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**Before the
United States Senate, Committee on the Judiciary,
Subcommittee on Intellectual Property**

**on
“Fraudulent Trademarks: How They Undermine the Trademark System and Harm American
Consumers and Businesses”**

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Introduction

Chairman Tillis, Ranking Member Coons, and Members of the Subcommittee, thank you for inviting this testimony on the problems of fraudulent trademarks, trademark depletion, and trademark clutter on the Principal Register of the United States Patent and Trademark Office (“PTO”).

We are law professors at New York University School of Law, where we each teach intellectual property courses, including those covering trademark law. We both publish extensively in the area. Our remarks draw on our recent and ongoing research on trademark depletion and congestion in the United States. Along with this testimony, we submit our recent *Harvard Law Review* article, *Are We Running Out of Trademarks? An Empirical Study of Trademark Depletion and Congestion*.¹ This article reports the results of our statistical study of all 6.7 million trademark applications filed at the PTO from 1982 through 2016.

“Trademark depletion” is the term we use in our article to describe the decreasing supply of unclaimed, competitively effective trademarks available to new market entrants. The empirical results we report in the article confirm what a variety of anecdotal evidence from the marketing world has suggested:² that it is becoming increasingly difficult for new commercial entities, and particularly small businesses, to find a trademark that is competitively effective (in that the mark is reasonably marketable) but that has not yet been claimed by another commercial entity. The problem of trademark depletion has been exacerbated in recent years by a surge of fraudulent applications originating from China.³ We report in this testimony the results of new empirical work showing that a substantial proportion of applications originating in China include fraudulent specimens of use. In particular, with respect to use-based applications originating in China that were filed at the PTO in 2017 solely in Class 25 (apparel goods), we estimate that 66.9% of such applications included fraudulent specimens. Yet 59.8% of these fraudulent applications proceeded to publication and then 38.9% proceeded to registration. When these applications are allowed to register, they contribute to a problem closely related to the problem of trademark depletion, which is the problem of “clutter” on the Principal Register, the primary register of trademarks maintained by the PTO. “Clutter” is the term that trademark law uses to describe marks that are registered but that are not actually used in commerce.⁴ To address the problems of trademark depletion and clutter on the Principal Register,

¹ Barton Beebe & Jeanne C. Fromer, *Are We Running Out of Trademarks? An Empirical Study of Trademark Depletion and Congestion*, 131 HARV. L. REV. 945 (2018). We received no outside funding of any kind to undertake or support the research reported in our *Harvard Law Review* article or in this testimony.

² See, e.g., Justin Fox, *We’re Going to Run Out of Company Names*, BLOOMBERG VIEW (Jan. 13, 2017, 1:00 PM), <https://www.bloomberg.com/view/articles/2017-01-13/we-re-going-to-run-out-of-companynames>; Neal Gabler, *The Weird Science of Naming New Products*, N.Y. TIMES, Jan. 15, 2015, <https://nyti.ms/2jD7Hh7> (“Almost 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).”).

³ See, e.g., Jacob Gershman, *Flood of Trademark Applications from China Alarms U.S. Officials*, WALL ST. J., May 5, 2018, <https://www.wsj.com/articles/flood-of-trademark-applications-fromchinaalarms-u-s-officials-1525521600>; Nikkei Staff Writers, *Chinese Trademark Filings Flood Foreign Markets*, NIKKEI ASIAN REV., June 14, 2018, <https://asia.nikkei.com/Business/Business-trends/Chinese-trademark-filings-flood-foreign-markets>.

⁴ See, e.g., GEORG VON GRAEVENITZ ET AL., TRADE MARK CLUTTERING: AN EXPLORATORY REPORT 5 (2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/312092/ipresearch-tmcluttering.pdf.

we support 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.

In Part I of what follows, we provide a brief overview of certain relevant points of American trademark law. In Part II, we set out the main empirical findings of our article to show the extent of the problem of trademark depletion and its effect on small businesses. In Part III, we focus on the recent influx of fraudulent trademark applications originating from China. In Part IV, we discuss the costs of trademark depletion and clutter on the Principal Register. Part V discusses reforms that should help to improve the efficiency, integrity, and fairness of the trademark registration system.

I. Overview of Trademark Law

Trademark law protects designations of commercial source, 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.⁵ For example, the word APPLE is a registered trademark of Apple Computer, Inc.,⁶ as is the bitten apple symbol that the company uses.⁷ The canary yellow color of Post-it Notes is a registered trademark of 3M Company Corporation.⁸

A. The Purpose of Trademark Protection

A properly functioning trademark system is crucial to a fair and efficient marketplace.⁹ 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.¹⁰ Trademarks enable producers to build goodwill, and trademark protection prevents others from trading on that goodwill.¹¹ Trademarks also allow consumers to quickly and assuredly find the products they seek.¹² 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 use¹³—and sometimes even after use, as with some

⁵ 15 U.S.C. § 1127 (defining trademarks to include “any word[s], name[s], symbol[s], or device[s], or any combination thereof”); *Wal-Mart Stores, Inc. v. Samara Bros.*, 529 U.S. 205, 216 (2000) (holding that nonutilitarian product design or packaging might constitute a protectable trademark). *See generally* Deven R. Desai, *From Trademarks to Brands*, 64 FLA. L. REV. 981 (2012) (discussing protecting brands as a unifying principle for the modern Lanham Act).

⁶ *See, e.g.*, U.S. Registration No. 1,078,312.

⁷ *See, e.g.*, U.S. Registration No. 4,885,796.

⁸ U.S. Registration No. 2,390,667.

⁹ *See* Mark P. McKenna, *The Normative Foundations of Trademark Law*, 82 NOTRE DAME L. REV. 1839, 1844–46 (2007) (describing this conventional view of trademark law).

¹⁰ *See* Frank I. Schechter, *The Rational Basis of Trademark Protection*, 40 HARV. L. REV. 813, 818 (1927) (“The true functions of the trademark are ... to identify a product as satisfactory and thereby to stimulate further purchases by the consuming public.”).

¹¹ *See* Robert G. Bone, *Hunting Goodwill: A History of the Concept of Goodwill in Trademark Law*, 86 B.U. L. REV. 547, 549 (2006); Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777, 786–88 (2004).

¹² Dogan & Lemley, *supra* note 11, at 787–88.

¹³ William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J.L. & ECON. 265, 268–69 (1987).

pharmaceuticals.¹⁴ 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.¹⁵ Trademark law, then, benefits both consumers and businesses. 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.

B. Qualifying for Trademark Registration

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.¹⁶ A mark is considered to be distinctive if consumers perceive it as a designation of source. The law considers a mark to be distinctive if it inherently has a relatively weak semantic connection with the relevant goods or services (such as AMAZON for online retail services) or, if the mark describes the goods or services, consumers have nevertheless learned that it is a designation of source through advertising and use in the marketplace (such as IPHONE for mobile phones).¹⁷

Second, the mark must be used in commerce.¹⁸ The use-in-commerce requirement ensures that only those making actual use of a trademark can claim property rights in it. This requirement is of the utmost importance in preventing the “warehousing” or “squatting” of registered but unused marks.¹⁹ In this respect, it ensures that the Principal Register is not cluttered with trademark registrations by businesses that are not actually using their marks in commerce. To satisfy the use-in-commerce requirement, the applicant must submit one or more specimens of use of its mark in

¹⁴ See, e.g., Charles J. Walsh & Marc S. Klein, *From Dog Food to Prescription Drug Advertising: Litigating False Scientific Establishment Claims Under the Lanham Act*, 22 SETON HALL L. REV. 389, 399 (1992) (“Drugs are true ‘credence’ goods because they possess qualities that cannot be evaluated through normal use.”).

¹⁵ Landes & Posner, *supra* note 13, at 269-70.

¹⁶ See 15 U.S.C. § 1052(f).

¹⁷ See *Abercrombie & Fitch Co. v. Hunting World, Inc.*, 537 F.2d 4, 9-11 (2d Cir. 1976).

¹⁸ See 15 U.S.C. § 1051(a)(1) (providing for registration of a mark “used in commerce”); *id.* § 1051(d) (providing for registration of a mark filed on an intent-to-use basis upon filing of a statement that the mark is “used in commerce”). Certain foreign applications need not meet the use-in-commerce requirement to receive registration. See *id.* § 1126(e) (providing for registration of a mark already registered in certain foreign jurisdictions provided that the applicant has a bona fide intention to use the mark in commerce in the United States, and specifying that “use in commerce shall not be required prior to registration”); *id.* § 1141f(a) (providing for registration of a mark under the Madrid Protocol system provided that the applicant has a bona fide intention to use the mark in commerce in the United States). Applications filed under § 1126(e) (so-called “Section 44(e) applications”) are rare. The PTO data indicate that of the 385,249 Principal Register trademark applications filed in 2016, 5,585 were filed on this basis. Applications filed under § 1141f(a) (so-called “Section 66(a) applications”) are also rare. There were 15,374 such applications filed in 2016.

¹⁹ See *Major League Baseball Properties, Inc. v. Sed Non Olet Denarius, Ltd.*, 817 F. Supp. 1103, 1129 (S.D.N.Y. 1993) (“Rights in a trademark are lost when trademarks are ‘warehoused.’”); *Intrawest Fin. Corp. v. W. Nat. Bank of Denver*, 610 F. Supp. 950, 959 (D. Colo. 1985) (“Mere warehousing of marks is impermissible under the Lanham Act.”). See also Landes & Posner, *supra* note 13, at 282 (“Basing the property right on use fits in with the social function of trademarks in identifying and distinguishing goods. If the good is not available for sale, the trademark confers no benefit. Thus, conditioning trademark rights on use is a way of limiting the use of scarce enforcement resources to situations in which the rights in question are likely to yield net social benefits.”).

commerce.²⁰ This typically takes the form of a digital image of the mark affixed to the applicant's goods or appearing in connection with the applicant's services. As we discuss below in Part III, fraudulent applications typically include fraudulent specimens of use that have been digitally altered or otherwise manipulated in some way to falsely demonstrate use in commerce.

Third, the mark must not violate any of the Lanham Act's various statutory bars to protection.²¹ For present purposes, the most important bar to registration is the section 2(d) bar against the registration of any mark that is confusingly similar to an already-registered mark. Section 2(d) of the Lanham Act bars the registration of a mark that so resembles 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."²² Among the factors the PTO considers to decide whether an applied-for mark is confusingly similar to an already-registered mark are "[t]he similarity or dissimilarity of the marks in their entireties as to appearance, sound, connotation and commercial impression" and "[t]he similarity or dissimilarity and nature of the goods or services as described in an application or registration or in connection with which a prior mark is in use."²³

Among other things, to register a mark, a trademark applicant must specify the goods and services in connection with which the applicant claims the exclusive right to use the mark.²⁴ The applicant must do so in the form of a written 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 1957.²⁵

²⁰ See 15 U.S.C. § 1051(a)(1) ("The owner of a trademark used in commerce may request registration of its trademark on the principal register hereby established by paying the prescribed fee and filing in the Patent and Trademark Office an application and a verified statement, in such form as may be prescribed by the Director, and such number of specimens or facsimiles of the mark as used as may be required by the Director."); *id.* § 1051(d)(1) ("Within six months after the date on which the notice of allowance with respect to a mark is issued under section 1063(b)(2) of this title to an applicant under subsection (b) of this section, the applicant shall file in the Patent and Trademark Office, together with such number of specimens or facsimiles of the mark as used in commerce as may be required by the Director and payment of the prescribed fee, a verified statement that the mark is in use in commerce and specifying the date of the applicant's first use of the mark in commerce and those goods or services specified in the notice of allowance on or in connection with which the mark is used in commerce."); U.S. PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, TRADEMARK MANUAL OF EXAMINING PROCEDURE § 1109.09(b) (Oct. 2018) [hereinafter TMEP] (discussing PTO review of submitted specimens of use). *But see* 15 U.S.C. § 1126(e) (stating with respect to non-United States nationals applying on the basis of a foreign application that "[t]he application must state the applicant's bona fide intention to use the mark in commerce, but use in commerce shall not be required prior to registration"). *See also* *In Re Cyber-Blitz Trading Servs.*, 47 U.S.P.Q.2d 1638 (Com'r Pat. & Trademarks 1998) ("Applicants who rely solely on Section 44, [15 U.S.C. § 1126,] are not required to demonstrate use in order to obtain registration. In fact, the first time evidence of use usually is required for Section 44 Applicants is upon the filing of an Affidavit of Continued Use under Section 8 of the Trademark Act, 15 U.S.C. §1058. This does not occur until five to six years after registration." (citation omitted)).

²¹ See 15 U.S.C. § 1052.

²² *Id.* § 1052(d).

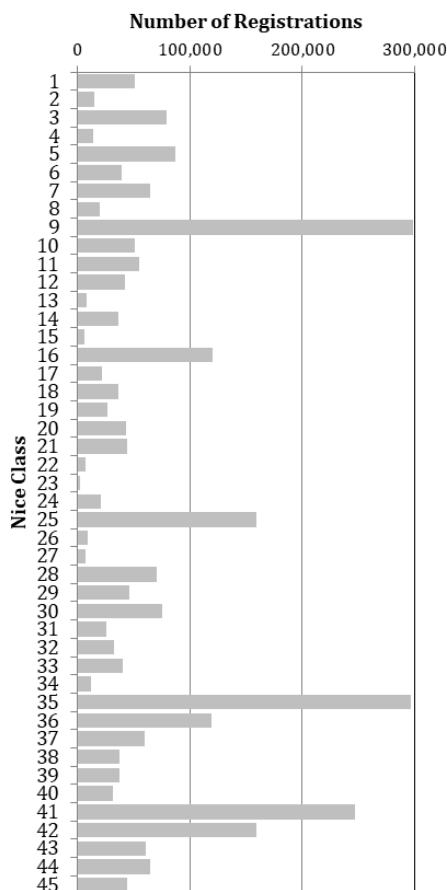
²³ *In re E.I. du Pont de Nemours & Co.*, 476 F.2d 1357, 1361 (C.C.P.A. 1973).

²⁴ See 15 U.S.C. § 1051(a)(2).

²⁵ TMEP, *supra* note 20, § 1401.03 (citing Requirements for a Complete Trademark or Service Mark Application, 37 C.F.R. § 2.32(a)(7)); *see* Nice Classification, WORLD INTELL. PROP. ORG. (2019), <http://www.wipo.int/classifications/nice/en/>.

As shown in Figure 1, the most important classes, as measured by active trademark registrations, are Class 9 (electronic goods), Class 16 (printed matter and publications), 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).

Figure 1: Active Registrations in 2016 by Nice Class of Goods or Services



If the PTO determines that a 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 *Official Gazette*.²⁶ The public then has thirty days from the date of publication to oppose the registration.²⁷ 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.²⁸

²⁶ 15 U.S.C. § 1062(a).

²⁷ *Id.* § 1063(a).

²⁸ *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. *Id.* § 1051(d). Herein, we frequently focus on publication rates rather than registration rates because many intent-to-use applications succeed to publication, but then fail to register

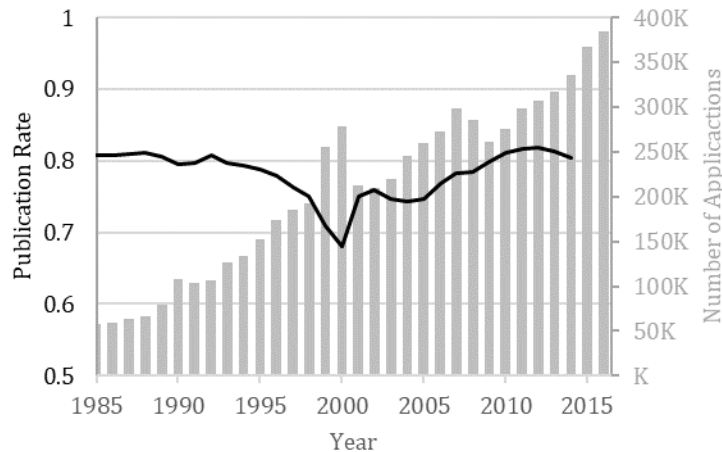
C. The Advantages of Trademark Registration

A trademark need not be registered to be protected by the Lanham Act.²⁹ Nonetheless, the law provides several important incentives to encourage trademark owners to register their marks. Registration confers on the mark a prima facie presumption of validity and of the registrant's ownership of the mark.³⁰ It also confers on the registrant nationwide priority in the mark as of the date of application.³¹ Furthermore, only registered marks may qualify for incontestable status and only the owners of registered marks may qualify for statutory damages against counterfeiters of those marks.³²

D. Trademark Applications to the PTO Have Dramatically Increased in Number

As shown in Figure 2, 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 nonetheless remained steady (represented by the line and left axis in Figure 2). Even during the internet boom, which largely accounts for the spike in applications in 1999 and 2000, publication rates declined only from 0.75 in 1998 to 0.68 in 2000, and then quickly recovered. The implication is that many more mark applications are proceeding to publication over time.

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



because the applicant fails to file a statement of use. *See* Barton Beebe, *Is the Trademark Office a Rubber Stamp?*, 48 HOUS. L. REV. 751, 773, 774 tbl. 9 (2011).

²⁹ *See* 15 U.S.C. § 1125(a) (providing anticonfusion protection to both registered and unregistered marks).

³⁰ *See id.* §§ 1057(b), 1115(a).

³¹ *See id.* §§ 1057(c), 1072.

³² *See id.* § 1065 (possibility of the mark becoming incontestable after five years); *id.* § 1117(a)–(b) (enhanced remedies).

II. The Problem of Trademark Depletion

A. The Conventional Wisdom: The Supply of Trademarks Is Inexhaustible

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 espoused by courts and commentators 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.”³³ 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.³⁴ 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.

B. The New Reality: Chronic Levels of Trademark Depletion

In empirical work published in the *Harvard Law Review*, we show that this conventional wisdom is no longer true—if it ever was. Our data show that the trademark system has already reached chronic levels of “trademark depletion,” particularly in important economic sectors. By trademark depletion, we refer to the process by which a decreasing number of potential trademarks remain unclaimed by any trademark owner. Due to trademark depletion, new trademark applicants are increasingly being forced to resort to second-best, less competitively effective marks. Yet

³³ See, e.g., *Florence Mfg. Co. v. J.C. Dowd & Co.*, 178 F. 73, 75 (2d Cir. 1910) (“It is so easy for the honest 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”); *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.”); Stephen L. Carter, Comment, *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”); Landes & Posner, *supra* note 13, at 274 (“[T]he 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.”); Schechter, *supra* note 10, at 833 (“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))).

³⁴ Stated in its most basic, unqualified form, the 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. Cf. Landes & Posner, *supra* note 13, 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.’”).

registration refusal rates also continue to rise. The result is an increasingly crowded Principal Register that in turn leads to mounting barriers to entry for those seeking to register new marks.

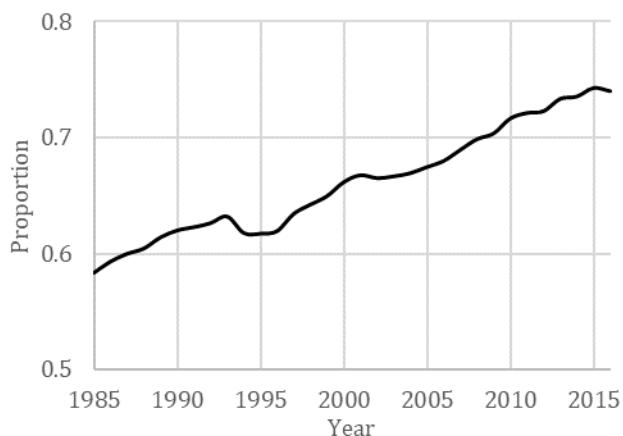
C. Empirical Results

We briefly review here certain of our study's main findings. These findings are derived from six datasets. The most important of these is the PTO's own Trademark Case Files Dataset, which provides detailed information about all 6.9 million trademark applications filed at the PTO from 1982 through 2016.³⁵ To evaluate the extent of trademark depletion, we analyzed all trademark applications filed during this period in light of the most frequently used words and syllables in American English and the most frequently occurring surnames in the United States.³⁶

1. Identical Matches

Considering first identical matches, the data show a steady increase over time in the proportion of word usage in American English consisting of words claimed as single-word trademarks in at least one class of goods or services (Figure 3). To give a sense of how many of the most frequently used words are thereby claimed, in 2016, 20,295 (23.5%) of the 86,408 most frequently used words in American English were claimed as single-word marks. These 20,295 words account for 74.0% of all word usage. We have now reached a stage where, 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.

Figure 3: Proportion of All Word Usage Consisting of Words Claimed as Single-Word Marks by Year, 1985–2016

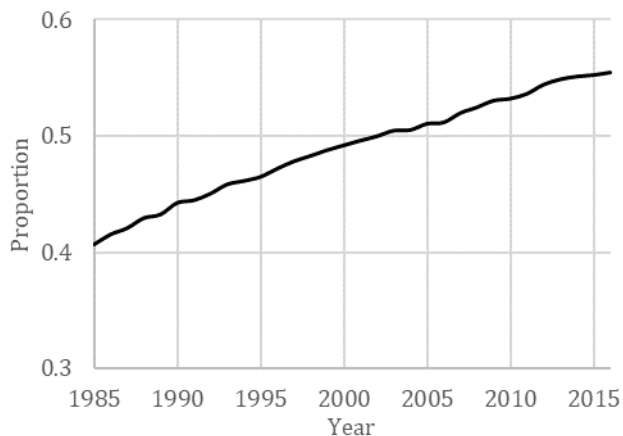


³⁵ The dataset also provides more limited information on the 208,105 trademarks already registered at the PTO as of 1982 that were based on applications filed before 1982.

