruded form for use in manufacture; packing, stopping and insulating materials; flexible pipes, tubes and hoses, not of metal.

18. Leather and imitations of leather; animal skins and hides; luggage and carrying bags; umbrellas and parasols; walking sticks; whips, harness and saddlery; collars, leashes and clothing for animals.

19. Building materials (non-metallic); non-metallic rigid pipes for building; asphalt, pitch and bitumen; non-metallic transportable buildings; monuments, not of metal.

20. Furniture, mirrors, picture frames; containers, not of metal, for storage or transport; unworked or semi-worked bone, horn, whalebone or mother-of-pearl; shells; meerschaum; yellow amber.

21. Household or kitchen utensils and containers; combs and sponges; brushes, except paintbrushes; brush-making materials; articles for cleaning purposes; unworked or semi-worked glass, except building glass; glassware, porcelain and earthenware.

22. Ropes and string; nets; tents and tarpaulins; awnings of textile or synthetic materials; sails; sacks for the transport and storage of materials in bulk; padding, cushioning and stuffing materials, except of paper, cardboard, rubber or plastics; raw fibrous textile materials and substitutes therefor.

23. Yarns and threads, for textile use.

24. Textiles and substitutes for textiles; household linen; curtains of textile or plastic.

25. Clothing, footwear, headgear.
26. Lace and embroidery, ribbons and braid; buttons, hooks and eyes, pins and needles; artificial flowers; hair decorations; false hair.

27. Carpets, rugs, mats and matting, linoleum and other materials for covering existing floors; wall hangings (non-textile).

28. Games, toys and playthings; video game apparatus; gymnastic and sporting articles; decorations for Christmas trees.

29. Meat, fish, poultry and game; meat extracts; preserved, frozen, dried and cooked fruits and vegetables; jellies, jams, compotes; eggs; milk and milk products; edible oils and fats.

30. Coffee, tea, cocoa and artificial coffee; rice; tapioca and sago; flour and preparations made from cereals; bread, pastries and confectionery; edible ices; sugar, honey, treacle; yeast, baking-powder; salt; mustard; vinegar, sauces (condiments); spices; ice.

31. Raw and unprocessed agricultural, aquacultural, horticultural and forestry products; raw and unprocessed grains and seeds; fresh fruits and vegetables, fresh herbs; natural plants and flowers; bulbs, seedlings and seeds for planting; live animals; foodstuffs and beverages for animals; malt.

32. Beers; mineral and aerated waters and other non-alcoholic beverages; fruit beverages and fruit juices; syrups and other preparations for making beverages.

33. Alcoholic beverages (except beers).

34. Tobacco; smokers' articles; matches.

**Services**

35. Advertising; business management; business administration; office functions.

36. Insurance; financial affairs; monetary affairs; real estate affairs.

37. Building construction; repair; installation services.

38. Telecommunications.

39. Transport; packaging and storage of goods; travel arrangement.

40. Treatment of materials.

41. Education; providing of training; entertainment; sporting and cultural activities.

42. Scientific and technological services and research and design relating thereto; industrial analysis and research services; design and development of computer hardware and software.

43. Services for providing food and drink; temporary accommodations.

44. Medical services; veterinary services; hygienic and beauty care for human beings or animals; agriculture, horticulture and forestry services.

45. Legal services; security services for the physical protection of tangible property and individuals; personal and social services rendered by others to meet the needs of individuals.