³⁶ Although trademarks can take many forms, including images, a very high 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. We therefore focus our study on marks containing text.

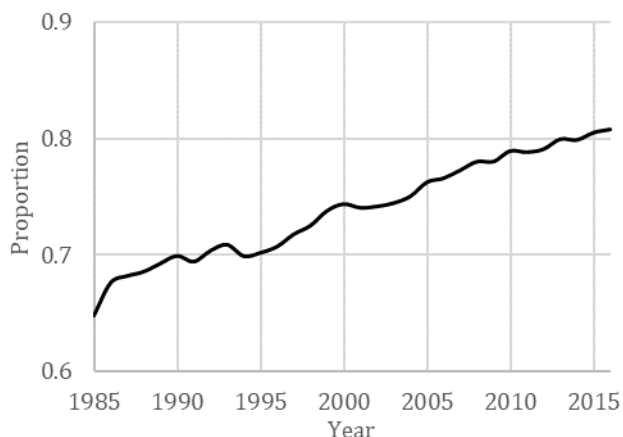
The data also show a steady increase in the proportion of the U.S. population carrying a surname claimed as a single-word trademark (Figure 4). We estimate that at least 55.4% of Americans currently carry a surname that is already claimed as a single-word mark.

Figure 4: Proportion of U.S. Population Carrying a Surname Registered as a Single-Word Trademark by Year, 1985–2016



It is often assumed that new businesses can simply coin new words if currently existing words are already claimed. However, the data show that a large proportion of the most competitively effective neologisms are already claimed. Of the 10,753 most frequently used syllables in American English, 52.4% are already claimed as single-word marks, and these 5,632 syllables account for 80.8% of all syllable usage in our language. As with frequently used words and frequently occurring surnames, the data show a steady increase over time in the proportion of syllable usage consisting of syllables registered as single-word marks (Figure 5).

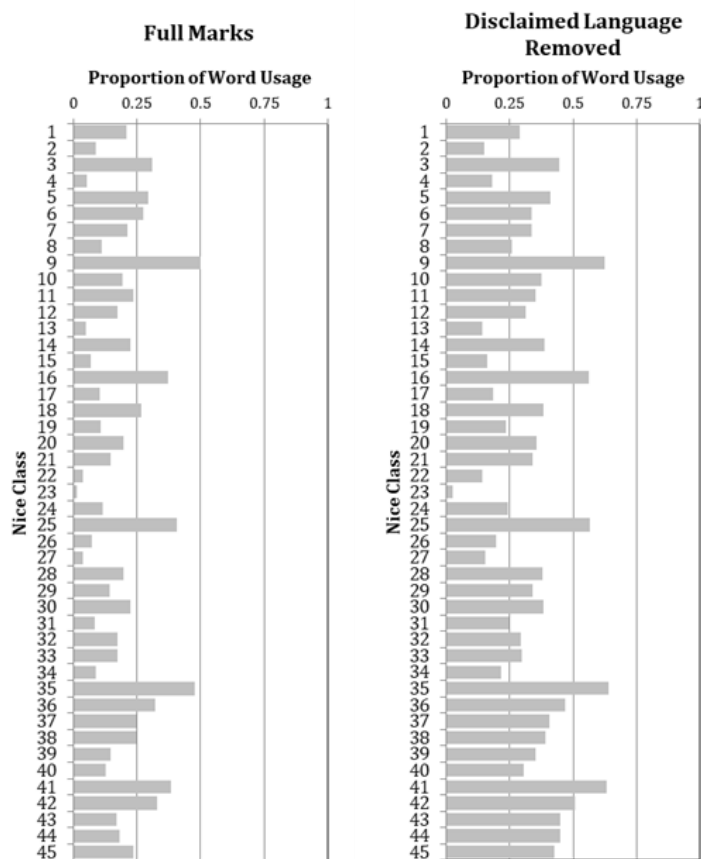
Figure 5: Proportion of All Syllable Usage Consisting of Syllables Registered as Single-Word Trademarks by Year, 1985–2016



While these proportions tend to decrease when we investigate these data at a class-specific level, the more crowded classes, such as Class 9 (electronics goods, including software), Class 25 (apparel goods), and Class 35 (business administration services), have comparably high proportions

of claimed words, surnames, and syllables, as illustrated by our data on the proportion of all word usage consisting of words registered as single-word marks in 2016 by Nice Class (Figure 6).

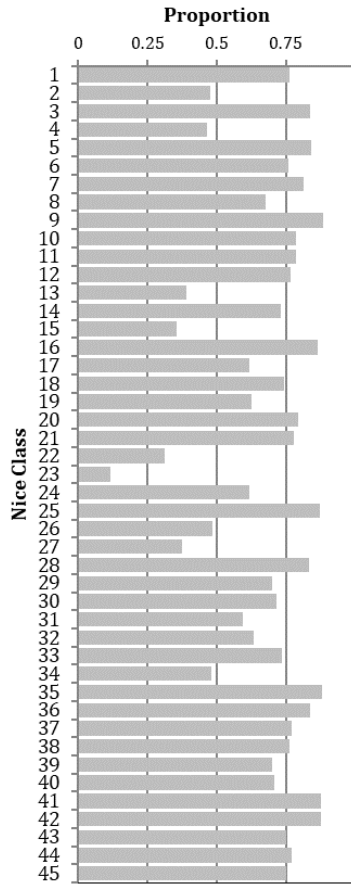
Figure 6: Proportion of All Word Usage Consisting of Words Identically Matching an Active Registration by Nice Class of Goods or Services in 2016, Full Marks and Marks with Disclaimed Language Removed



2. Confusingly Similar Matches

When we move from an analysis of the data based on identical matching to an analysis based on confusing similarity, the extent of trademark depletion is shown to be even more concerning. In our study, we use a very conservative measure of similarity between two words based on edit distance (the number of changes that must be made to transform one word into another). We estimate that 97.1% of the 86,408 most frequently used words in American English are confusingly similar with a mark already registered in at least one class of goods or services. These words account for 89.1% of all word usage in American English. These results are striking even when limited to specific classes of goods or services (Figure 7). In Class 9, covering electronics and software, 88.5% of all word usage consists of words confusingly similar with trademarks currently registered in that class. Similarly, in Class 25, covering apparel goods, currently registered marks are confusingly similar with words constituting 87.2% of all word usage. Our results are similar for confusing similarity for the most frequently occurring surnames.

Figure 7: Proportion of All Word Usage Consisting of Words Triggering Jaro-Winkler Similarity Matches with Active Registrations in 2016 by Nice Class of Goods or Services



3. Trends in Applicant Conduct and Section 2(d) Refusal Rates

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. Our data show the increasing length in word count of applied-for and registered word marks over time. 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 2015, these averages had increased to 2.26 words for all applications filed that year and 2.22 words for all such applications that have resulted in registration (Figure 8). Consistent with these results, 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. Registrations for single-word marks follow the same trend. Our data also similarly show the increasing length in syllable and character count of applied-for and registered word marks over time (Figures 9 and 10).

Figure 8: Length in Mean Word Count of Applied-For and Registered Marks by Filing Year, 1985-2016

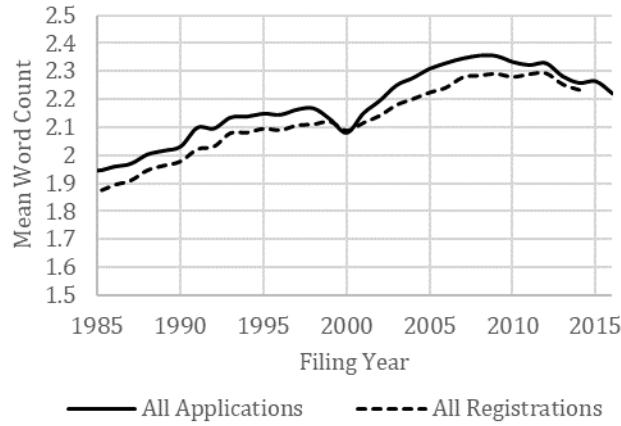


Figure 9: Length in Mean Syllable Count of Applied-For and Registered Marks by Filing Year, 1985-2016

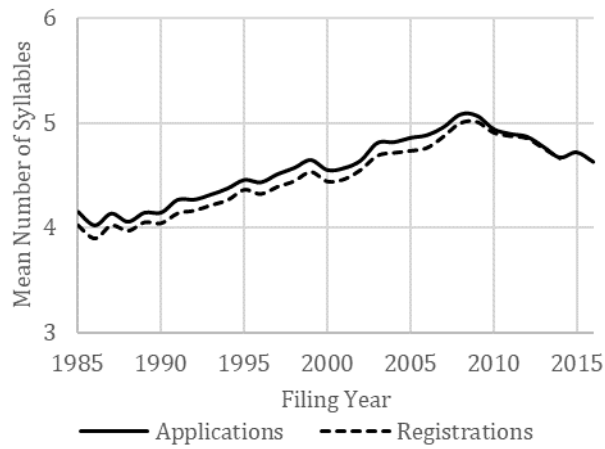
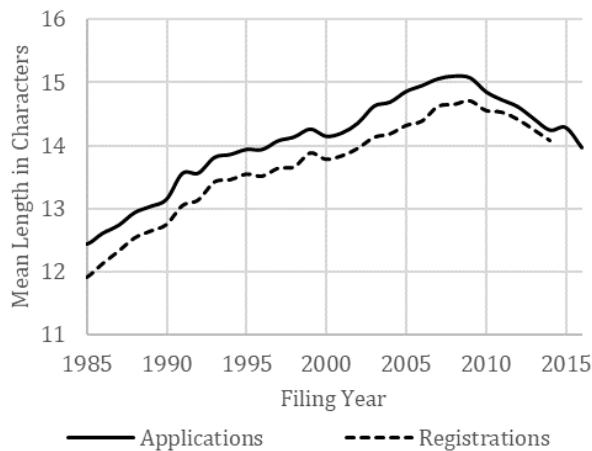


Figure 10: Length in Mean Character Count of Applied-For and Registered Marks in 1985-2016



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. Working from a dataset of all 2.1 million trademark office actions issued by the USPTO from 2003 through 2016, our study reports the increasing rate at which the PTO is refusing applied-for marks on the basis of section 2(d) (Figures 11–12). Despite these trends, one class of applicants appears to be doing fine. Incumbent applications (those based on previous registrations) continue to enjoy very low section 2(d) refusal rates.³⁷

Figure 11: Proportion by Filing Year of Applications Containing Text that Triggered a Section 2(d) Refusal, 2003–2014

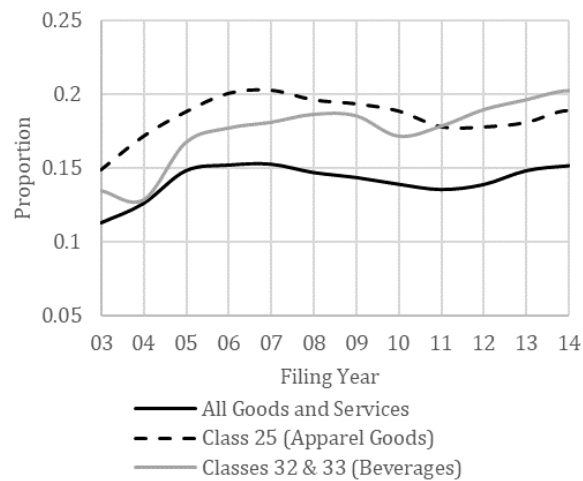
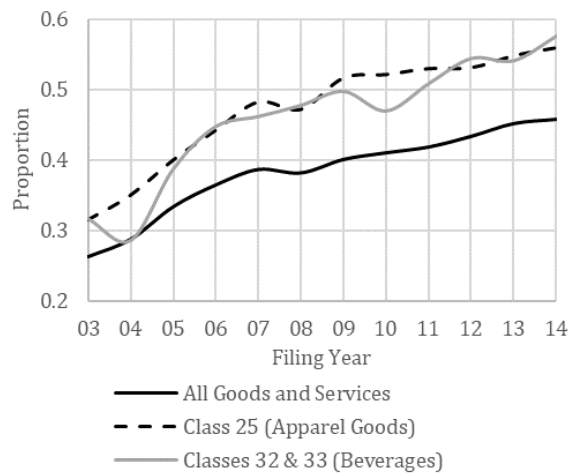


Figure 12: Proportion of Applications Failing to Publish that Received a Section 2(d) Refusal by Filing Year, 2003–2014

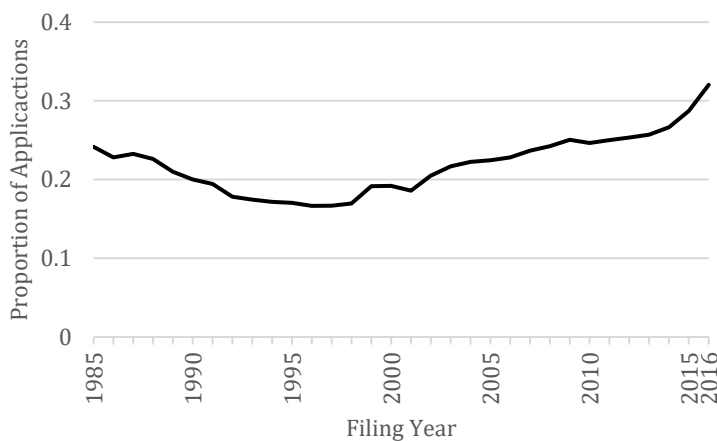


³⁷ Beebe & Fromer, *supra* note 1, at 1009.

4. Effect on Small Businesses

The data suggest that an increasing proportion of trademark registration applications at the PTO are coming from small businesses. We focus on applications from filers who have filed only a single application at the PTO from 1985 through 2016 as a proxy for small-business applicants. Figure 13 shows that since the mid-1990s, the proportion of single-filer applications has been steadily increasing, to nearly one in three in 2016. The data indicate that such applicants are less successful in registering their trademarks. From 1985 through 2016, single-filers achieved a publication rate of 67.6%, while non-single-filers (that is, entities filing more than one trademark application during the period) achieved a significantly higher publication rate of 78.9%. Single-filers also suffered higher section 2(d) refusal rates. Over the period, 14.9% of single-filer applications received a section 2(d) refusal, while only 12.8% of non-single-filer applications did so. These differences are both substantially and statistically significant.³⁸

Figure 13: Proportion by Filing Year of Applications for Trademark Registration Originating from Single-Filers, 1985–2016



Many factors may account for these differences, but we think that the depletion of available, competitively effective trademarks from which new businesses can choose has played a significant role in making it more difficult for firms to register new marks. This is particularly true for small businesses, which typically lack the sophistication and resources to find unclaimed, competitively effective marks and to prosecute those marks to registration.

5. Summary

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, particularly for small businesses. Even using a conservative similarity-matching protocol, nearly all the words we use on a daily basis are already registered or are confusingly similar to an already-registered mark. The same is true with respect to the surnames of

³⁸ Publication rates: $N = 6,692,934$, $p < 0.001$; section 2(d) refusal rates: $N = 4,129,253$; $p < 0.001$.

a very high proportion of American people. 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 (electronic goods), 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). Meanwhile, new applicants are increasingly shifting toward neologisms and longer, more complex, and thus less effective, marks. Yet even these efforts are increasingly failing. Section 2(d) refusal rates for confusing similarity continue to rise. 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 registrations that conflict with them.

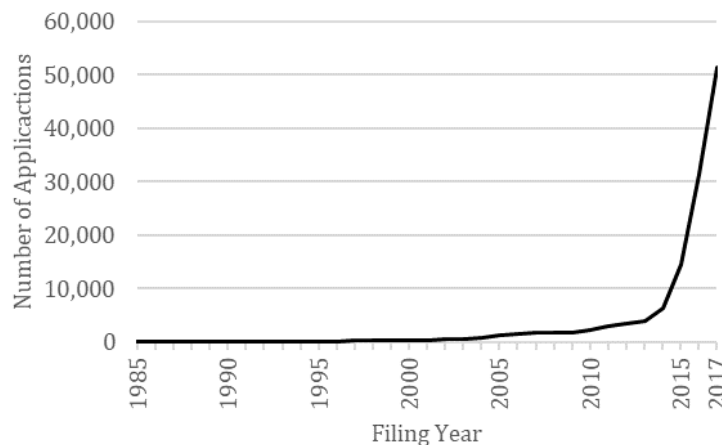
III. Fraudulent Trademark Registrations Originating from China Are Worsening Trademark Depletion

A surge in fraudulent trademark registrations originating from China is making the problem of trademark depletion significantly worse. Since 1985, when trademark applications from China represented just over 0.07% of PTO trademark applications (or 42 overall applications), Chinese filings have increased dramatically. As of 2017, they represent 10.5% of PTO trademark applications (or 51,312 overall applications). Figure 14 depicts the runup in Chinese filings from 1985–2017. Some explain this change in filing patterns as nothing other than that more Chinese-branded goods and services are being sold in the American market.³⁹ Yet there is broad suspicion that a significant part of this rise is attributable to fraudulent applications with false specimens of use that do not comply with U.S. trademark law’s requirement that a mark be used in commerce in connection with goods or services to be registered.⁴⁰

³⁹ Anandashankar Mazumdar, *Chinese Trademark Surge Signals Possible U.S. Market Entry*, BLOOMBERG LAW, Nov. 16, 2018, <https://www.bna.com/chinese-trademark-surge-n57982093952>.

⁴⁰ *Id.*; see also Gershman, *supra* note 3; Tim Lince, *US Trademark Filings from China Soar, But Law Firms Struggle to Capitalise Amid Warnings of Suspicious Activity*, WORLD TRADEMARK REV., Nov. 10, 2017, <http://www.worldtrademarkreview.com/Blog/detail.aspx?g=bf017ce0-493f-419e-bdb7-cf196c183d53>; Nikkei Staff Writers, *supra* note 3.

Figure 14: Number of Applications for Trademark Registration Originating from China by Filing Year, 1985–2017



In this Part, we focus on applications that include fraudulent specimens of use. As we explained above in section I.B, to qualify for registration, trademark applicants must submit images showing their use of the applied-for mark in commerce.⁴¹ In an effort to satisfy this requirement, fraudulent applications typically include digitally-altered or otherwise improperly manipulated images.

In section A below, we report the results of our own empirical study of fraudulent specimens of use in applications originating from China. In the study, we focused on use-based applications originating in China that were filed at the PTO in 2017 solely in Class 25 (apparel goods). We estimate that 66.9% of such applications included fraudulent specimens. The PTO issued refusals on the basis that the applications included fraudulent specimens of use to only 13.4% of these applications. Moreover, of the applications in our sample that appear to have included fraudulent specimens, an extraordinary 59.8% proceeded to publication and then 38.9% proceeded to registration. We conclude that, at least in Class 25, a substantial proportion of fraudulent applications originating from China are currently surviving PTO review and proceeding to registration. In section B, we set forth general data on the increasing number of refusals that the PTO has issued to trademark registration applications on the basis that the applications included fraudulent specimens of use. These data present a disturbing picture, but given our study reported in section A, we think they significantly underestimate the scale of the problem.

A. Estimating the Number of Fraudulent Applications Originating from China

We have estimated the number of fraudulent specimens in use-based trademark applications originating in China and filed at the USPTO in 2017 solely in Class 25 (apparel goods). Based on our study, we conclude that 66.9% of these applications were probably fraudulent.

⁴¹ See *supra* note 20.

To estimate the prevalence of fraudulent specimens, we randomly sampled 365 applications from the 6,752 use-based applications that originated in China and were filed at the USPTO in 2017 solely in Class 25. (This sample allows us to estimate the proportion of fraudulent specimens for the entire population of Chinese use-based applications filed in 2017 solely in Class 25 with a confidence interval of 95% and a margin of error of 5%.) We reviewed all submitted specimens for each application in our sample and coded them for multiple factors that we think indicate to varying degrees the probability that the application's specimen is fraudulent. These factors consist of whether a specimen image:

1. Showed discontinuities that indicated digital alteration;
2. Appeared in a Google reverse image search as matching an image of a product with a different mark of a different company,⁴² or the specimen image matched a specimen image previously submitted to the PTO in connection with a different mark of a different company;
3. Depicted a mark consisting of a nonsense word that is unpronounceable in English and that the applicant indicated has no meaning in any other language;
4. Depicted a tag with irregularities, such as exceptionally poor print quality, the tag being placed on top of another tag, or tags across multiple specimen images having different appearances;
5. Depicted pricing in a foreign rather than U.S. currency or commerce with delivery to a foreign rather than a U.S. address;
6. Depicted a product that carried the mark of another company (such as CHANEL), indicating that the applicant was affixing its applied-for mark to a different company's product;
7. Misspelled the mark;
8. Depicted a branding card not attached to the good;
9. Depicted a screenshot of an ecommerce website (such as on Amazon) to show use in commerce;
10. Depicted a hanging tag to display the mark;
11. Depicted a sticker to display the mark; and
12. Depicted a collar label to display the mark.

Based on our sample, we think it is reasonable to conclude that a very high proportion of Chinese use-based applications filed in 2017 solely in Class 25 were fraudulent. The PTO itself refused 13.4% (or 49) of the 365 applications included in our sample on the basis that the submitted specimen image was digitally altered or otherwise improperly manipulated.⁴³ However, this statistic significantly understates the degree of the problem. Taking into account a subset of the factors listed above that are especially indicative of fraud, we estimate that 66.9% of Chinese use-based applications filed in 2017 solely in Class 25 included fraudulent specimens. Specifically, 66.9% (or 244) of the applications in our sample included a specimen with a discontinuous image, a matching reverse image search image, a price displayed in foreign currency or delivery to a foreign address,

⁴² Google Reverse Image Search, available at <https://www.google.com/imghp?hl=en>, is a free online search service that allows users to upload images and search the internet for identical or similar images. Google states that "[t]he pictures you upload in your search may be stored by Google for 7 days. They won't be a part of your search history, and we'll only use them during that time to make our products and services better." See Google Search Help, <https://support.google.com/websearch/answer/1325808?co=GENIE.Platform%3DAndroid&hl=en>.

⁴³ With respect to the entire population of 6,752 Chinese use-based applications filed in 2017 solely in Class 25 from which we sampled, 899 (or 13.3%) of these applications received a digital-alteration refusal.

the mark of another company, a nonsense word for a mark, tag irregularities, a misspelled mark, and/or a branding card not attached to the good. Many of these 244 applications raised multiple such red flags. Nonetheless, 59.8% proceeded to publication and then 38.9% proceeded to registration.

In what follows, we provide more detail on certain of these factors.

1. Discontinuities in Specimen Images Indicating Digital Alterations

We found that 26.0% (or 95) of the applications in our sample included specimen images showing discontinuities that indicated digital alteration. For example, the specimen shown below for Application Serial No. 87,300,262 for INMUINS and accompanying logo shows discontinuities indicative of alteration, yet the USPTO did not refuse registration on that basis and the application eventually registered as Registration No. 5,275,912.



2. Google Reverse Image Search Results and Matches to Previously Submitted Specimens for Different Marks

We further found that 12.6% (or 46) of the applications in our sample included specimen images that either matched a Google reverse image search image associated with a different company

or mark or matched another specimen previously submitted to the PTO for another mark.⁴⁴ For example, shown below on the left is a specimen image that the applicant submitted in connection with Application Serial No. 87,289,826 for VANCOL. Below on the right is the image produced by a Google reverse image search query of the specimen image. The image on the right is used on numerous websites (for example, <https://sg.carousell.com/p/winter-snow-wool-boots-191724168/>). The application did not receive any specimen-related refusals and registered as Registration No. 5,270,328.



Two other examples may be instructive. The set of images below depicts, on the left, the specimen submitted in connection with Application Serial No. 87,362,577 for BEAL, and on the right, an image yielded by a Google reverse image search of the specimen image. The reverse image search image shows the same image but with Burberry branding appearing at <https://m.88tph.com/suca/12486888.html>. The PTO refused this application on the basis that the specimen was digitally altered but did not detect the reverse image match.



⁴⁴ Our research using Google reverse image search benefitted greatly from an unpublished seminar paper by one of our students. See Aidan Ann Murray, *Fraud at the USPTO* (2019) (working paper on file with authors).

Similarly, Application Serial No. 87,309,926 for FIDIKO included the specimen image shown below on the left. On the right appears the reverse image search match as it appears with other branding at <https://www.solidrop.net/product/neoprene-swimwear-sport-style-bikini-women-bathing-suit-triangle-bikini-set-top-and-bottom.html>. The PTO refused this application on the basis that the specimen was digitally altered, but it did not detect the reverse image match.



Finally, shown below are side-by-side images of a very close match between an application specimen in our sample and a previously submitted specimen for a different mark. On the left is a specimen image for Application Serial No. 87,223,407 for FAYALEQ, filed on November 2, 2016 and registered on June 20, 2017 as Registration No. 5,227,023. On the right is a specimen image for Application Serial No. 87,350,423 for SWTDDY, filed on February 27, 2017. The PTO issued seven different specimen-related refusals of this application but eventually registered the mark on April 16, 2019 as Registration No. 5,728,428.



3. Marks Consisting of Unpronounceable Nonsense Words

We found that 44.4% (or 162) of the applications in our sample use a mark that consists of a nonsense word that is unpronounceable in English and that the applicant indicated has no meaning in any other language. Some examples of these nonsense marks in our sample are KIEDVLI, KELUOSIBODE, KXCFCYS, ALSYIQI, and KJAHSLK.

4. Hang Tags, Stickers, Collar Labels, Ecommerce Websites, and Foreign Pricing

We found that 55.3% (or 202) of the applications in our sample submitted a specimen with a hanging tag showing the mark; 4.7% (or 17) submitted a specimen with a sticker showing the mark; and 32.6% (or 119) submitted a specimen with a collar label showing the mark. Although these three factors can be consistent with legitimate use in commerce, we think the presence of any one of these factors raises a red flag suggesting the need for further inquiry.

Some of these tags had irregularities that we thought raised yet more significant red flags. We found tag irregularities in 3.0% (or 11) of the applications in our sample. These irregularities include the mark appearing crooked on the tag, the print quality of the mark on the tag being exceptionally poor, the tag being placed atop a preexisting tag, tags across multiple specimens for the same mark having different appearances, and a tag being ripped off of the specimen. Shown below is an example of collar labels of different appearances across the specimens (Application Serial No. 87,544,646 for MAXSOFT, with 2 different styles of collar labels across two specimens). The examiner did not note this inconsistency, and the mark was registered as Registration No. 5,658,920.



We further found that 15.1% (or 55) of the applications in our sample submitted a screenshot of a good for sale on an ecommerce site, such as Amazon, to show use in commerce. Here, too,

specimen images in the form of ecommerce websites can be consistent with legitimate use, but also raise concerns that merit further inquiry.

Additionally, 1.4% (or 5) of the applications in our sample submitted a specimen depicting pricing in a foreign currency or commerce with delivery to a foreign rather than a U.S. address. This may indicate use in commerce, but not use in U.S. commerce. An example (Application Serial No. 87,359,150 for COTTON COMING) is below. The tag depicted in the specimen shows a price of 28 yuan. The PTO refused to register this application on the basis that the specimen image was digitally altered. The applicant then abandoned the application.



5. Specimens Depicting Other Companies' Trademarks

We found that 5.2% (or 19) of the applications in our sample included a specimen image that displayed the mark of another company on one of its specimens, indicating that the specimen consisted of a different company's product. An example is shown below. Application Serial No. 87,351,947 for INMOPO included a specimen image showing a product that also carried the mark ZERACA, which is a brand of swimwear (<https://www.zeraca.com/>). The application received no specimen-related refusal and registered on October 17, 2017 as Registration No. 5,309,950.



As another example, consider Application Serial No. 87,706,203 for ROOZOOE. The application included the specimen shown below, which displayed a hangtag for ROOZOE but also displayed the mark of CHANEL repeatedly along the sleeves, something noted by the examining attorney in their refusal of registration due to the deficiency of the specimen.



6. Additional Indicia of Fraudulence

We also briefly note other factors that suggested that certain specimens in our sample were fraudulent. In two applications (0.6% of our sample of 365), the specimens displayed a misspelling of the mark. For example, shown below is a specimen image from Application Serial No. 87,534,972 in which the applied-for mark CYCLING STARS was misspelled on the specimen product as “Cycling Stars.” The application was registered as Registration No. 5,411,978. Also shown below is the specimen image from another application, which used a fake store as a specimen (Application Serial No. 87,339,443, which registered as Registration No. 5,349,124).



B. Fraudulent-Specimen Refusals by PTO Are Significantly Increasing

With respect to all trademark applications (not just our sample, and not just those originating in China), our dataset of all trademark office actions issued by the PTO from 2003 through 2016 enables us to estimate the number of office actions that the PTO has issued on the basis that the

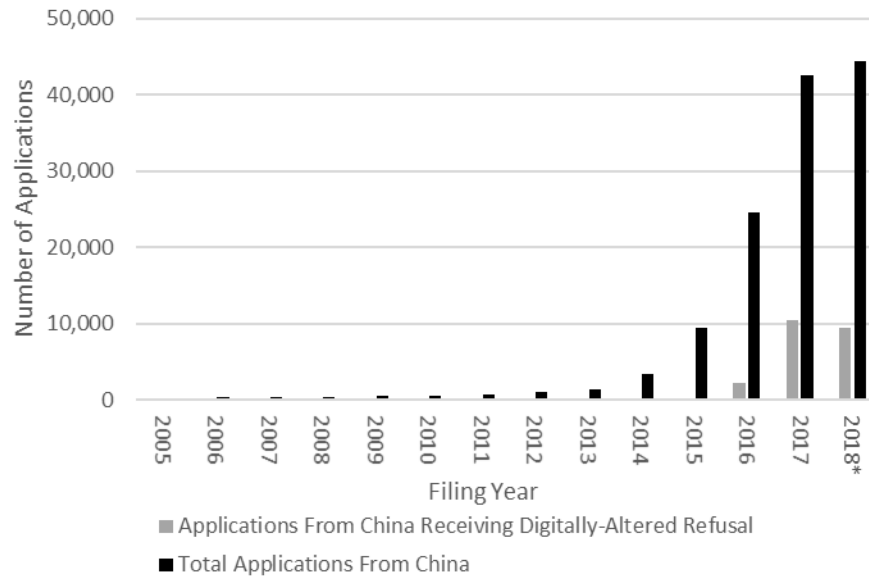
application included a digitally-altered specimen. Our data indicate that the PTO first issued an office action on this basis in 2012 in connection with Application Serial No. 85,549,660 for the mark ALTER EGO, which originated in the United States. Table 1 below indicates that the PTO issued digital-alteration refusals to 12,973 (or 0.6%) of the 2,154,990 applications filed for registration on the Principal Register in the years 2012 through 2017.

Table 1
Number of Applications Per Year Receiving
Digital-Alteration Refusals, 2012-2017

Filing Year	Applications Receiving Digital- Alteration Refusal	Total Applications
2012	1	306,861
2013	19	317,265
2014	48	335,982
2015	180	368,388
2016	3,473	389,307
2017	9,252	437,187
Total	12,973	2,154,990

Focusing now on applications originating in China, a very large proportion of applications receiving digital-alteration refusals originate in China. Specifically, 9,229 (or 71.1%) of the 12,973 applications filed from 2012 through 2017 that received digital-alteration refusals were Chinese in origin. Figure 15 below shows the significant increase since 2005 in the number of Chinese-origin applications (in any class) and in the number of digital-alteration refusals issued to those applications.

Figure 15
Number of Use-Based Trademark Registration Applications
from China Filed at PTO and Number Refused on Basis
That Specimen Was Digitally Altered, by Year, 2005-2018



*Projected number of applications refused on basis that specimen was digitally altered based on applications filed in first three months of 2018

As for the distribution by class of goods or services of applications receiving a digital-alteration refusal, Figure 16 below indicates the proportion and number of applications in each class filed at the PTO (from all countries, not just from China) from 2014 through 2017 that received a digital-alteration refusal. Class 9 (electronics goods) had the highest number of digital-alteration refusals with 3,062, and these constituted 1.3% of all applications filed in that class for that time period. Class 25 (apparel goods) also had a very high number of digital-alteration refusals, with 2,180, and these constituted 1.3% of all applications filed in that class for the time period.

Figure 16
Proportion and Number of Applications Filed at PTO
That Received a Refusal on the Basis That the Specimen
Was Digitally Altered, by Nice Class, 2014-2017

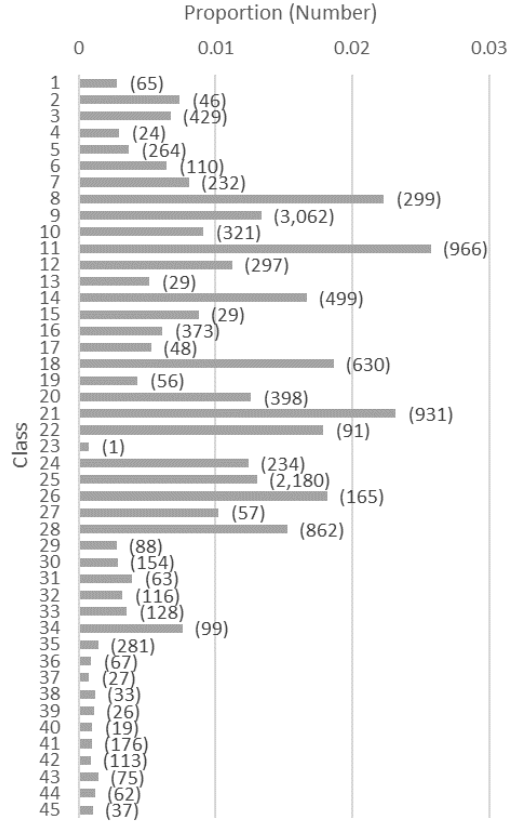
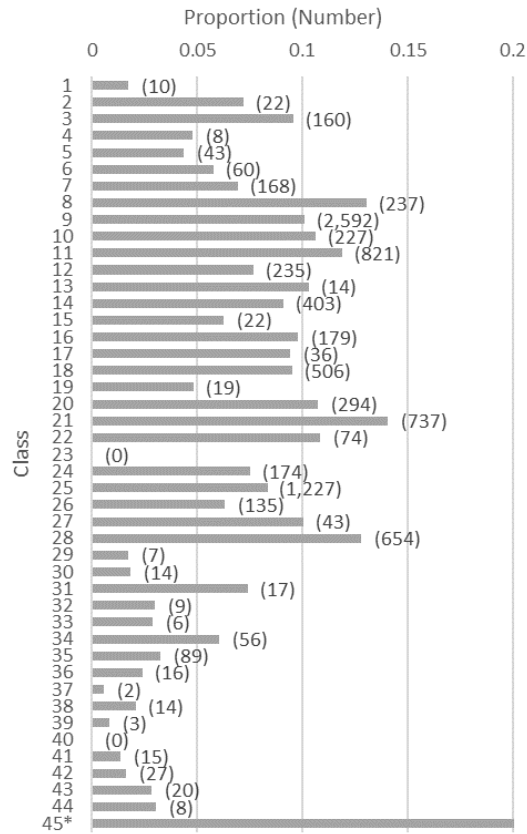


Figure 17 shows comparable data for applications originating in China. (Note that the scale of the x-axis is different from that in the previous figure.) Certain classes show high proportions of applications originating from China receiving digital-alteration refusals. For example, 14.1% of Chinese applications in Class 21 (including household utensils, glassware, and porcelain) received digital-alteration refusals, and 13.0% of applications in Class 8 (including cutlery) received digital-alteration refusals.

Figure 17
Proportion and Number of Applications Filed at PTO
from China That Received a Refusal on the Basis That the Specimen
Was Digitally Altered, by Nice Class, 2014-2017



*For Class 45, two applications originating in China were filed and both received digital-alteration refusals.

We note that applications may be refused for including fake specimens for reasons other than that the specimen image was digitally altered. For example, an unaltered specimen image may show the applied-for mark being used along with some other company's mark (as in the CHANEL example above), and on that basis the PTO may refuse registration. However, we think that the data showing in which classes digital-alteration refusals are most prevalent likely indicate more generally where fake specimens are most prevalent.

C. Summary

Our study reported in section A suggests how prevalent fraudulent trademark specimens are in use-based applications originating from China, at least those filed solely in Class 25 (apparel goods). Applicants submitting fraudulent specimens are not demonstrating the requisite use in commerce. Each such application that proceeds to registration contributes to trademark clutter by adding a mark not being used in commerce on the Principal Register. Trademark clutter in turn worsens trademark depletion by making fewer marks available for businesses that legitimately want to use one of these registered marks. Although the PTO is detecting some fraudulent specimens at

increasingly elevated levels and refusing applications on that basis, as shown in section B, our study in section A suggests that there is very possibly much more fraudulence in specimens than the PTO is currently detecting.

IV. The Costs of Trademark Depletion and Clutter on the Principal Register

There are a series of practical implications that flow from increasing rates of trademark depletion and clutter on the Principal Register.

A. The Costs of Trademark Depletion

Consider first trademark depletion. Trademark depletion is a problem because it undermines trademark law's goals of promoting efficient and fair competition and minimizing consumer search costs. In particular, 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. Moreover, entrants are generally constrained to settle for less effective marks, such as longer and more complex marks, that minimize the advertising power of these marks. New entrants also do not enjoy an additional advantage of incumbents. 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.

Although new firms are still finding trademarks to register and are still managing to compete, 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. Trademark depletion also increases consumer search costs—and in a similarly gradual way—because consumers must cope with less efficient marks and a more crowded field of marks in the marketplace.

The effects of trademark depletion on small businesses in particular are especially troubling. As shown above, small businesses tend to have more difficulty registering their trademarks on the Principal Register. As the supply of unclaimed, competitively effective marks continues to decline, these difficulties will only increase.

B. The Costs of Clutter on the Principal Register

Trademark depletion causes harmful effects even when all registered trademarks are in compliance with trademark law's requirements, including use in commerce. Compounding these problems, however, is that it has become clear that some sizeable portion of registered marks are not in such compliance. Specifically, in 2012, the PTO instituted a two-year pilot program that randomly audited a sample of trademark registrations to determine if they actually met the statutory requirement of use with respect to all or even any of the goods or services specified in the

registration.⁴⁵ 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:

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 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.⁴⁶

At the conclusion of the two-year pilot period, the PTO reported the results of the audit program.⁴⁷ Of the 500 audited registrations, approximately half could not be verified as being in use as claimed.⁴⁸ 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.⁴⁹ In light of the significant proportion of "deadwood" registrations that the pilot program revealed, the PTO recently finalized a rule change that makes its auditing efforts permanent. Under the rule, the PTO will each year randomly audit up to 10% of continuing-use affidavits filed that year "in which the mark is registered for more than one good or service per class."⁵⁰

In sum, it is important to declutter the trademark register both to decrease—or at least not increase—rates of trademark depletion and to maintain the register's integrity. Furthermore, decluttering the register will improve competition in the marketplace. In particular, it will help to lower depletion-related barriers to entry that benefit incumbent businesses at the expense of new entrants and benefit large businesses at the expense of smaller ones. A decluttered register also ensures that the Principal Register can be trusted and can be used as a reliable resource by businesses searching it to see which marks have already been claimed.

⁴⁵ Changes in Requirements for Specimens and for Affidavits or Declarations of Continued Use or Excusable Nonuse in Trademark Cases, 77 Fed. Reg. 30,197 (May 22, 2012) (codified at 37 C.F.R. §§ 2.161, 7.37).

⁴⁶ *Id.* at 30,197.

⁴⁷ U.S. PATENT & TRADEMARK OFFICE, POST REGISTRATION PROOF OF USE PILOT STATUS REPORT (2014), http://www.uspto.gov/trademarks/notices/Post_Registration_Proof_of_Use.doc.

⁴⁸ *Id.* at 1.

⁴⁹ *Id.*

⁵⁰ 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) (codified at 37 C.F.R. §§ 2.161, 7.37).

V. Helpful Reforms to Trademark Law

Because the worsening extent of trademark depletion and clutter is impairing the integrity of the register, damaging competition, and harming small businesses, we support a number of reforms to trademark law that build upon proposals for which we advocated in our *Harvard Law Review* article. These reforms will help to clear the Principal Register of unused marks and thereby mitigate troublesome historical trends we identify in our article's empirical study that reduce competition and that hurt consumers.

A. Ex Parte Reexamination and Expungement

Two such reforms we support are new processes for ex parte reexamination of registered marks and expungement of registered marks that were not used in commerce before registration and should not have been registered in the first instance. Trademark law currently provides third parties with two opportunities to ensure that a mark is not improperly on the Principal Register: opposition and cancellation. Both are deficient in important respects. Opposition, discussed above, provides an opportunity for third parties to prevent a mark from being registered in the first instance.⁵¹ Any party that believes it would be harmed by the registration may file an opposition to the registration of the mark within thirty days of the mark's publication.⁵² If the registration is successfully opposed, the mark does not proceed to registration.⁵³ For all marks that proceed to registration, for a five-year period following the date of registration, a third party may petition to cancel the registration on any basis.⁵⁴ After five years have passed from the date of registration, a third party may petition to cancel a registration for only a limited number of reasons.⁵⁵ At this juncture, a third party cannot petition to cancel the registration on the ground that the mark is merely descriptive (and consumers have not learned that it is a designation of source) or on the ground that the registered mark is confusingly similar with a previously used mark.

Opposition and cancellation are insufficient in crucial ways, including the short time period in which an opposition can be filed and the limited grounds for cancellation after five years of registration. But their biggest limitation is their high cost, which can be burdensome to smaller businesses. One study reports that the average cost of a trademark opposition in the United States ranges from \$150,000 to \$500,000,⁵⁶ whereas another estimates the median cost of a U.S. opposition or cancellation proceeding to be \$95,000.⁵⁷ According to the author of one of these studies, cancellation as it stands "entails such significant costs that it may deter smaller companies ... from pursuing or defending opposition proceedings, and might lead to unnecessary or ill-advised

⁵¹ *Supra* section I.B.

⁵² See 15 U.S.C. § 1063. Oppositions are very rare. For applications filed from 1985 through 2014, only 2.10% were opposed and only 0.90% were opposed successfully.

⁵³ *Id.*

⁵⁴ *Id.* § 1064(1).

⁵⁵ *Id.* § 1064(3).

⁵⁶ Paul F. Kilmer, *The Value Equation of Trademark Oppositions: A Multinational Comparison of Costs and Perceived Benefits*, INTABULLETIN, Mar. 1, 2013, <https://www.inta.org/INTABulletin/Pages/TheValueEquationofTrademarkOppositionsAMultinationalComparisonofCostsandPerceivedBenefits.aspx>.

⁵⁷ AIPLA, REPORT OF THE ECONOMIC SURVEY 2015, at 39 (2015), <http://files.ctctcdn.com/e79ee274201/b6ced6c3-d1ee-4ee7-9873-352dbe08d8fd.pdf>.

settlements that do not benefit or protect consumers.”⁵⁸ This study also finds that “opposition proceedings in the United States are vastly more expensive than in Australia, Brazil, Canada, China, the European Union (OHIM), India and Japan.”⁵⁹

To help diminish rates of trademark depletion and bolster the integrity of the register, we therefore support the provision of less expensive ex parte proceedings that are available more comprehensively to allow third parties to remove improperly registered trademarks from the register. It is crucial that trademark law make it easier to cull marks from the Principal Register that are not in use, that have been abandoned, or that otherwise do not warrant registration, freeing them for use by others. Businesses could then have a broader pool of competitively effective marks from which to choose new marks, both benefiting competition and lowering consumer search costs. Moreover, such reforms would boost the integrity of the register.

B. Enabling the PTO on Its Own Authority to Institute Ex Parte Reexamination and Expungement Proceedings

After the PTO has issued a trademark registration, its ability to cancel the registration on its own initiative is currently severely limited, even when the PTO has itself discovered new facts that show that the mark should not have been registered. During the sixth, tenth, and each successive tenth year following the date of registration, the registrant must file an affidavit verifying that it continues to use the mark in commerce.⁶⁰ This affidavit must include specimens of use.⁶¹ The PTO’s review of these affidavits and specimens provides the only means by which it can cancel a registration on its own initiative.⁶² In essence, if the PTO becomes aware of new facts that show that a mark should not have been registered, it must either rely on third-party challenges to the registration or wait until the registrant is required to file an affidavit of continuing use.

By contrast, the PTO currently has significant authority to reexamine patents on its own initiative *at any time*. Section 303(a) of the Patent Act provides the Director with the authority “[o]n his own initiative, and any time” to determine whether prior art “discovered by him” raises a “substantial new question of patentability.” 35 U.S.C. § 303(a). For ease of reference, we provide the full statutory subsection below with the relevant language in boldface:

⁵⁸ Kilmer, *supra* note 56; accord Glynn S. Lunney, Jr., *Two-Tiered Trademarks*, 56 HOUS. L. REV. 295, 329 n.129 (2018) (observing that “this cost [of opposition or cancellation] remains above the level that some small businesses will be able to afford”).

⁵⁹ Kilmer, *supra* note 56.

⁶⁰ See 15 U.S.C. § 1058(a).

⁶¹ See 15 U.S.C. § 1058(b)(1)(C).

⁶² See *Lipton Indus., Inc. v. Ralston Purina Co.*, 670 F.2d 1024, 1029-30 (C.C.P.A. 1982) (“[N]o ex parte vehicle for removing ‘dead’ registrations from the register is provided in the statute except for the provisions of [15 U.S.C. § 1058] requiring an affidavit or declaration of use to be filed during [specified periods]. There is no procedure for the Commissioner of Patents and Trademarks to initiate action against defunct marks which appear in registrations.”). The PTO has relied on 15 U.S.C. § 1058 to cancel registrations, in whole or in part, based on audits to determine if the registrant’s use actually meets the statutory requirement of use with respect to all or even any of the goods or services specified in the registration. See *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) (codified at 37 C.F.R. §§ 2.161, 7.37).

(a) Within three months following the filing of a request for reexamination under the provisions of section 302 , the Director will determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request, with or without consideration of other patents or printed publications. **On his own initiative, and any time, the Director may determine whether a substantial new question of patentability is raised by patents and publications discovered by him or cited under the provisions of section 301 or 302.** The existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office.⁶³

Based on our study of the fraudulent trademark applications originating in China that we discussed above in Part III, we think that it is likely that trademark examining attorneys within the Office will periodically become aware through their own research of facts that will lead them to believe that previous registrations should not have been issued. For example, in comparing pending applications to previous registrations, examining attorneys may recognize the use by multiple applicants or registrants of the same specimen of use images, each slightly digitally altered to show a different trademark. Under current law, the PTO has no authority after a registration has issued to demand further information from any registrant who submitted suspect specimen of use images. We therefore support reforms that would provide the PTO with this authority. Furthermore, we anticipate that this authority may become more useful as the PTO develops enhanced technological means to compare specimen of use images and to expose other modes of fraudulent conduct.

C. Instituting Trademark Examining Attorney Specialization

We further advocate that the PTO consider returning to a system in which trademark examining attorneys specialize in particular Nice classes of goods or services. As of November 3, 2002, the PTO switched from a system in which incoming trademark applications were assigned to examiners who specialized in particular classes of goods or services specified in the application to a system in which incoming applications were randomly assigned to non-specialized examiners.⁶⁴ Our data indicate that more experienced trademark examiners currently tend to approve for publication a higher proportion of the applications they review than do less experienced examiners. As Figures 18 and 19 indicate, this effect became apparent after the November 2002 shift to non-specialized examiners. This may be symptomatic of a situation in which non-specialized examiners are permitting applications to go forward that specialized examiners would have refused. On this basis,

⁶³ 35 U.S.C. § 303(a). *See also* MANUAL OF PATENT EXAMINING PROCEDURE § 2239 (discussing the process for reexamination ordered at the Director’s initiative, including when “an Office employee becomes aware of an unusual fact situation in a patent which he or she considers to clearly warrant reexamination”); 37 C.F.R. § 1.520 (“The Director, at any time during the period of enforceability of a patent, may determine whether or not a substantial new question of patentability is raised by patents or printed publications which have been discovered by the Director or which have been brought to the Director’s attention, even though no request for reexamination has been filed in accordance with § 1.510 [relating to ex parte requests for reexamination] or § 1.913 [relating to requests for inter partes reexamination].”).

⁶⁴ *See* STUART GRAHAM ET AL., U.S. PATENT & TRADEMARK OFFICE, THE USPTO TRADEMARK CASE FILES DATASET: DESCRIPTIONS, LESSONS, AND INSIGHTS 18 (2013), https://www.uspto.gov/sites/default/files/ip/officechiefecon/Trademark_Case_File_Data_Documentation_31January2013_final.pdf.

we think that it would be valuable further to evaluate whether a specialized examiner system might improve the quality of trademark registrations.

Figure 18: Specialized Examiners: Examiner Publication Rate by Number of Applications Reviewed, Jan. 1, 1990 – Nov. 2, 2002

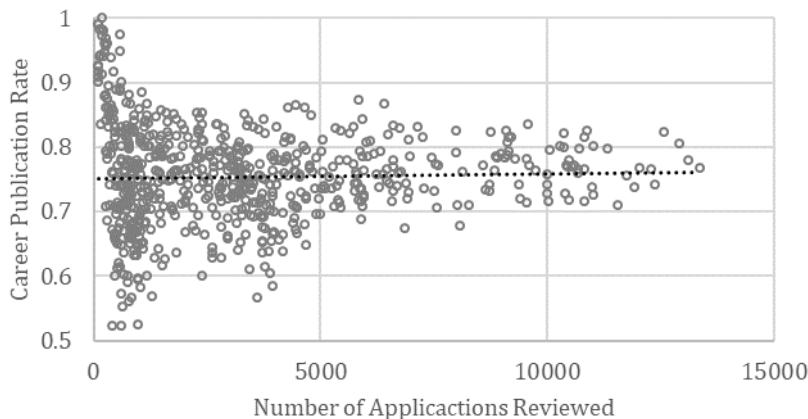
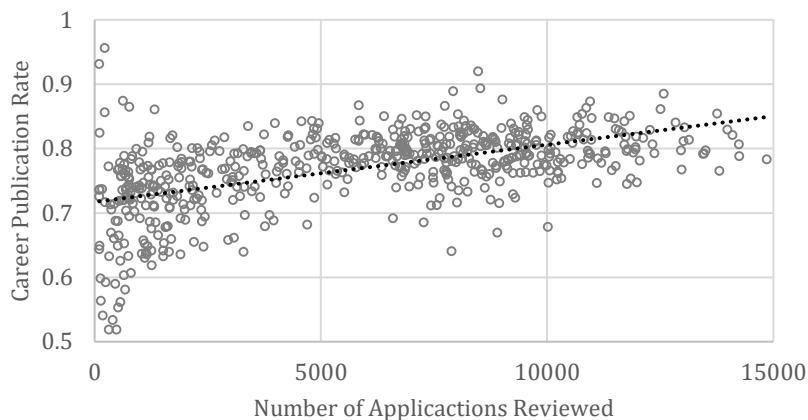


Figure 19: Randomly-Assigned Examiners: Examiner Publication Rate by Number of Applications Reviewed, Nov. 3, 2002 – Dec. 31, 2014



The PTO has already initiated some degree of specialization by recently designating certain examiners to address the issue of cannabis and cannabis-related marks.⁶⁵ We think that the PTO might similarly be well-served to designate certain examiners to address the problem of fraudulent applications originating from China. We would encourage Congress to consider further specialization efforts for trademark examiners at the PTO.

⁶⁵ See Trevor Little, *Speculation Mounts over USPTO Special Cannabis Unit as Practitioners Vent Anger over Examination Delays*, WORLD TRADEMARK REV. (Apr. 8, 2019), <https://www.worldtrademarkreview.com/brand-management/speculation-mounts-over-uspto-special-cannabis-unit-practitioners-vent-anger>.

D. Reworking Trademark Incontestability

We also advocate that trademark law be reformed to require the PTO to be more cautious, as Professor Rebecca Tushnet advocates, in granting incontestability to registered marks.⁶⁶ 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 the absence of a final decision adverse to the mark's continuing registration.⁶⁷ Once a mark achieves incontestable status, it is susceptible to invalidation only on a limited number of grounds.⁶⁸ Most importantly, the mark can no longer be invalidated for being descriptive and lacking the requisite secondary meaning.⁶⁹ Tushnet presents evidence of marks undeserving of incontestability status that are allowed to claim it due to the PTO's lack of substantive examination of incontestability claims made to the PTO.⁷⁰ This is troublesome generally and particularly so for descriptive marks. Given the severe costs associated with trademark depletion, trademark law should be reformed to require substantive examination of at the PTO of claims of incontestability; prevent wrongful assertions of incontestability by registrants that were not entitled to claim it; and possibly further limit the availability of incontestable status for descriptive marks.

E. Other Possible Reforms

We also are supportive of a host of other potential reforms that would improve the problems of trademark depletion and clutter, including:

- Increased fees, particularly for maintenance (currently only \$125 per class for online filings that attest to continued use of the trademark⁷¹), renewal (currently only \$300 per class for online filings⁷²), and incontestability (currently only \$200 per class for online filings⁷³);
- A two-tiered fee structure, with a set of higher fees for non-small businesses and another set of lower fees for small businesses;
- A form of “congestion pricing,” in which those seeking registration, maintenance, or renewal of marks in classes with higher degrees of depletion pay a higher fee, to ensure that registrants in especially depleted areas internalize some of the costs that they are imposing on the trademark system by adding to that depletion or to dissuade firms from adopting marks that would significantly increase depletion;⁷⁴

⁶⁶ Rebecca Tushnet, *Fixing Incontestability: The Next Frontier?*, 23 B.U. J. SCI. & TECH. L. 434 (2017).

⁶⁷ 15 U.S.C. § 1065.

⁶⁸ *Id.* § 1115(b).

⁶⁹ *Park 'N Fly, Inc. v. Dollar Park & Fly, Inc.*, 469 U.S. 189, 196–97 (1985).

⁷⁰ Tushnet, *supra* note 66, at 440-49.

⁷¹ 37 C.F.R. § 2.6(a)(12)(ii).

⁷² *Id.* § 2.6(a)(5)(ii).

⁷³ *Id.* § 2.6(a)(13)(ii).

⁷⁴ *Cf.* Jonathan Remy Nash, *Economic Efficiency Versus Public Choice: The Case of Property Rights in Road Traffic Management*, 49 B.C. L. REV. 673, 694–739 (2008) (analyzing the economic advantages of congestion pricing over building new roadways to address road traffic).

- Have the PTO focus its efforts in auditing registrations most substantially on those areas of the trademark system that are most in need of clearing, namely, areas with high levels of depletion;
- Tighten the relatively permissive standard allowing the extension of time in which an intent-to-use applicant must file a statement of use;⁷⁵
- Insist on more robust and direct evidence that applied-for descriptive marks have acquired distinctiveness, which can currently be established circumstantially, through evidence of advertising expenditures, sales, prior registrations, and long-term use of the mark in commerce,⁷⁶ and through weak evidence; and
- Require the PTO to study and report annually on fraudulence on and the integrity of the Principal Register.

Although we are sensitive to an argument that trademark registrants have settled expectations in the continued registration of their marks, we think those arguments hold little to no weight in the face of the challenges of trademark depletion and clutter on the Principal Register. For one thing, any settled expectations that trademark law has fostered in registrations occurred long ago based on very different background assumptions: that the supply of competitively effective trademarks was inexhaustible and that there were no resource constraints in granting new trademark rights. The increasing and alarming rate of trademark depletion shows that these assumptions are no longer justified, if they ever were. Moreover, there should be no settled expectations in trademark rights that were never warranted or are no longer warranted based on trademark law's clear substantive requirements, such as that a mark be used in commerce. If a registrant is not using a mark in commerce, the mark does not deserve to remain on the Principal Register.

⁷⁵ See 15 U.S.C. § 1051(d) (establishing a six-month period, extendable upon application for an additional thirty months, in which an intent-to-use applicant must file a statement of use).

⁷⁶ TMEP, *supra* note 20, §§ 1212, 1212.04–1212.04(e), 1212.05(d), 1212.06–1212.06(b).

Appendix

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ARE WE RUNNING OUT OF TRADEMARKS? AN EMPIRICAL STUDY OF TRADEMARK DEPLETION AND CONGESTION

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ARE WE RUNNING OUT OF TRADEMARKS? AN EMPIRICAL STUDY OF TRADEMARK DEPLETION AND CONGESTION

Barton Beebe* & Jeanne C. Fromer**

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 6.7 million trademark applications filed at the U.S. Patent and Trademark Office (PTO) from 1985 through 2016 together with the 300,000 trademarks 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 United States, and an original dataset consisting of phonetic representations of each applied-for or registered word mark included in the PTO's Trademark Case Files Dataset. 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

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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.

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.”¹ 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]lmost 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).”² For its part, *Bloomberg View* recently featured the headline “We’re Going to Run Out of Company

¹ Stephen L. Carter, Comment, *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”); see also, e.g., William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J.L. & ECON. 265, 274 (1987) (“[T]he 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 I. 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 *infra* notes 80–84 and accompanying text.

² Neal Gabler, *The Weird Science of Naming New Products*, N.Y. TIMES (Jan. 15, 2015), <https://nyti.ms/2jD7Hh7> [<https://perma.cc/459B-L4RQ>]. For an overview of portmanteaux — words that blend the sounds and combine the meanings of two words — see DICK THURNER, PORTMANTEAU DICTIONARY: BLEND WORDS IN THE ENGLISH LANGUAGE, INCLUDING TRADEMARKS AND BRAND NAMES (1993).

Names.”³ 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.”⁴ 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?”⁵ NPR has further reported that “[v]irtually every 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

³ Justin Fox, *We’re Going to Run Out of Company Names*, BLOOMBERG VIEW (Jan. 13, 2017, 1:00 PM), <https://www.bloomberg.com/view/articles/2017-01-13/we-re-going-to-run-out-of-company-names> [https://perma.cc/32P7-NTWJ].

⁴ *Id.* (quoting Justin Fox, *Who the Hell Is Henry Silverman?*, FORTUNE (Oct. 27, 1997), http://archive.fortune.com/magazines/fortune/fortune_archive/1997/10/27/233303/index.htm [https://perma.cc/CAB6-A7FJ]).

⁵ Rex W. Huppke, *Craft Beer Makers Running Out of Names. How About Flip Donkey Doodleplunk?*, CHI. TRIB. (Jan. 7, 2015, 7:30 PM), <http://www.chicagotribune.com/news/opinion/huppke/ct-craft-beer-names-huppke-talk-0107-20150107-story.html> [https://perma.cc/H72Q-2MFN] (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, 9:08 AM), <http://www.npr.org/sections/thesalt/2015/01/05/369445171/craft-brewers-are-running-out-of-names-and-into-legal-spats> [https://perma.cc/X8FZ-AJRV]. 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, 10:00 AM), <http://gizmodo.com/weve-run-out-of-beer-names-and-ai-is-here-to-help-1797480178> [https://perma.cc/C5RQ-NC3M]. Needless to say, some of these names seem more competitively effective than others. See *infra* section I.B.2, pp. 964–70 (discussing what makes a “good” trademark).

⁷ Sam Richards, *FKA Twigs, Slaves, Deers: Are We Running Out of Band Names?*, THE GUARDIAN (Feb. 17, 2015, 4:00 PM), <https://www.theguardian.com/music/2015/feb/17/fka-twigs-slaves-deers-band-name-shortage> [https://perma.cc/GVY9-NESU].

⁸ *Id.*

⁹ Kathleen Lee-Joe, *The Beauty Industry Has Run Out of Makeup Names*, DAILYLIFE (Jan. 16, 2015), <http://www.dailylife.com.au/dl-beauty/makeup/the-beauty-industry-has-run-out-of-makeup-names-20150115-12qw2i.html> [https://perma.cc/VPW9-BCJB].

scenes 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 Brothers announced in 2016 that they had applied to register the word “react,” after their series of videos.¹¹ The public reaction was critical and merciless. One commenter joked about registering the word “the” and threatened that “anyone who says it get[s] sued.”¹² The commenter was no doubt unaware that at the time there were already eleven active trademark registrations claiming just the word THE.¹³ Another commenter stated simply: “REACT is not yours to trademark.”¹⁴ And perhaps it wasn’t: there were already three active registrations of the word in the particular class of services in which the Fine Brothers applied and thirty-seven active registrations overall.¹⁵ In response to the furor, the Fine Brothers withdrew their trademark application.¹⁶

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 anecdotal data and at worst on raw assertion. This Article seeks to move beyond both by systematically studying all 6.7 million trademark applications filed at the U.S. Patent and Trademark Office (PTO) from 1985 through 2016 together with the 300,000 trademarks already registered at the PTO as of 1985, which is made possible by the PTO’s recently released Trademark Case Files Dataset.¹⁷ 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.¹⁸ By contrast, trademark congestion

¹⁰ *Futurama: The Problem with Popplers* (20th Century Fox Television May 7, 2000); *South Park: Go Fund Yourself* (South Park Digital Studios Sept. 24, 2014).

¹¹ Sam Machkovech, *Fine Bros Back Down, Rescind Trademark Claim on the Word “React,”* ARS TECHNICA (Feb. 2, 2016, 1:15 AM), <http://arstechnica.com/business/2016/02/fine-bros-back-down-rescind-trademark-claim-on-the-word-react/> [<https://perma.cc/VZJ6-6HGG>].

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> [<https://perma.cc/H3JX-F8E5>].

¹³ These findings are derived from the Trademark Case Files Dataset, which we describe in Part II. See *infra* Part II, pp. 973–77.

¹⁴ Ashcraft, *supra* note 12.

¹⁵ See U.S. Trademark Application Serial No. 86,689,364 (filed July 10, 2015) (applying to register REACT in International Class 41).

¹⁶ Machkovech, *supra* note 11.

¹⁷ See *infra* Part II, pp. 973–77 (discussing this dataset in greater detail).

¹⁸ 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 III.A, pp. 978–81 (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.

is the process by which an already-claimed mark is claimed by an increasing number of different trademark owners.¹⁹ 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 United States 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 not confusingly similar to already-registered marks. With respect to short neologisms, we use the Carnegie Mellon University Pronouncing Dictionary and LOGIOS Lexicon tool to construct a phonetic representation of each word mark applied for or registered in the PTO dataset. Based on these

¹⁹ Importantly, the phenomena of trademark depletion and trademark congestion are different from, though related to, the phenomenon of trademark “cluttering.” Cluttering refers to marks that are registered but not used in commerce by their registrants in one or more of the classes in which they are registered. See GEORG VON GRAEVENITZ ET AL., TRADE MARK CLUTTERING: AN EXPLORATORY REPORT 5 (2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/312092/ipresearch-tmcluttering.pdf [<https://perma.cc/BEW7-AP2R>] (“[W]e define cluttered trade mark registers as registers containing such a large number of unused or overly broad trade marks, that the costs of creating and registering new marks substantially increase for other applicants.” (footnote and emphases omitted)); *id.* at 5 n.2 (“Overly broad in this context means seeking protection in more classes than are required.”). Cluttering is a significant problem for foreign trademark systems that do not have as strict a use requirement as that imposed by American trademark law. See *id.* at 9 (discussing the differences between use requirements in the United States and European jurisdictions); see also Georg von Graevenitz, *Trade Mark Cluttering — Evidence from EU Enlargement*, 65 OXFORD ECON. PAPERS 721, 722, 732 (2013) (using data provided by the European Community Office for Harmonization in the Internal Market (now called the European Union Intellectual Property Office) to examine how European Union enlargement drove pharmaceutical firms to further clutter the Community Trade Mark register with registrations for marks they were unlikely to use). We address the problem of trademark clutter at the PTO in section V.B, *infra* pp. 1029–41.

data, we show that the supply of short neologisms not confusingly similar to 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,²⁰ which denies the registration of a mark that, due to its similarity with an already-registered mark, would confuse consumers as to source.²¹ 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 applicants (those applying based on previous registrations) continue to apply for non-neologisms at a rate substantially higher than nonincumbent applicants 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).²² Nevertheless, a trademark owner would prefer to be at best the only firm in the economy

²⁰ Ch. 540, 60 Stat. 427 (1946) (codified as amended in scattered sections of 15 U.S.C.).

²¹ See 15 U.S.C. § 1052(d) (2012) (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").

²² We use the term "parallel registrations," rather than "concurrent registrations," to refer to this phenomenon. Concurrent registrations are a subset of parallel registrations. Concurrent registrations consist of registrations in which two or more different parties operating in different regions of the country 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 *id.*; see also 3 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 20:81, at 20-197 (4th ed. 2017). 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. See *infra* Part II, pp. 973-77.

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 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 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 enforce the use requirement more aggressively, as the PTO has already begun to do. 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.²³ A properly functioning trademark system is crucial to a fair and efficient marketplace.²⁴ 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.²⁵ Trademarks enable producers to build goodwill, and trademark protection prevents others from trading on that goodwill.²⁶ Trademarks also allow consumers to quickly and assuredly find the products they seek.²⁷ 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 use²⁸ — and sometimes even after use, as with some pharmaceuticals.²⁹ Trademarks reduce consumer search costs — consumers’ costs of finding product characteristics of

²³ 15 U.S.C. § 1127 (defining trademarks to include “any word[s], name[s], symbol[s], or device[s], or any combination thereof”); *Wal-Mart Stores, Inc. v. Samara Bros.*, 529 U.S. 205, 216 (2000) (holding that nonutilitarian product design or packaging might constitute a protectable trademark). See generally Deven R. Desai, *From Trademarks to Brands*, 64 FLA. L. REV. 981 (2012) (discussing protecting brands as a unifying principle for the modern Lanham Act).

²⁴ See Mark P. McKenna, *The Normative Foundations of Trademark Law*, 82 NOTRE DAME L. REV. 1839, 1844–46 (2007) (describing this conventional view of trademark law).

²⁵ 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.”).

²⁶ See Robert G. Bone, *Hunting Goodwill: A History of the Concept of Goodwill in Trademark Law*, 86 B.U. L. REV. 547, 549 (2006); see also Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777, 786–88 (2004).

²⁷ Dogan & Lemley, *supra* note 26, at 787–88.

²⁸ See, e.g., Landes & Posner, *supra* note 1, at 268–69; see also *infra* note 83 and accompanying text.

²⁹ See, e.g., Charles J. Walsh & Marc S. Klein, *From Dog Food to Prescription Drug Advertising: Litigating False Scientific Establishment Claims Under the Lanham Act*, 22 SETON HALL L. REV. 389, 399 (1992) (“Drugs are true ‘credence’ goods because they possess qualities that cannot be evaluated through normal use.”).

interest — because consumers can search for the easily perceivable trademark rather than a product’s often more elusive characteristics.³⁰ 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.

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.³¹ Second, it must be used in commerce.³² Third, it must not violate any of the Lanham Act’s various statutory bars to protection.³³ 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 to an already-registered mark.³⁴ As we show

³⁰ Landes & Posner, *supra* note 1, at 269–70.

³¹ See 15 U.S.C. § 1052(f) (2012).

³² See *id.* § 1051(a)(1) (providing for registration of a mark “used in commerce”); *id.* § 1051(d) (providing for registration of a mark filed on an intent-to-use basis upon filing of a statement that the mark is “used in commerce”). Certain foreign applications need not meet the use-in-commerce requirement to receive registration. See *id.* § 1126(e) (providing for registration of a mark already registered in certain foreign jurisdictions provided that the applicant has a bona fide intention to use the mark in commerce in the United States, but specifying that “use in commerce shall not be required prior to registration”); *id.* § 1141f(a) (providing for registration of a mark under the Madrid Protocol system provided that the applicant has a bona fide intention to use the mark in commerce in the United States). Applications filed under § 1126(e) (so-called “Section 44(e) applications”) are rare. The PTO data indicate that of the 385,249 Principal Register trademark applications filed in 2016, 5585 were filed on this basis. Applications filed under § 1141f(a) (so-called “Section 66(a) applications”) are also rare. There were 15,374 such applications filed in 2016. See *infra* Part II, pp. 973–77, for discussion of the Trademark Case Files Dataset. Regardless of the statutory basis for their registration, all registrants must show that they are making a “use in commerce” in order to pursue a claim of trademark infringement. See *Rearden LLC v. Rearden Commerce, Inc.*, 683 F.3d 1190, 1203 (9th Cir. 2012) (“[A] party pursuing a trademark claim must meet a threshold ‘use in commerce’ requirement.”). *But see* *Belmora LLC v. Bayer Consumer Care AG*, 819 F.3d 697, 706 (4th Cir. 2016) (holding that § 1125(a) “does not require that a plaintiff possess or have used a trademark in U.S. commerce as an element of the cause of action”).

³³ See 15 U.S.C. § 1052.

³⁴ See *infra* section I.A.3, pp. 960–61 (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. See *infra* Part II, pp. 973–77, for discussion of our PTO office action dataset. In *Matal v. Tam*, 137 S. Ct. 1744 (2017), the Supreme Court held that the Lanham Act’s disparagement bar to registration was unconstitutional

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,³⁵ phrases,³⁶ two-dimensional images, both moving³⁷ and still,³⁸ three-dimensional shapes³⁹ including building exteriors,⁴⁰ sounds,⁴¹ scents,⁴² textures,⁴³ and even particular motions.⁴⁴ Nevertheless, a very high 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.⁴⁵ Of these, 95.7% included text; 75.6% consisted only

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* Letter Brief of Appellant Eric Brunetti at 1, *In re Brunetti*, No. 2015-1109 (Fed. Cir. Aug. 9, 2017), ECF No. 70 (“[T]here is no difference between the Disparagement Clause and the Scandalous Clause. . . . The Disparagement Clause is unconstitutional [under *Matal*]. It follows that the Scandalous Clause is unconstitutional.”).

³⁵ *See, e.g.*, AMAZON, Registration No. 2,832,943; APPLE, Registration No. 1,078,312; NIKE, Registration No. 978,952.

³⁶ *See, e.g.*, JUST DO IT, Registration No. 1,875,307.

³⁷ *See, for example*, Registration No. 4,129,188, in which the 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.” *Id.*

³⁸ *See, for example*, Registration No. 1,145,473, in which the mark “is comprised of a ‘Wing’ design.” *Id.*

³⁹ *See, for example*, Registration No. 3,457,218, for the shape of the original iPhone.

⁴⁰ *See, for example*, Registration No. 1,045,615, for the exterior design of a McDonald's restaurant.

⁴¹ *See, for example*, Registration No. 2,519,203, in which 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.” *Id.*

⁴² *See, for example*, Registration No. 3,143,735, for office supplies, in which “[t]he mark consists of a vanilla scent or fragrance.” *Id.*

⁴³ *See, for example*, Registration No. 3,155,702, in which “[t]he mark consists of a velvet textured covering on the surface of a bottle of wine.” *Id.*

⁴⁴ *See, for example*, Registration No. 2,793,439, for the scissor door configuration of a Lamborghini automobile. “The 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 but are gradually raised above the vehicle to a parallel position.” *Id.* So-called “nontraditional marks” of this nature are very rare. Of the 2,094,051 active registrations on the Principal Register in 2016, only 199 were for nontraditional marks, of which most were sound marks. *See infra* Part II, pp. 973–77, for discussion of the Trademark Case Files Dataset.

⁴⁵ Marks that meet all requirements for registration are registered on the Principal Register. *See* 15 U.S.C. § 1052 (2012). Noninherently 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. *See id.* § 1091. Registration on the Supplemental Register is of very limited value. *See In re Federated Dep't Stores Inc.*, 3 U.S.P.Q.2d 1541, 1543 (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, use or

of text.⁴⁶

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.

I. 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.⁴⁷ 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 to their goods or services (such as 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 COPPERTONE 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).⁴⁸

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 affixed.⁴⁹ For example, as a matter of basic consumer literacy, consumers would likely immediately perceive a neologism like LENOVO embossed on the bezel of a computer monitor as a designation of source. In contrast, consumers would likely interpret a descriptive term like “high-definition” embossed on the bezel as a non-source-specific description of the product.

priority.” (citations omitted)). We study only registrations on the Principal Register to ensure that our findings are based on marks that have been determined to be distinctive of source.

⁴⁶ See *infra* Part II, pp. 973–77, for discussion of the Trademark Case Files Dataset.

⁴⁷ 15 U.S.C. § 1052(f).

⁴⁸ See *Abercrombie & Fitch Co. v. Hunting World, Inc.*, 537 F.2d 4, 9–11 (2d Cir. 1976) (setting out these categories); see also *Sally Beauty Co. v. Beautyco, Inc.*, 304 F.3d 964, 975–76 (10th Cir. 2002). One of us is separately writing about how trademark law’s conventional distinctiveness spectrum is misguided in multiple important ways, a topic well beyond the scope of this project. See Jeanne C. Fromer, *Overhauling Trademark Distinctiveness* (Sept. 18, 2017) (unpublished manuscript) (on file with author).

⁴⁹ *Sally Beauty Co.*, 304 F.3d at 976–77.

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.⁵⁰ To be registrable, descriptive marks must develop “acquired distinctiveness” of source (also often called “secondary meaning”).⁵¹ 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.⁵²

Finally, because they are understood to be incapable of source designation, generic marks cannot be registered at the PTO.⁵³

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.⁵⁴ The applicant must do so in the form of a written 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 1957.⁵⁵ Now in its eleventh edition,⁵⁶ the Nice Classification is idiosyncratic.⁵⁷ 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.”⁵⁸ Similarly, Class 34 covers “Tobacco; smokers’ articles; matches.”⁵⁹ Meanwhile, Class 1 broadly covers “Chemicals

⁵⁰ *Id.* at 977–78.

⁵¹ *Id.* at 978.

⁵² *Id.*

⁵³ See *Abercrombie*, 537 F.2d at 9.

⁵⁴ See 15 U.S.C. § 1051(a)(2) (2012).

⁵⁵ U.S. PATENT & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, TRADEMARK MANUAL OF EXAMINING PROCEDURE § 1401.03 (Oct. 2017) [hereinafter TMEP] (citing Requirements for a Complete Trademark or Service Mark Application, 37 C.F.R. § 2.32(a)(7) (2017)); see *Nice Classification*, WORLD INTEL. PROP. ORG. (2017), <http://www.wipo.int/classifications/nice/en/> [<https://perma.cc/D6YY-UQPH>]; see also *List of Classes with Explanatory Notes*, WORLD INTEL. PROP. ORG., http://web2.wipo.int/classifications/nice/nclpub/en/fr/20170101/classheadings/?explanatory_notes [<https://perma.cc/ZPV7-YKTF>].

⁵⁶ *Nice Classification*, *supra* note 55.

⁵⁷ For a study of how classification schemes often invisibly encode particular, idiosyncratic points of view, see generally GEOFFREY C. BOWKER & SUSAN LEIGH STAR, *SORTING THINGS OUT: CLASSIFICATION AND ITS CONSEQUENCES* (1999), which analyzes a myriad of classification schemes, including the International Classification of Diseases and race classification in South Africa under apartheid.

⁵⁸ See *infra* app. at 1044.

⁵⁹ See *infra* app. at 1045.

used in industry, science and photography, as well as in agriculture, horticulture and forestry”⁶⁰ and Class 12 covers “Vehicles; apparatus for locomotion by land, air or water.”⁶¹ 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,⁶² are Class 9 (electronic goods), Class 16 (printed matter and publications), 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 (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.⁶³ We do so to illustrate the implications of depletion and congestion for the most important economic sectors.⁶⁴

⁶⁰ See *infra* app. at 1043.

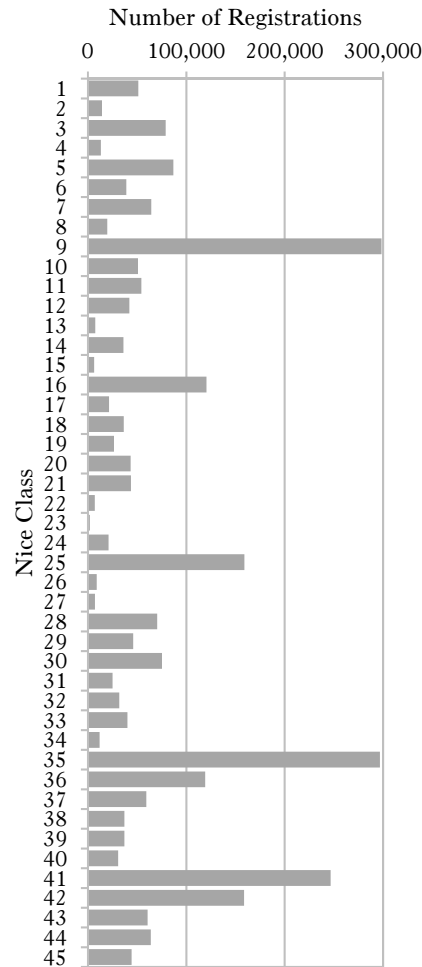
⁶¹ See *infra* app. at 1044.

⁶² 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 shows, trademark-intensive industries account for the largest number of intellectual-property-intensive industries in the United States and contribute the most employment from such industries to the U.S. economy. ECON. & STATISTICS ADMIN. & U.S. PATENT & TRADEMARK OFFICE, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: 2016 UPDATE, at ii, 8–9, 34–45 (Sept. 2016), <https://www.uspto.gov/sites/default/files/documents/IPandtheUSEconomySept2016.pdf> [<https://perma.cc/3XVY-49UM>].

⁶³ 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.

⁶⁴ To avoid overwhelming and confusing readers, 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.

Figure 1: Active Registrations in 2016 by Nice Class



3. *The Bar to the Registration of Marks Confusingly Similar to Already-Registered Marks.* — Not all distinctive marks are registrable. Section 2(d) of the Lanham Act bars the registration of a mark that so resembles 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.”⁶⁵ For example, on the basis of section 2(d), the PTO recently refused to register COW CREEK for beer in light of the preexisting mark BULL CREEK BREWING for beer,⁶⁶ EMERALD COOL for air conditioners in light of the preexisting mark

⁶⁵ 15 U.S.C. § 1052(d) (2012).

⁶⁶ *In re BWBC, Inc.*, 2015 WL 3542842, at *6 (T.T.A.B. 2015).

EMERALD AIRE for air conditioners,⁶⁷ 2GOOD for chocolate candy in light of TOOGOOD for various goods including candy,⁶⁸ and LYTNING for protective industrial boots in light of LIGHTNING GLOVES for disposable latex gloves.⁶⁹ By contrast, the PTO has recently found no likelihood of confusion under section 2(d) between the mark BON O BON for chocolates and pastries and the mark BON BON for sugar confectionary.⁷⁰

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.”⁷¹ 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.⁷²

The PTO refers to a number of factors to determine if an applicant’s mark is confusingly similar to an already-registered mark.⁷³ The most important of these 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).”⁷⁴ The PTO also considers such factors as the similarity of the applicant’s and registrant’s channels of trade, the sophistication of the relevant consumers, and “[t]he number and nature of similar marks in use on similar goods”⁷⁵ (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).⁷⁶

4. *The Protection of Unregistered Marks.* — The Lanham Act protects any trademark that is distinctive, used in commerce, and not statutorily barred from protection even if the trademark is not registered at

⁶⁷ *In re Fla. Appliances, Inc.*, 2015 WL 3430235, at *5 (T.T.A.B. 2015).

⁶⁸ *In re August Storck KG*, 2015 WL 3430229, at *6 (T.T.A.B. 2015).

⁶⁹ *In re Columbia Ins. Co.*, 2015 WL 3430233, at *1, *8 (T.T.A.B. 2015).

⁷⁰ *Arcor S.A.I.C. v. “ROT FRONT” Open-Type Joint Stock Co.*, 2017 WL 3670337, at *9 (T.T.A.B. 2017).

⁷¹ 15 U.S.C. § 1052(d) (2012).

⁷² See TMEP, *supra* note 55, § 1207.03.

⁷³ See, e.g., *In re E.I. DuPont DeNemours & Co.*, 476 F.2d 1357, 1361 (C.C.P.A. 1973) (listing thirteen factors that should be considered in determining the likelihood of confusion under section 2(d)).

⁷⁴ TMEP, *supra* note 55, § 1207.01 (repeating language from *E.I. DuPont*, 476 F.2d at 1361).

⁷⁵ *E.I. DuPont*, 476 F.2d at 1361.

⁷⁶ These factors are closely similar to those used by courts to determine the likelihood of confusion in the trademark-infringement context. 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) (examining and comparing quantitatively each circuit’s multifactor test for the likelihood of consumer confusion).

the PTO.⁷⁷ Nonetheless, the law provides several important incentives to encourage trademark owners to register their marks, including nationwide priority in the mark from the date of application and enhanced remedies.⁷⁸

Yet if federal case law is any indication, trademark owners routinely assert exclusive rights in unregistered marks.⁷⁹ The Principal Register thus significantly understates the number of commercial signifiers that federal law actually protects as trademarks. For this reason, even a study of the two million trademarks currently registered on the Principal Register that contain text will 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, which is based 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.⁸⁰ They have done so since the

⁷⁷ See 15 U.S.C. § 1125(a) (2012) (providing anticonfusion 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 addressed 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 needs to become either more procedural or more substantive. *Id.* at 929–40.

⁷⁸ See 15 U.S.C. §§ 1057(c), 1072 (nationwide constructive use conferring priority); *id.* § 1065 (possibility of the mark becoming incontestable after five years); *id.* § 1117(a)–(b) (enhanced remedies).

⁷⁹ See, e.g., *Cross Commerce Media, Inc. v. Collective, Inc.*, 841 F.3d 155, 159 (2d Cir. 2016) (asserting exclusive rights in unregistered mark COLLECTIVE); *Uber Promotions, Inc. v. Uber Techs., Inc.*, 162 F. Supp. 3d 1253, 1259 (N.D. Fla. 2016) (asserting exclusive rights in unregistered mark UBER PROMOTIONS).

⁸⁰ See, e.g., *Florence Mfg. Co. v. J.C. Dowd & Co.*, 178 F. 73, 75 (2d Cir. 1910) (“It is so easy for the honest 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.

inception of modern trademark law in the nineteenth century⁸¹ and they continue to do so.⁸² Typically no evidence or analysis is presented to support this claim.

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 explain 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."⁸³

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 that universe would consist of trademarks that are comparable to, if not worse than, no trademark at all.⁸⁴

⁸¹ 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").

⁸² See, e.g., *Stork Rest., Inc. 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, Inc.*, 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."); see also *supra* note 1 and accompanying text; cf. Ann Olivier McGeehan, *Trademark Registration of a Celebrity Persona*, 87 TRADEMARK REP. 351, 352–54 (1997) (positing an infinite number of image marks). *But see* Symposium, *Trademarks in 2017: Their Creation and Protection*, 82 TRADEMARK REP. 880, 899 (1992) (suggesting, in a section by Hans Peter Kunz-Hallstein, that, because there is a finite number of letters, there is a finite number of potential trademarks).

⁸³ Landes & Posner, *supra* note 1, at 268–69.

⁸⁴ Cf. JORGE LUIS BORGES, *The Library of Babel*, in COLLECTED FICTIONS 112, 112–15 (Andrew Hurley trans., Viking Penguin 1998) (1944) (describing a library "composed of an indefinite, perhaps infinite number of hexagonal galleries," *id.* at 112, that contains all possible 410-page books consisting of every possible ordering of twenty-two letters, periods, commas, and spaces).

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 to 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 to 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.

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, empirical studies show that firms that adhere to these principles tend to perform better than those that do not.⁸⁵

The first principle is that brand names that are unique are significantly more effective than brand names that lack uniqueness.⁸⁶ 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

⁸⁵ See, e.g., Michael J. Cooper, Orlin Dimitrov & P. Raghavendra Rau, *A Rose.com by Any Other Name*, 56 J. FIN. 2371 (2001) (investigating “the effect of company name changes to Internet-related ‘dotcom’ names on the company’s stock price,” and finding an “increase in shareholder wealth around the announcement date[, which] remains permanent in the postannouncement period,” *id.* at 2373); Michael J. Cooper, Huseyin Gulen & P. Raghavendra Rau, *Changing Names with Style: Mutual Fund Name Changes and Their Effects on Fund Flows*, 60 J. FIN. 2825 (2005) (finding that “flows to funds increase dramatically when funds change their names to look more (less) like the current positive (negative) return styles,” and that this finding “holds even for the funds . . . whose holdings do not materially reflect the style implied by their new name,” *id.* at 2826); T. Clifton Green & Russell Jame, *Company Name Fluency, Investor Recognition, and Firm Value*, 109 J. FIN. ECON. 813 (2013) (finding that “companies with short, easy to pronounce names have higher breadth of ownership, greater share turnover, lower transaction price impacts, and higher valuation ratios,” *id.* at 813).

⁸⁶ See ELI ALTMAN, *DON’T CALL IT THAT* 73 (2d ed. 2016); ALEXANDRA WATKINS, *HELLO, MY NAME IS AWESOME: HOW TO CREATE BRAND NAMES THAT STICK* 24–25 (2014).

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.⁸⁷ Parallel owners additionally face the risk that another parallel user may tarnish the brand name, with the damage spreading to all of its users.⁸⁸ 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.⁸⁹ 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.⁹⁰ All else equal, owners of unique trademarks, 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.⁹¹ These are all crucial characteristics of effective trademarks — the nonsense naming of comic

⁸⁷ Richard A. 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 see* Rebecca Tushnet, *Gone in Sixty Milliseconds: Trademark Law and Cognitive Science*, 86 TEX. L. REV. 507, 527–46 (2008) (expressing skepticism about this line of thinking).

⁸⁸ *See* Michael Handler, *What Can Harm the Reputation of a Trademark? A Critical Re-Evaluation of Dilution by Tarnishment*, 106 TRADEMARK REP. 639 (2016) (reviewing and undermining the normative basis for dilution by tarnishment).

⁸⁹ *See, e.g.*, ALTMAN, *supra* note 86, at 73.

⁹⁰ *See* WATKINS, *supra* note 86, at 24 (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 Google or Yahoo), fruit names (like Apple and Blackberry), and Cloud. *Id.* at 25.

⁹¹ *See id.* at 35–38; Leslie Collins, *A Name to Conjure with: A Discussion of the Naming of New Brands*, 11 EUR. J. MARKETING 339 (1977). *But see* ALTMAN, *supra* note 86, at 79–80 (“Not understanding something right away is a great reason for someone to pay attention. Hell, they might even look it up.”); Tushnet, *supra* note 87, 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.” (footnote omitted)).

strip “xkcd” notwithstanding.⁹² It also generally requires less effort to instill common words with brand meaning,⁹³ especially when the words’ meanings and connotations sync with the brand’s message.⁹⁴ Relatedly, if a coined word is used, it tends to be more effective when it calls to mind 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).⁹⁵ Words that invoke 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.⁹⁶

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.⁹⁷ He hypothesized that this maximized the efficiency of a language because shorter words require less effort to use.⁹⁸ The same reasoning applies to trademarks — and is a further reason why brand names consisting of common English words are preferred.⁹⁹ Studies confirm that recognition and recall are better for shorter words and shorter brand names.¹⁰⁰ This explains why, as a

⁹² Randall Munroe, *xkcd.com - A webcomic*, XKCD, <http://xkcd.com/about/> [<https://perma.cc/XB9Y-7CXU>]. 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.*

⁹³ 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)).

⁹⁴ ALTMAN, *supra* note 86, at 85–86, 111–12; WATKINS, *supra* note 86, at 6–7.

⁹⁵ Sharon Begley, *StrawBerry Is No BlackBerry: Building Brands Using Sound*, WALL ST. J. (Aug. 26, 2002, 3:47 PM), <https://www.wsj.com/articles/SB1030310730179474675> [<https://perma.cc/327A-FC9Z>]; see also Kim Robertson, *Strategically Desirable Brand Name Characteristics*, J. CONSUMER MARKETING, Fall 1989, at 61, 63–65.

⁹⁶ MATT HAIG, BRAND FAILURES 20 (reprt. 2003).

⁹⁷ GEORGE KINGSLEY ZIPE, THE PSYCHO-BIOLOGY OF LANGUAGE 28–29 (1935) (reasoning that “high frequency is the cause of small magnitude” of word length, *id.* at 29); see also Landes & Posner, *supra* note 1, at 272 (discussing Zipf’s observation).

⁹⁸ ZIPE, *supra* note 97, at 38 (positing that the allocation of short words to commonly occurring concepts maximizes efficiency, by taking less effort to produce); see also Landes & Posner, *supra* note 1, at 272 (discussing Zipf’s reasoning).

⁹⁹ 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://nyti.ms/2v8zvV0> [<https://perma.cc/2DWL-MDWG>].

¹⁰⁰ See, e.g., Alan D. Baddeley, Neil Thomson & Mary Buchanan, *Word Length and the Structure of Short-Term Memory*, 14 J. VERBAL LEARNING & VERBAL BEHAV. 575, 584 (1975) (finding when controlling for word frequency that five-syllable words are harder to recall than one-syllable words); Bruce G. Vanden Bergh et al., *Sound Advice on Brand Names*, 61 JOURNALISM & MASS

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 typically 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.¹⁰¹ A commonly asserted rule of thumb is that marks should be no longer than two syllables or seven letters.¹⁰²

Fourth, certain phonemes are more effective than others depending on the circumstances. A variety of sound-symbolism research supports the proposition that sounds convey a range of properties, including weight, speed, rigidity, activity, width, size, femininity, friendliness, and sharpness.¹⁰³ This ought not to be surprising. Compare, for example, the miniature Lilliputians with the giant Brobdingnagians in Jonathan Swift's *Gulliver's Travels*.¹⁰⁴ 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.¹⁰⁵ The link between certain sounds and

COMM. Q. 835, 838–39 (1984) (showing that one-syllable brand names are easier to recall and recognize than three-syllable brand names).

¹⁰¹ See Robertson, *supra* note 95, at 62; see also Richard S. Chang, *Saving Chevrolet Means Sending 'Chevy' to Dump*, N.Y. TIMES (June 9, 2010), <https://nyti.ms/2yYGw62> [<https://perma.cc/Q2T2-M79M>].

¹⁰² Margot Bushnaq, *How to Choose a Business Name, Part 6: Length*, BRANDBUCKET (July 10, 2013), <https://www.brandbucket.com/blog/how-to-choose-a-business-name-length> [<https://perma.cc/9WCA-4388>]; Marty Zwilling, *10 Rules for Picking a Company Name*, FORTUNE (Dec. 15, 2011), <http://for.tn/2px3Bq2> [<https://perma.cc/ZD6Z-WZYA>]. But see Eli Altman, *Longer Is Better and Don't Invent Words: Picking the Right Name for Your Business*, THE GUARDIAN (Aug. 22, 2017, 2:00 AM), <https://www.theguardian.com/small-business-network/2017/aug/22/longer-is-better-and-dont-invent-words-picking-the-right-name-for-your-business> [<https://perma.cc/2WYV-TWJN>] (“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.”).

¹⁰³ See Richard R. Klink & Lan Wu, *The Role of Position, Type, and Combination of Sound Symbolism Imbeds in Brand Names*, 25 *MARKETING LETTERS* 13, 14–15 (2014) (reviewing the literature); see also Patrice L. French, *Toward an Explanation of Phonetic Symbolism*, 28 *WORD* 305 (1977); Richard R. Klink, *Creating Brand Names with Meaning: The Use of Sound Symbolism*, 11 *MARKETING LETTERS* 5 (2000). For an application of the insights of sound symbolism research to trademark doctrine, see Jake Linford, *Are Trademarks Ever Fanciful?*, 105 *GEO. L.J.* 731 (2017).

¹⁰⁴ See JONATHAN SWIFT, *GULLIVER'S TRAVELS*, at xvi (London, Jones & Co. 1826) (1726).

¹⁰⁵ Susan Scutti, “*Creation Engineering*”: *The Art and Science of Naming Drugs*, CNN (Nov. 25, 2016, 4:19 AM), <http://cnn.it/2gb95U5> [<https://perma.cc/P5PC-L74M>] (quoting branding professional, R. John Fidelino, arguing that VIAGRA is “macho-sounding,” whereas CIALIS is “tonally softer”); see also Gurudas Khilnani, Ajeet Kumar Khilnani & Rekha Thaddanee, Letter to Editor, *Semantics of Drug Nomenclature*, 4 *NAT'L J. PHYSIOLOGY, PHARMACY & PHARMACOLOGY* 95, 97 (2014); Jeannette Y. Wick, *What's in a Drug Name?*, 44 *J. AM. PHARMACISTS ASS'N* 12, 14

particular meanings transcends language and culture (and even species).¹⁰⁶ Studies show that the [ä] sound (as in “Frosh”) is shown to connote smoother, richer, and creamier ice cream than the [i] sound (as in “Frish”).¹⁰⁷ The [u] sound in “dull” tends to suggest disgust or dislike,¹⁰⁸ which might be why the company behind SMUCKER’S jelly developed the slogan, “With a name like Smucker’s, it has to be good.”¹⁰⁹ Because of its combination of sounds, “BLACKBERRY” connotes speed, reliability, accessibility, smallness, and relaxation, while “STRAWBERRY” connotes many of those same features (other than relaxation), and slowness rather than speed.¹¹⁰ More generally, 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.¹¹¹

Fifth, ideally a brand name owner should be able to register its brand name as a domain name in the .com top-level domain.¹¹² 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.¹¹³

Opinions are mixed on other characteristics of more effective brand names. Marketing experts (and trademark lawyers) generally advise against descriptive terms.¹¹⁴ Yet one study shows that more descriptive

(2004); Stuart Elliott, *Viagra and the Battle of the Awkward Ads*, N.Y. TIMES (Apr. 25, 2004), <https://nyti.ms/2zh3uUZ> [<https://perma.cc/K8E9-KP6V>].

¹⁰⁶ Klink, *supra* note 103, at 6–9; Klink & Wu, *supra* note 103, at 14; *see also* L.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.” *Id.* Research suggests that animal sounds also carry symbolic meaning, such as the 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* 348, 353–56 (Leanne Hinton et al. eds., 1994); John J. Ohala, *An Ethological Perspective on Common Cross-Language Utilization of F₀ of Voice*, 41 *PHONETICA* 1 (1984).

¹⁰⁷ Yorkston & Menon, *supra* note 106, at 45–48.

¹⁰⁸ Shrum & Lowrey, *supra* note 106, at 43.

¹⁰⁹ *Id.* at 55.

¹¹⁰ Begley, *supra* note 95.

¹¹¹ Vanden Bergh et al., *supra* note 100, at 835–36.

¹¹² *See, e.g.*, Frank Schilling, *The House Always Wins - SEM Arbitrage and Keyword Domain Names*, SEVEN MILE (Mar. 23, 2007, 5:41 PM), http://frankschilling.typepad.com/my_weblog/2007/03/the_house_alway.html [<https://perma.cc/C4YK-2CNC>].

¹¹³ ALTMAN, *supra* note 86, at 35–39.

¹¹⁴ *See, e.g.*, WATKINS, *supra* note 86, at 30–31 (stating that descriptive terms “don’t challenge, excite or mentally stimulate” and “reveal nothing about the personality of your brand,” *id.* at 30); *see also* ALTMAN, *supra* note 86, at 12–13 (noting that a descriptive mark “is sleep-inducing and hard to remember, and says absolutely nothing about [a business’s] point of view”).

brand names unsurprisingly result in higher consumer recall of the benefit described by the brand name.¹¹⁵ 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.¹¹⁶ Yet personal names, like common words, also convey authenticity and familiarity, and company owners often have nonpecuniary reasons to prefer to use their own names.¹¹⁷ 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.¹¹⁸ One recent example is the use of the “-ndr”/“-nder” suffix for dating apps: Tinder, Grindr, Blendr, AdultFriendFinder, Lavendr (a gay dating app), Binder (a joke app to break up with one's significant other¹¹⁹), and the app formerly named 3nder (an app for those seeking threesomes).¹²⁰

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 more appealing to consumers. Instead, the experts are essentially offering legal advice.

¹¹⁵ See Kevin Lane Keller, Susan E. Heckler & Michael J. Houston, *The Effects of Brand Name Suggestiveness on Advertising Recall*, J. MARKETING, Jan. 1998, at 48, 48.

¹¹⁶ See, e.g., WATKINS, *supra* note 86, at 9–10.

¹¹⁷ See, e.g., Jean Gianfagna, *6 Reasons to Use Your Own Name in Your Company's Branding*, GIANFAGNA STRATEGIC MARKETING: SMART MARKETING STRATEGY (Mar. 10, 2014), <http://www.gianfagnamarketing.com/blog/2014/03/10/6-reasons-to-use-your-own-name-in-your-companys-branding> [https://perma.cc/7JK9-7Z47]. A recent empirical study finds that eponymy “is linked to superior firm performance” and “creates a stronger association between the entrepreneur and her firm that increases the reputational benefits or costs of having the market hold a favorable or unfavorable impression of her ability (or of the quality of her firm).” Sharon Belenzon, Aaron K. Chatterji & Brendan Daley, *Eponymous Entrepreneurs*, 107 AM. ECON. REV. 1638, 1638 (2017).

¹¹⁸ George M. Zinkhan & Claude R. Martin, Jr., *New Brand Names and Inferential Beliefs: Some Insights on Naming New Products*, 15 J. BUS. RES. 157, 168–69 (1987).

¹¹⁹ Betsy Morais, *A New Way to Leave Your Lover*, NEW YORKER (June 23, 2015), <https://www.newyorker.com/business/currency/binder-breakup-app> [https://perma.cc/T7UG-6WFP].

¹²⁰ See Charly Lester, *The A-Z of Dating Apps in 2015 — G to L*, 30 DATES BLOG (May 15, 2015), <https://30datesblog.com/2015/05/15/the-a-z-of-dating-apps-in-2015-g-to-l/> [https://perma.cc/QCX5-X9ED]; Ruth Reader, *After Being Sued by Tinder, Can This Threesomes App Survive a Rebrand?*, FAST COMPANY (Aug. 2, 2016), <https://www.fastcompany.com/3061730/platform-wars/after-being-sued-by-tinder-can-this-threesomes-app-survive-a-rebrand> [http://perma.cc/8G4X-R2JX]. This is not to mention the somewhat similar -lr and -ter suffixes for dating apps like Bristlr (an app to connect men with beards to those interested in that subpopulation), Cuddlr (an app to connect people who want to cuddle), and Fuzzy Banter (a dating app focused on one's voice). See Charly Lester, *The A-Z of Dating Apps in 2015 — A to F*, 30 DATES BLOG (May 14, 2015), <https://30datesblog.com/2015/05/14/the-a-z-of-dating-apps-in-2015-a-to-f/> [https://perma.cc/8374-4GXA].

Their reasoning is that such words are less likely already to be claimed by others and more likely to be registrable as trademarks.¹²¹

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 often seems to fail to appreciate¹²²: 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.¹²³ 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 Parts III and IV below.

C. Applicants' Mark Selection

Together with marketing and branding principles, trademark law and practice also influence applicants' mark selection. 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.¹²⁴ Since 2000, the PTO has made freely available online the Trademark Electronic Search System

¹²¹ See, e.g., ALTMAN, *supra* note 86, at 148–61. For the same legal reasons, experts sometimes recommend that businesses adopt longer marks, which are more likely to be available as trademarks. See, e.g., Altman, *supra* note 102.

¹²² See, e.g., WILLIAM M. 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 that market,” “[c]ompetition would drive the fees to zero”).

¹²³ See, e.g., 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”).

¹²⁴ See, e.g., COMPUMARK, <http://www.compumark.com> [<https://perma.cc/CV7U-H0BL>].

(TESS), an easy-to-use database allowing applicants to identify trademark applications and registrations that might conflict with their prospective trademark.¹²⁵ 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.¹²⁶ Particularly over the past decade, trademark clearance has become significantly less expensive and time-consuming.¹²⁷ 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.¹²⁸ 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

¹²⁵ See *USPTO Introduces New Trademark Electronic Search System*, U.S. PATENT & TRADEMARK OFFICE (Feb. 29, 2000), <https://www.uspto.gov/about-us/news-updates/uspto-introduces-new-trademark-electronic-search-system> [<https://perma.cc/9USP-5KHV>]. To access TESS, see *Search Trademark Database*, U.S. PATENT & TRADEMARK OFFICE, <https://www.uspto.gov/trademarks-application-process/search-trademark-database> [<https://perma.cc/UN3S-ZWT8>].

¹²⁶ Cf. Lisa Larrimore Ouellette, *The Google Shortcut to Trademark Law*, 102 CALIF. L. REV. 351, 353–54 (2014) (suggesting that trademark distinctiveness can be measured by looking at Google search results).

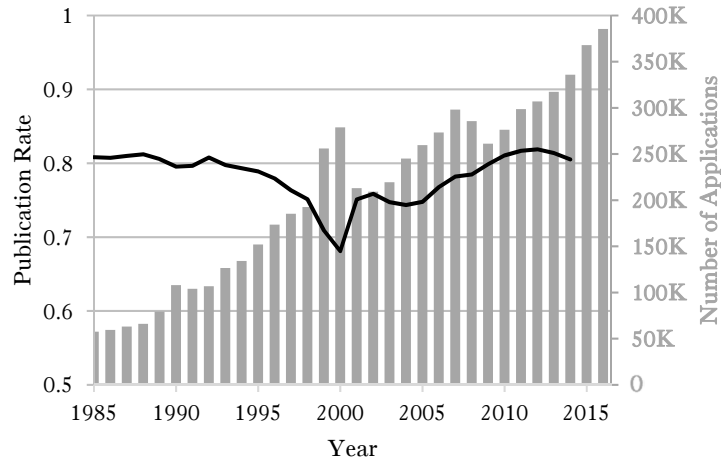
¹²⁷ See STEPHEN ELIAS & RICHARD STIM, *TRADEMARK: LEGAL CARE FOR YOUR BUSINESS & PRODUCT NAME* 100–06 (10th ed. 2013).

¹²⁸ 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 *Official Gazette*. 15 U.S.C. § 1062(a) (2012). The public then has thirty days from the date of publication to oppose the registration. *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. *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. *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. See Barton Beebe, *Is the Trademark Office a Rubber Stamp?*, 48 HOUS. L. REV. 751, 773, 774 tbl. 9 (2011).

The PTO data indicate that 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. See *infra* Part II, pp. 973–77, for discussion of the Trademark Case Files Dataset. 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, pp. 1003–08.

have remained steady (represented by the line and left axis in the figure).¹²⁹ Even during the internet boom, which largely accounts for the spike in applications in 1999 and 2000, publication rates declined only from 0.75 in 1998 to 0.68 in 2000, and then quickly recovered.

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



Instead of a declining publication rate, 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.¹³⁰ 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 plow ahead fully aware of the risk of a section 2(d) refusal. We address these issues further in Parts III and IV.

¹²⁹ We do not report the publication-rate data past 2014 because some applications filed after 2014 may not have been fully processed by the end of 2016, when the data on which this figure is based were compiled. For this reason, subsequent figures that report publication, registration, or section 2(d) refusal rates stop at 2014.

¹³⁰ See, e.g., Begley, *supra* note 95 (“[A]s winning hybrids of real words become scarcer than a telecom firm with a rising stock price, some naming consultants are advising brand managers to tap different synapses in their customers’ brains: those linking the raw sounds of vowels and consonants — known as phonemes — to specific meanings and even emotions.”).

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.¹³¹ 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.¹³² The dataset also provides more limited information on the 208,105 trademarks 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

¹³¹ *Trademark Case Files Dataset*, U.S. PATENT & TRADEMARK OFFICE (2016), <https://www.uspto.gov/learning-and-resources/electronic-data-products/trademark-case-files-dataset-o> [<https://perma.cc/4HY9-8XLQ>]; see also STUART GRAHAM ET AL., U.S. PATENT & TRADEMARK OFFICE, THE USPTO TRADEMARK CASE FILES DATASET: DESCRIPTIONS, LESSONS, AND INSIGHTS 3, 35 (2013), https://www.uspto.gov/sites/default/files/ip/officechiefecon/Trademark_Case_File_Data_Documentation_31January2013_final.pdf [<https://perma.cc/ZD6G-FP7C>] (describing the dataset and surveying trends in trademark applications and registrations). Prior to the release of the Trademark Case Files Dataset, Google made available in bulk download format much of the data on which the Trademark Case Files Dataset is based. See *USPTO Bulk Downloads: Trademark Application Text*, GOOGLE <https://www.google.com/googlebooks/uspto-trademarks-recent-applications.html> [<https://perma.cc/6VQJ-5BVH>] [hereinafter USPTO BULK DOWNLOADS]. These raw data files formed the basis of initial quantitative studies of certain aspects of the trademark registration process. See, e.g., Beebe, *supra* note 128, at 759–60 (using data from USPTO BULK DOWNLOADS, *supra*, to examine trademark publication and registration rates at the PTO); Deborah R. Gerhardt & Jon P. McClanahan, *Do Trademark Lawyers Matter?*, 16 STAN. TECH. L. REV. 583, 584 (2013) (using the data from USPTO BULK DOWNLOADS, *supra*, to “assess[] whether trademark applicants benefit from having an attorney assist in the registration process”). A more recent quantitative study of trademark registration has used the Trademark Case Files Dataset. See Jeremy N. Sheff, *Dilution at the Patent and Trademark Office*, 21 MICH. TELECOMM. & TECH. L. REV. 79, 81–82 (2014) (using the Trademark Case Files Dataset to examine rates of “registration of identical marks to different parties in different product classes” and to evaluate the effect of antidilution law on these rates).

¹³² The dataset also provides partial information about a significant proportion of trademark applications filed from 1870 through 1981. See GRAHAM ET AL., *supra* note 131, at 3; see also Beebe, *supra* note 128, at 760 (discussing differences in the data from USPTO BULK DOWNLOADS, *supra* note 131, between observations with filing dates before the early 1980s and those with filing dates after). In much of the statistical analysis that follows, we limit our findings to a population consisting of applications from 1985 through 2016 and trademarks 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.

website and autocoding 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 to 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.¹³³ COCA is the largest structured corpus of American English.¹³⁴ 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 twenty million words from each year. (From this corpus, we learn such important information as that Americans use the word “no” (our 72nd most frequently used word)

¹³³ See *Word Frequency Data: Based on 450 Million Word COCA Corpus*, WORD FREQUENCY DATA, <https://www.wordfrequency.info/look.asp> [<https://perma.cc/Q636-XNAV>]; see also Mark Davies, *The Corpus of Contemporary American English as the First Reliable Monitor Corpus of English*, 25 LITERARY & LINGUISTIC COMPUTING 447 (2010). The data is available on a proprietary basis from Professor Mark Davies. We downloaded the data on November 4, 2014. COCA's rank order does not include the trademarks “Microsoft,” “iPad,” or “Gucci,” but it does include “surface,” “apple,” and “bamboo,” when they are used as common nouns, as the 1122nd, 2666th, and 10,968th most frequently used words, respectively. Nor does the rank order include the proper noun “America,” but it does include the adjective “American” (161st). 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,” which ranks as the 17,894th most frequently used word (and which was derived from the word “googol,” denoting ten raised to the power of a hundred).

¹³⁴ Davies, *supra* note 133. This corpus is regularly used for research in linguistics, computational linguistics, psychology, and marketing. See, e.g., Eric K. Acton & Christopher Potts, *That Straight Talk: Sarah Palin and the Sociolinguistics of Demonstratives*, 18 J. SOCIOLINGUISTICS 3, 28 n.4 (2014) (using COCA to compare the frequency of words and phrases); David Eddington & Caitlin Channer, *American English Has Go? a Lo? of Glottal Stops: Social Diffusion and Linguistic Motivation*, 85 AM. SPEECH 338, 346–47 (2010) (using COCA to find the frequency of words ending with particular sounds followed by words beginning with other particular sounds); Ruth Pogacar et al., *Sounds Good: Phonetic Sound Patterns in Top Brand Names*, 26 MARKETING LETTERS 549, 555 (2015) (using COCA to create a list of “weak” brand names by randomly selecting 1000 proper nouns and cross-checking them with a business directory); Keith Rayner et al., *Eye Movements and Word Skipping During Reading: Effects of Word Length and Predictability*, 37 J. EXPERIMENTAL PSYCHOL. 514, 518 (2011) (using COCA to check the frequencies of words used in an experiment); V.A. Yatsko et al., *The Algorithms for Preliminary Text Processing: Decomposition, Annotation, Morphological Analysis*, 43 AUTOMATIC DOCUMENTATION & MATHEMATICAL LINGUISTICS 336, 341 (2009) (using COCA to compile “[a] list of suffixes and endings typical of certain parts of speech”). It also makes an occasional appearance in legal scholarship. See, e.g., Paul J. Heald & Robert Brauneis, *The Myth of Buick Aspirin: An Empirical Study of Trademark Dilution by Product and Trade Names*, 32 CARDOZO L. REV. 2533, 2574–75 (2011) (using COCA to determine the frequency of certain brand names and explaining how low-frequency words are unlikely to be harmed by dilution); Stephen C. Mouritsen, *Hard Cases and Hard Data: Assessing Corpus Linguistics as an Empirical Path to Plain Meaning*, 13 COLUM. SCI. & TECH. L. REV. 156, 194–201 (2012) (using COCA to argue that plain or ordinary meaning of a given term can be determined as an empirical matter through corpus-based methods).

more frequently than “yes” (211th), “hell” (1420th) more frequently than “heaven” (3409th), and “war” (216th) more frequently than “peace” (899th.) 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 (collapsed from 100,000), 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.¹³⁵ 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 1000 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 full list of words accounts 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 do 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.¹³⁶ The Census data also provide an

¹³⁵ See Steven T. Piantadosi, *Zipf’s Word Frequency Law in Natural Language: A Critical Review and Future Directions*, 21 PSYCHONOMIC BULL. & REV. 1112 (2014).

¹³⁶ *Frequently Occurring Surnames from the Census 2000*, U.S. CENSUS BUREAU http://www.census.gov/topics/population/genealogy/data/2000_surnames.html [https://perma.cc/FKE8-SH4B] (last updated Sept. 15, 2014). The Census does not list names occurring fewer 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, <http://www2.census.gov/topics/genealogy/2000surnames/surnames.pdf> [https://perma.cc/7V34-5WBV]. We use the Census 2000 data rather than the more recent Census 2010 data because the former describes the U.S. population closer to the midpoint of the timespan covered by our trademark data, which runs from the mid-1980s to the present.

estimate for each surname of the proportion of the U.S. population using that surname.¹³⁷ 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,¹³⁸ with the 1000 most commonly occurring surnames covering 40.6% of the population.) 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,¹³⁹ 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.¹⁴⁰

Finally, to study the depletion of potential neologisms, we use an original dataset comprising phonetic representations of all words included in all trademark applications and registrations in the Trademark Case Files Dataset. To develop this dataset, we used the Carnegie Mellon University (CMU) Pronouncing Dictionary, which provides the pronunciation broken down by phonemes for some 134,000 American English words.¹⁴¹ For words appearing in a trademark application but not in the CMU Pronouncing Dictionary, we used the Carnegie Mellon University LOGIOS Lexicon Tool to infer a phonetic representation of the word.¹⁴² 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.¹⁴³ We use this list to assess the depletion and

¹³⁷ WORD ET AL., *supra* note 136, at 16.

¹³⁸ *Id.*

¹³⁹ See *supra* p. 968.

¹⁴⁰ See *Top-Level Domain Zone File Information*, VERISIGN, https://www.verisign.com/en_US/channel-resources/domain-registry-products/zone-file/index.xhtml [<https://perma.cc/Q4CT-MW9M>].

¹⁴¹ THE CMU PRONOUNCING DICTIONARY, <http://www.speech.cs.cmu.edu/cgi-bin/cmudict> [<https://perma.cc/2ACN-M6BQ>]. Phonemes are recorded in the ARPAbet phoneme set developed for speech recognition use. *Id.* This dictionary uses a total of thirty-nine different phonemes. *Id.* It usefully contains the correct pronunciation of many well-known marks, such as CHANEL, GOOGLE, and MATTEL.

¹⁴² LOGIOS LEXICON TOOL, <http://www.speech.cs.cmu.edu/tools/lextool.html> [<https://perma.cc/U9BW-ES27>].

¹⁴³ We encoded COCA’s words phonetically also using the CMU 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 CMU Pronouncing Dictionary. See Susan Bartlett, Grzegorz Kondrak & Colin Cherry, *On the Syllabification of Phonemes*, in HUMAN LANGUAGE TECHNOLOGIES: THE 2009 ANNUAL CONFERENCE OF THE NORTH AMERICAN CHAPTER OF THE ASSOCIATION FOR COMPUTATIONAL LINGUISTICS 308 (2009), <http://www.aclweb.org/anthology/N/N09/N09-1.pdf> [<https://perma.cc/M2B8-39HX>] (describing the algorithm). For the results, see *Results*, <http://webdocs.cs.ualberta.ca/~kondrak/cmudict.html> [<https://perma.cc/>]

congestion of phonetically possible American English words, particularly neologisms.¹⁴⁴

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.*,¹⁴⁵ which held that the Lanham Act permits the registration of a mark consisting of a single color if the mark otherwise meets the requirements for trademark protection.¹⁴⁶ 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."¹⁴⁷ The Court reasoned that:

When 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.¹⁴⁸

Yet the functionality doctrine¹⁴⁹ would not prevent the kind of color-mark depletion that Jacobson was describing in *Qualitex*, which was the depletion by many different competitors of *nonfunctional* colors, such as the green-gold color for dry-cleaning press pads at issue in the case.¹⁵⁰ 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 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,

NDZ2-EKAH] (last updated Oct. 2009). We supplemented this data with post-processing to syllabify COCA words that do not appear in that dictionary.

¹⁴⁴ We plan to use this dataset more heavily in future work to study phonetic depletion and congestion, among other things.

¹⁴⁵ 514 U.S. 159 (1995).

¹⁴⁶ *Id.* at 162.

¹⁴⁷ *Id.* at 168.

¹⁴⁸ *Id.* at 168–69 (citation omitted).

¹⁴⁹ Trademark functionality doctrine bars the registration or protection of a product feature that is "essential to the use or purpose" of a product or that "affects the cost or quality" of a product. *TrafFix Devices, Inc. v. Mktg. Displays, Inc.*, 532 U.S. 23, 32 (2001) (quoting *Inwood Labs., Inc. v. Ives Labs., Inc.*, 456 U.S. 844, 850 n.10 (1982)).

¹⁵⁰ See *Qualitex*, 514 U.S. at 161. There can be no depletion of functional color marks because the functionality doctrine would bar their registration in any case.

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 applicants (those applying 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)¹⁵¹ 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.

¹⁵¹ We could 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. Generalizing to infinite word categories would complicate 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.

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 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 does not simply deplete 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 in that they are less different from other marks. Thus, a proper evaluation of depletion must incorporate some method for assessing not just identity, but also nonidentical 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 uniform.

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.¹⁵² For this

¹⁵² 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

reason, generic terms are barred from registration.¹⁵³ 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,¹⁵⁴ 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.¹⁵⁵ 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."¹⁵⁶ This defense recognizes that fair competition requires access to descriptive terms and thus limits the scope of trademark protection for descriptive marks.¹⁵⁷

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 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 that uses the surname. For neologisms, we use

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) (arguing that Congress, in drafting the Lanham Act, had considered and rejected the concern that protecting descriptive marks, like "Park 'N Fly" for long-term parking lots near airports, can be anticompetitive).

¹⁵³ See *supra* p. 958. 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).

¹⁵⁴ See *supra* p. 958.

¹⁵⁵ See Ramsey, *supra* note 152, at 1099.

¹⁵⁶ 15 U.S.C. § 1115(b)(4) (2012); see also *KP Permanent Make-Up, Inc. v. Lasting Impression I, Inc.*, 543 U.S. 111, 124 (2004) (holding that a defendant raising such a defense need not demonstrate that consumers will not be confused by the use).

¹⁵⁷ *KP Permanent Make-Up*, 543 U.S. at 122 (explaining the defense's origin as grounded partly in "the undesirability of allowing anyone to obtain a complete monopoly on use of a descriptive term simply by grabbing it first").

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 showing the proportion of words and surnames that, even if not identical to already-registered marks, are confusingly similar to such 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.

i. 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 considerable competitive advantages to their owners. They do so for two reasons. First, all else equal, single-word registrations 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.¹⁵⁸ 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. Second, 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.¹⁵⁹ 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, 813 (81.3%) of

¹⁵⁸ 3 MCCARTHY, *supra* note 22, § 19:60, at 19:221 to -222 (“The paradox of trademark registration is that the less that is registered, the greater the scope of protection afforded.”).

¹⁵⁹ See generally *supra* pp. 966–67 (discussing the fact that shorter words are more desirable for branding because consumers can recall them better).

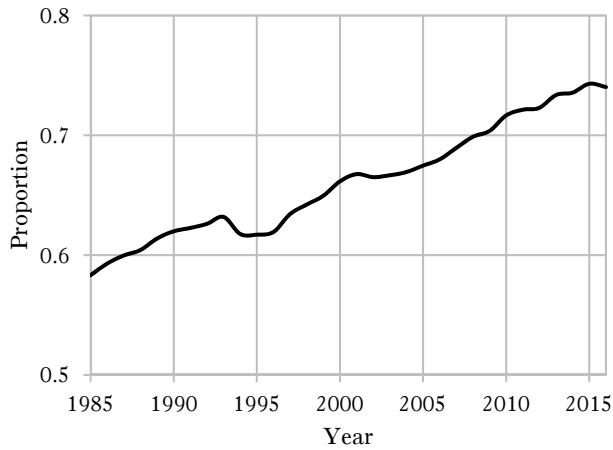
the 1000 most frequently used words identically matched an active single-word mark, and 6188 (61.9%) of the 10,000 most frequently used words did so. Overall, 20,295 (23.5%) of the 86,408 most frequently used words in American English were claimed as single-word marks.¹⁶⁰ These 20,295 words account for 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

Number of Most Frequent Words	Number Registered as Single-Word Marks	% of Number of Most Frequent Words	% of All Word Usage Claimed by Single-Word Marks
1,000	813	81.3	60.0
5,000	3,471	69.4	69.8
10,000	6,188	61.9	72.3
86,408	20,295	23.5	74.0

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 thirty-one years, that proportion has increased from 58.3% of all word usage in 1985 to 74.0% in 2016.

Figure 3: Proportion of All Word Usage Consisting of Words Claimed as Single-Word Marks by Year, 1985–2016



¹⁶⁰ We first standardized registered marks by correcting misspelled words, by placing appropriate spacing between concatenated words, and by removing punctuation and other symbols.

What words remain unclaimed? Studying the registration status of the 1000 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,” “problem,” and “violence”), questionable sales appeal (such as “least,” “perhaps,” “probably,” and “trying”), or strong basic meanings that would likely impede successful branding (such as “drug,” “religious,” and “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,” and “himself”).

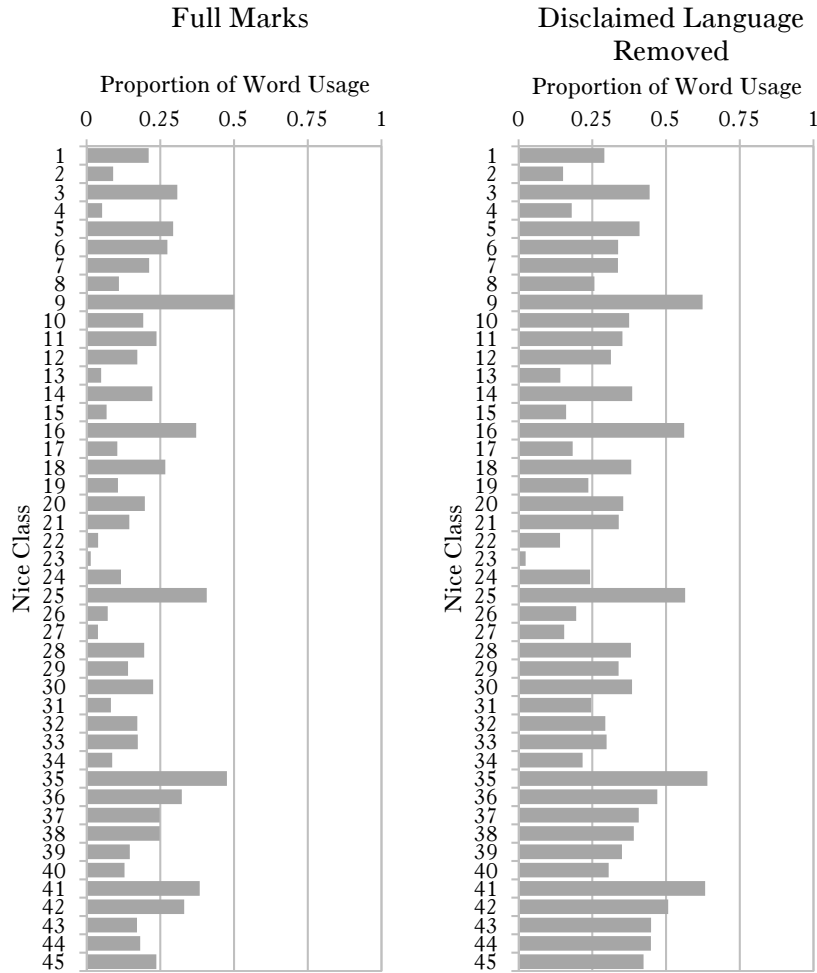
These data indicate that it is becoming more difficult for entrants to claim frequently used English words that no other firm is using anywhere in the economy. But firms will often settle for a parallel use provided that other firms that are using the mark are doing so in a different economic sector and in a nonconfusing 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.¹⁶¹

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 (electronic goods), Class 25

¹⁶¹ In presenting class-by-class results in this Article, we make several simplifying assumptions. First, we assume 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 related such 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 (precious metals, including jewelry). On the other hand, we make a second 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 combine many disparate goods or services, such as Class 35 (general business services). *Cf.* Tushnet, *supra* note 77, 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) (2016), stylized character marks in which the registration claims rights in the text only in its particular stylized font, or image marks containing text. *See Drawing of Your Mark*, U.S. PAT. & TRADEMARK OFF., <https://www.uspto.gov/trademarks-getting-started/trademark-basics/representation-mark> [<https://perma.cc/5YHR-MN2B>]. 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* p. 981 (applying a similar principle to one- versus multi-word marks).

(apparel goods), Class 35 (general business services), and Class 41 (education, entertainment, and cultural and sporting activities services).

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 analyzed up until now 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 COMPUTER, INC., even though the registration

disclaimed COMPUTER and INC.¹⁶² We designed the protocol in this manner because trademark examiners are instructed to include disclaimed language in their section 2(d) assessment of mark similarity.¹⁶³ However, excluding disclaimed language from the mark enables our matching protocol to focus on what is most often 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.¹⁶⁴

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 1000 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

¹⁶² APPLE COMPUTER, INC., 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) (2012). 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, 125–29 (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 nondisclaimed 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).

In our data, of the 5,107,791 applications filed from 1985 through 2016 that succeeded to publication, 1,376,168 (26.9%) 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.

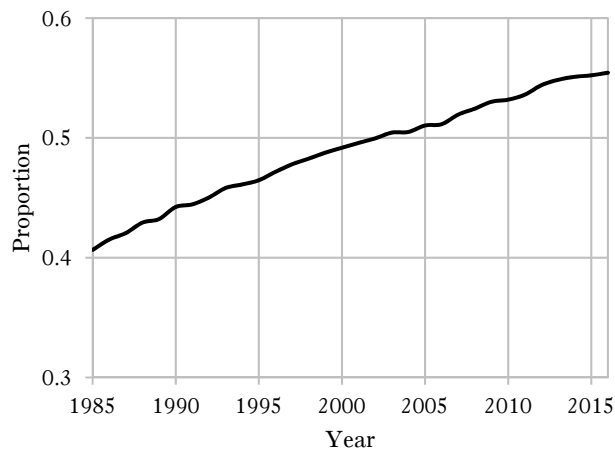
¹⁶³ *In re MCI Commc'ns Corp.*, 21 U.S.P.Q.2d (BNA) 1534, 1538 (T.T.A.B. 1991); TMEP, *supra* note 55, § 1213.10.

¹⁶⁴ TMEP, *supra* note 55, § 1213.10 (“Typically, disclaimed matter will not be regarded as the dominant, or most significant, feature of a mark.”).

the problem of word-mark depletion actually is — especially when we take into account, as we do in a moment, nonidentical similarity.¹⁶⁵

(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.¹⁶⁶ We thus measure surname depletion according to this metric. The Census dataset lists 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 by Year, 1985–2016



¹⁶⁵ We note that there is also significant depletion of individual letters and short letter combinations. In 2016, all twenty-six letters identically matched an active registration in some class of goods or services. In each of the most economically 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, UJ, Registration No. 5,243,465, while YQ, U.S. Trademark Application Serial No. 79,196,783 (filed July 19, 2016), and XU, U.S. Trademark Application Serial No. 86,900,821 (filed Feb. 8, 2016), are the subject of applications currently under review. 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.

¹⁶⁶ See *supra* pp. 975–76 (describing this dataset).

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 (electronic goods), 30.3% of the population carries a surname triggering an identical match. For Class 25 (apparel goods), 22.4% of the population does so. With respect to Class 35 (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 (metal goods) and 7 (machine goods), surname depletion is also significant, at 20.5% and 23.6% of the population, respectively. In essence, substantial portions of the American population have simply been born too late to claim their surnames as single-word marks in certain classes of goods and services.

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 (electronic 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).

(c) *One-Syllable Words*. — It is often assumed that the supply of trademarks is inexhaustible because new firms can simply coin new words.¹⁶⁷ 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.¹⁶⁸ 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.¹⁶⁹ 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

¹⁶⁷ See *supra* section I.B.1, pp. 962–64 (elaborating on this conventional wisdom).

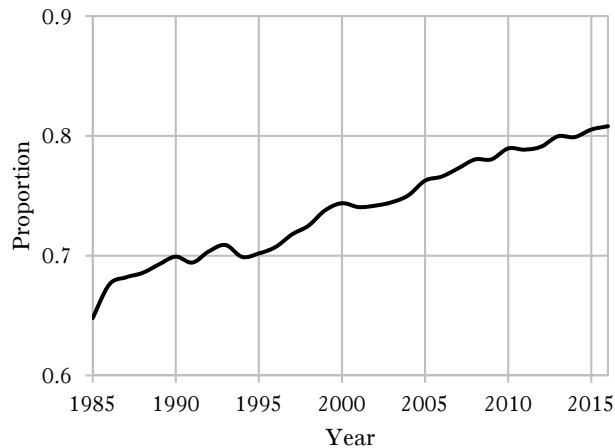
¹⁶⁸ See *supra* section I.B.2, pp. 964–70.

¹⁶⁹ We could study all potential two- and three-syllable English words as well, but due to computational constraints, 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.

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, 5632 (52.4%) are claimed as one-syllable marks. These 5632 syllables account for 80.8% of all syllable usage in the language. Figure 6 shows the extraordinary increase over time in the proportion of syllable usage consisting of a syllable claimed as a single-word mark, from a low of 64.8% in 1985 to our present condition in which over four-fifths 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 by Year, 1985–2016



Which syllables remain unclaimed? Just as we did for frequently used words, we look at which syllables remain unclaimed among a subset of the most frequently used syllables for some insight. Of the one hundred most frequently used syllables, twenty were free of conflicts with a registered mark in 2016. 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 2016

Frequency Rank	Arpabet Phonetic Transcription	Pronunciation Example
18	D IH	<u>din</u>
24	B IH	<u>bin</u>
31	S AH	<u>support</u>
32	R IH	<u>writ</u>
37	T AH	<u>tut</u>
39	IH	<u>big</u>
41	N AH	<u>nut</u>
44	M AH	<u>mut</u>
45	S IH	<u>signal</u>
47	DH ER	<u>other</u>
53	R AH	<u>rut</u>
58	T AH D	<u>stud</u>
69	P AH	<u>put</u>
76	L IH	<u>Linda</u>
78	M EH	<u>men</u>
79	M AH N T	<u>arrangement</u>
85	M IH	<u>minnow</u>
92	SH AH N Z	<u>stations</u>
93	T IH	<u>tin</u>
96	AE	<u>fast</u>

The kinds of syllables listed in Table 2 are representative of the larger population of the 5130 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,” “erf,” and “gloud.”

Comparing single-syllable marks with all syllables appearing in the corpus also shows which syllables have been coined by trademark registrants. Here we find a large number of almost comically obtuse brand names: GLOG,¹⁷⁰ GUK,¹⁷¹ LUNK,¹⁷² SKIDE,¹⁷³ TSUGE,¹⁷⁴ Zooth,¹⁷⁵ KNIRPS.¹⁷⁶ To be sure, 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 significant depletion of neologisms that promise to be at least minimally competitively effective.

¹⁷⁰ GLOG, Registration No. 4,277,734.

¹⁷¹ GUK, Registration No. 4,453,072.

¹⁷² LUNK, Registration No. 4,006,436.

¹⁷³ SKIDE, Registration No. 4,522,397.

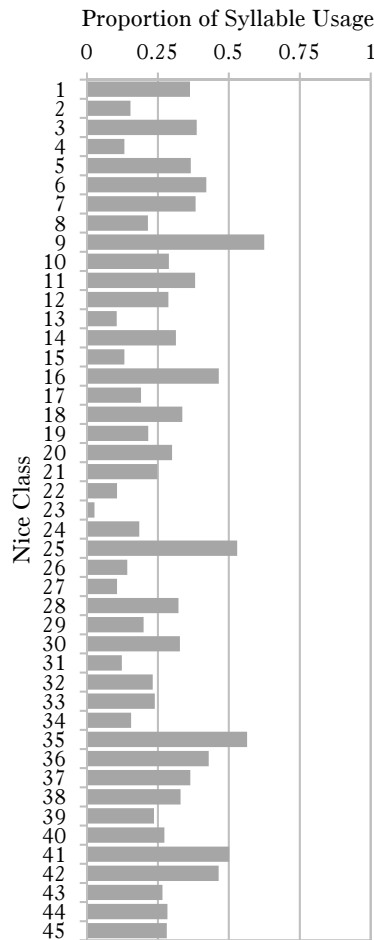
¹⁷⁴ TSUGE, Registration No. 4,632,239.

¹⁷⁵ Zooth, Registration No. 2,343,707.

¹⁷⁶ KNIRPS, Registration No. 4,103,506.

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 (electronic goods), 62.5% of all syllable usage consists of syllables claimed as one-syllable marks. In Class 35 (business administration services), 56.5% of syllable usage is claimed, and in Class 25 (apparel goods), 53.0% of syllable usage is claimed.

Figure 7: Proportion of All Syllable Usage Consisting of Syllables Registered as Single-Word Marks in 2016 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 nonidentical 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.¹⁷⁷ Jaro-Winkler distance is normalized such that a distance of 1 indicates an exact match and a distance of 0 indicates no similarity.¹⁷⁸ We use a conservative threshold of 0.875 to indicate a confusingly similar match.¹⁷⁹ To further tighten our similarity-matching protocol, we use

¹⁷⁷ 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, *String Comparator Metrics and Enhanced Decision Rules in the Fellegi-Sunter Model of Record Linkage*, in SURVEY RESEARCH METHODS SECTION, JSM PROCEEDINGS 354 (1990), <http://www2.amstat.org/sections/srms/Proceedings/> [<https://perma.cc/YY6Z-JRS5>]. 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 & CYBERNETICS 220 (2016); Fatahiyah Mohd Anuar, Rossitza Setchi & Yu-Kun Lai, *Trademark Retrieval Based on Phonetic Similarity*, in PROCEEDINGS: 2014 IEEE INTERNATIONAL CONFERENCE ON SYSTEMS, MAN & CYBERNETICS 1642 (2014) [hereinafter Anuar, Setchi & Lai, *Trademark Retrieval*]; Grzegorz Kondrak, *Phonetic Alignment and Similarity*, 37 COMPUTERS & HUMAN. 273, 284–86 (2003) (setting out the ALINE algorithm for assessing phonetic similarity). Fatahiyah Mohd Anuar, Rossitza Setchi, and Yu-Kun Lai in particular have proposed an algorithm that, by their estimate, significantly improves upon the Levenshtein approach and Grzegorz Kondrak’s ALINE algorithm. Anuar, Setchi & Lai, *Trademark Retrieval*, *supra*, at 1646–47. 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.

¹⁷⁸ See Winkler, *supra* note 177, at 356.

¹⁷⁹ We characterize a 0.875 Jaro-Winkler threshold as conservative for our purposes because it yields very few false positives. But it does so at the cost of a significant number of false negatives. As compared with 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 “epple” (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. *Final Decisions of the Trademark Trial and Appeal Board*, U.S. PAT. & TRADEMARK OFF., <https://e-foia.uspto.gov/Foia/TTABReadingRoom.jsp> [<https://perma.cc/R62N-5HJN>] (last updated Nov. 2017). We studied all 2587 opposition opinions included in this dataset from November 1996 through December 2016. For each of these opinions, we calculated a Jaro-Winkler score that compared up to the first four words in the opposer’s mark with up to the first four words in the applicant’s mark. The mean Jaro-Winkler score for the 1587 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

the full mark (including disclaimed language) as the basis of our comparisons with frequently used words and frequently occurring surnames.

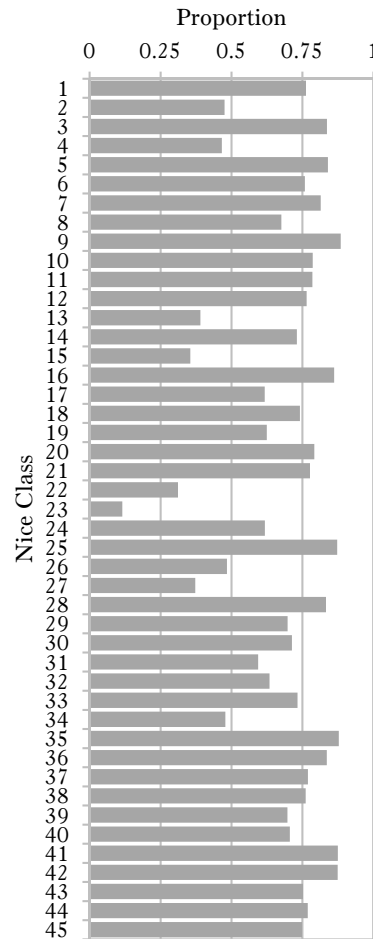
Even when using this very conservative method of matching, we find evidence of extreme word-mark depletion. Of the 86,408 words listed in our word frequency table, 83,913 (97.1%) were confusingly similar to an active trademark registration in 2016. These words account for 89.1% of all word usage in American English. Of the 10,000 most frequently used words, all but nine are confusingly similar to an already-registered mark.¹⁸⁰ 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 to active trademark registrations in that class in 2016. By this measure, over half of the Nice classes show word-mark depletion amounting to over 70% of all word usage, with Class 9 (electronic 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.

at least in part was 0.601. These results suggest that a Jaro-Winkler threshold of 0.875 is highly conservative. The TTAB dataset is very rich, and we plan further, more refined study of it.

¹⁸⁰ These words were, in order of decreasing frequency: “vulnerable,” “unintelligible,” “unfortunate,” “disappointment,” “uh-huh,” “vulnerability,” “would-be,” “unsuccessful,” and “notwithstanding.”

Figure 8: Proportion of All Word Usage Consisting of Words Triggering Jaro-Winkler Similarity Matches with Active Registrations in 2016 by Nice Class

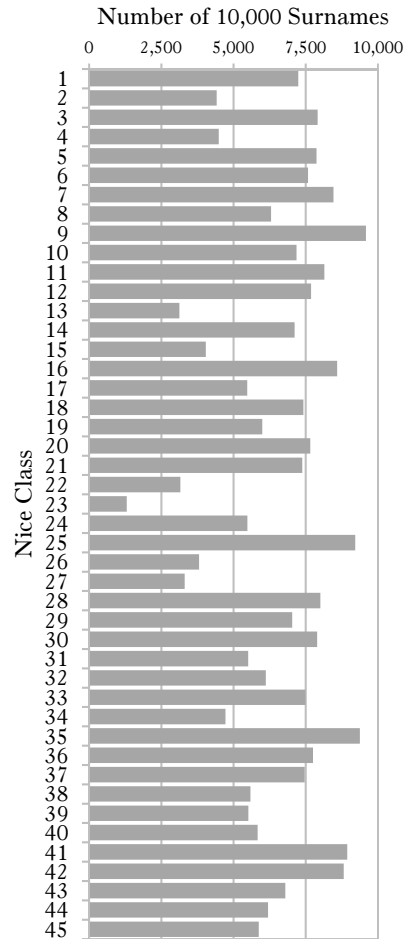


The results for surnames are comparable. Due to computational limitations, we focus on similarity matches with the 10,000 most frequently occurring surnames, covering 68.1% of the U.S. population. Of these, all but nineteen were confusingly similar to an active registration in 2016.¹⁸¹ Figure 9 shows the number of the 10,000 most frequently occurring surnames triggering a match by Nice class. As with common

¹⁸¹ These nineteen were: “Gutierrez,” “Yarbrough,” “O’Rourke,” “McDuffie,” “Jankowski,” “Szymanski,” “Jablonski,” “Dalrymple,” “Grijalva,” “Olszewski,” “Piotrowski,” “Urrutia,” “McKibben,” “DiBenedetto,” “Shropshire,” “McVicker,” “Cespedes,” “Vanlandingham,” and “Shrewsbury.”

words, common American surnames are heavily depleted in a large proportion of Nice classes.¹⁸²

Figure 9: Number of the 10,000 Most Frequently Occurring Surnames Triggering Jaro-Winkler Similarity Matches with Active Registrations in 2016 by Nice Class



3. *Within-Mark Word Matches.* — The appearance of a word *within* a currently registered trademark will not necessarily prevent others from

¹⁸² We do not currently study nonidentical 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 are 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.

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: for example, there is a good chance that BLUE COMPUTERS would stop nearly 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 with 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.¹⁸³ As Table 3 indicates, of the 1000 most frequently used words, only three failed to appear 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 2016. 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

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

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 (electronic goods), 16 (printed matter), 25 (apparel goods), 35 (business administration services), 41 (education, entertainment, and cultural and sporting activities), and 42 (computer-related services). Over 80% of all word usage consists of words claimed within marks in each of these classes.

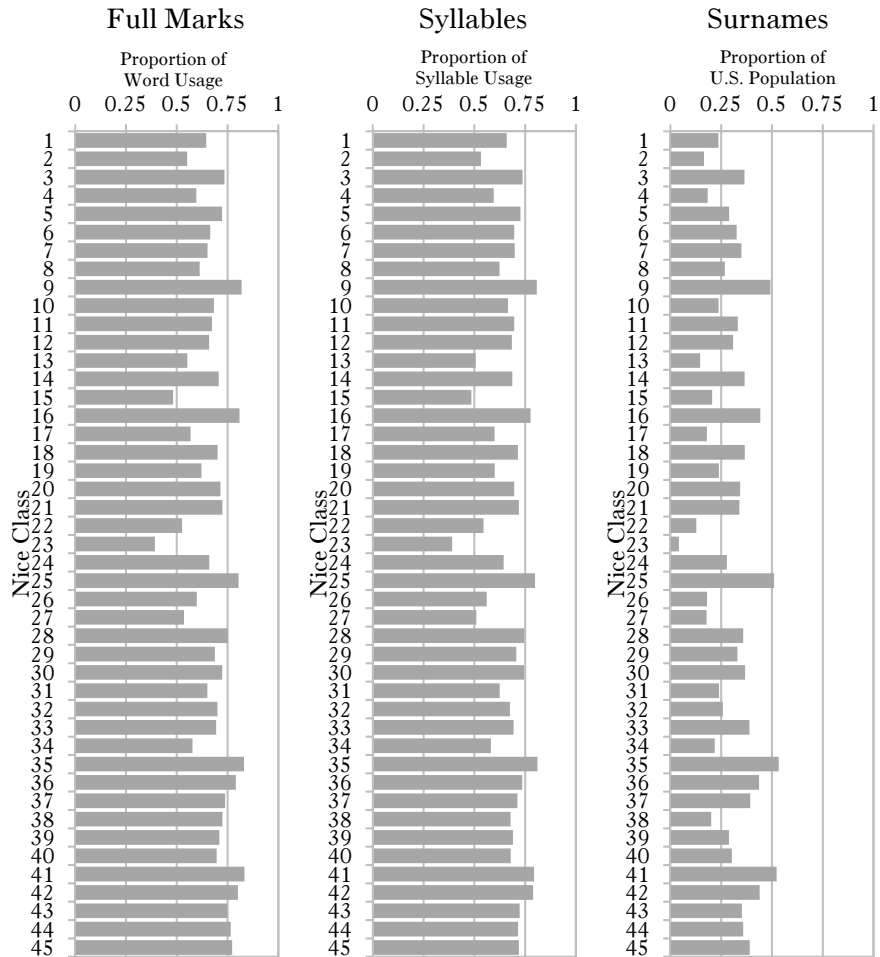
¹⁸³ Our within-mark matching protocol looked for the appearance of the word as a freestanding word within the mark.

Within-mark coverage of surnames is also very high. Of the 1000 most frequently occurring surnames in the United States, covering 40.6% of the population, only eleven fail to appear as a word in a registration active in 2016.¹⁸⁴ 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, 7666 (70.7%) were claimed as one-syllable words in active registrations in 2016. These 7666 syllables account for 86.9% 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 80.8%, 79.9%, and 81.1% of all syllable usage, respectively. Across most Nice classes, it is 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.

¹⁸⁴ These eleven are: “Contreras,” “Maldonado,” “Gallegos,” “Delacruz,” “McCullough,” “Blankenship,” “Rangel,” “Lowery,” “Zuniga,” “Bonilla,” and “Benitez.”

Figure 10: Proportion of All Word Usage Consisting of Words Appearing as a Word Within an Active Registration in 2016 by Nice Class; Proportion of All Syllable Usage Consisting of Syllables Appearing as a Word Within an Active Registration in 2016 by Nice Class; and Proportion of U.S. Population Carrying a Surname Appearing as a Word Within an Active Registration in 2016 by Nice Class



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 (TLD).¹⁸⁵ The .com

¹⁸⁵ See *supra* p. 968.

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 most frequently used words in English, 77,340 are currently registered as domain names in the .com TLD. These 77,340 words represent 86% of all word usage in American English.¹⁸⁶ 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 7012), “four-year” (7479), “three-year” (8457), and “nineteenth-century” (8691). Moreover, if one allows for the most minor of spelling variations, these four words are indeed registered as *twoyear.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.¹⁸⁷ In effect, at least 90% 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 fewer, 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.¹⁸⁸

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.

* * *

¹⁸⁶ The words “a” and “I,” together accounting for 3.2% of all word usage in American English, are not registered as domain names. See *infra* note 188 (explaining that no single-letter domain names are currently registrable).

¹⁸⁷ A random check of several of the 813 surnames that failed to find a match in Verisign’s data suggest that Verisign’s dataset 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.

¹⁸⁸ The Internet Corporation for Assigned Names and Numbers (ICANN) has established special rules for the reservation and eventual allocation of single-letter domain names, which are not currently registrable. See ICANN, *Single-Character Second-Level Domain Name (SC SLD) Allocation Framework*, <https://www.icann.org/resources/pages/proposed-scsld-allocation-framework-2008-06-13-en> [<https://perma.cc/Y64M-WDNL>].

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 to 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 (electronic goods), 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 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.¹⁸⁹ 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 the overall effectiveness and desirability of applied-for and registered trademarks have been declining. Applicants have been moving away from frequently used words and surnames and toward neologisms. Left with fewer standard words from which to choose marks, firms are constrained to settle for coined words, which tend to be less readily memorable and more costly to imbue with meaning.¹⁹⁰ 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, making them less desirable than shorter marks.¹⁹¹ We suggest that these trends are consistent with the effects of word-mark depletion on the trademark system. With a high proportion of preferred

¹⁸⁹ See *infra* section V.A, pp. 1021–29 (exploring in depth the harms of mark depletion, including those to competition).

¹⁹⁰ See *supra* pp. 965–66 (discussing the pros and cons of coined word marks).

¹⁹¹ See *supra* pp. 966–67 (discussing ideal mark length).

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 United States. 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. For all applications filed in 2014, the percentage of neologisms had increased to 82.8% of single-word applications and 84.3% of those that were registered. The data show that this upward trend has been particularly pronounced in Class 25 (apparel goods). For applications filed in 1985, 62.5% of single-word applications and 68.0% of those that were registered consisted of neologisms. For applications filed in 2014, the percentage of neologisms had increased to 82.0% of single-word applications and 85.7% of those that were registered.

Figure 11: Proportion of Applications and Registrations Consisting of Neologisms by Filing Year, 1985–2016

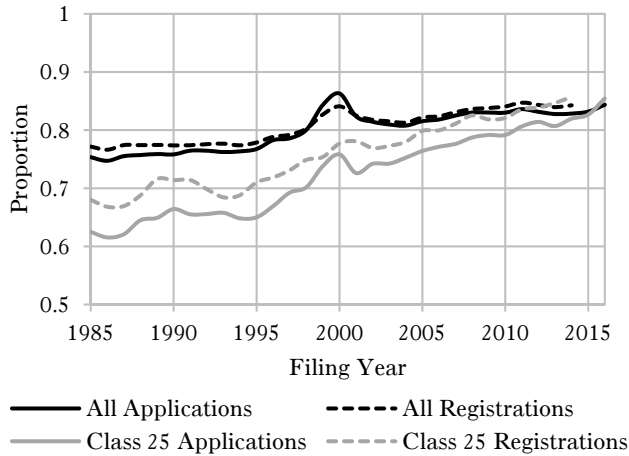


Figure 12 focuses on surnames and shows the declining proportion over time of applications and registrations matching frequently occurring surnames. For applications filed in 1985, 6.3% of applications and 6.2% of those that were registered consisted of a single word matching a surname included in the Census list of the most frequently occurring surnames in the United States. For applications filed 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

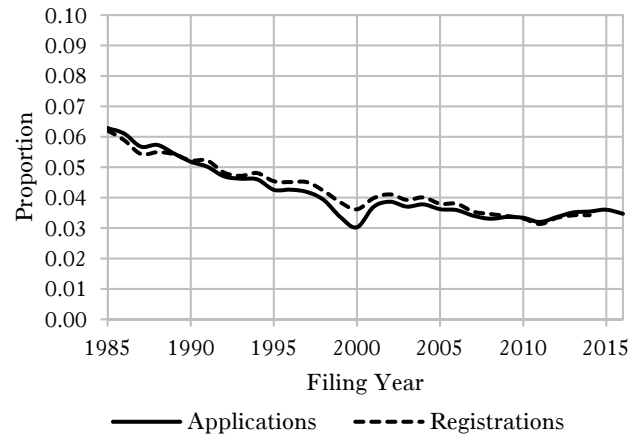
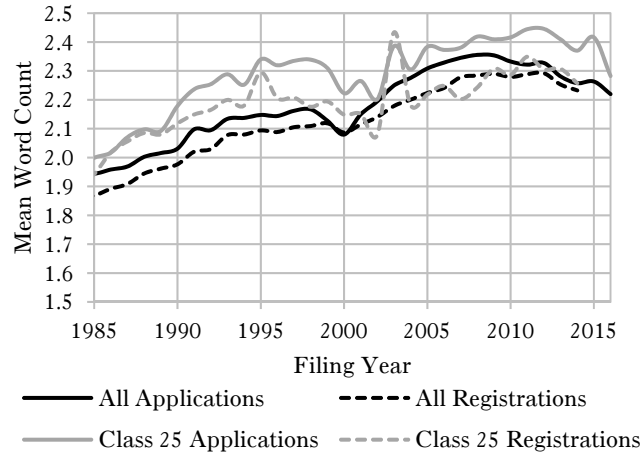


Figure 13 shows the increasing length in word count of applied-for and registered word marks over time, with a focus on Class 25 (apparel goods). Consistent with Figure 13, applications for single-word marks in particular have declined from a high of 47.1% of all word-mark applications in 1985 to a low 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. For applications filed in 2014, these averages had increased to 2.26 words for all applications and 2.23 words for those 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).

Figure 13: Length in Mean Word Count of Applied-For and Registered Marks by Filing Year, 1985–2016



Finally, Figures 14 and 15 show the increasing length in syllable and character count, respectively, 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

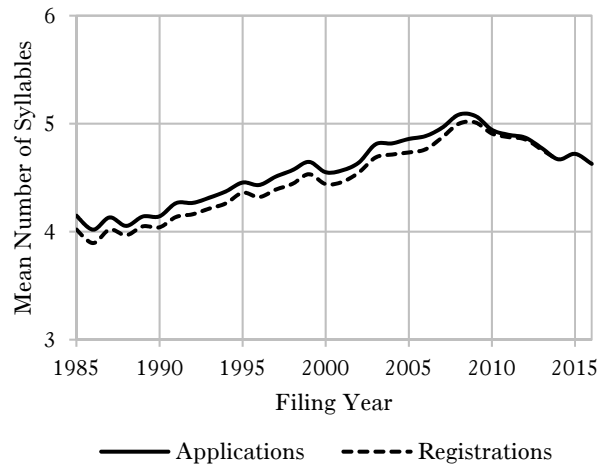
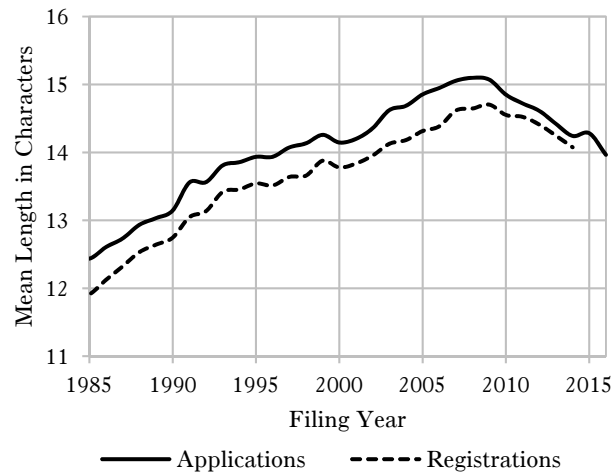


Figure 15: Length in Mean Character Count of Applied-For and Registered Marks by Filing Year, 1985–2016



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.¹⁹²

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

¹⁹² We additionally investigated whether frequent applicants at the PTO applied for and registered neologisms, surnames, and longer marks at rates different from those of infrequent applicants. We found no substantial difference between frequent, infrequent, and single filers with respect to the trends discussed in this section.

register marks that are likely to be confusingly similar to already-registered marks. From 2003 through 2014, an increasing proportion of applications received a section 2(d) refusal — and an increasing proportion of applications receiving a section 2(d) refusal ultimately failed to succeed to publication.¹⁹³ 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.¹⁹⁴ Furthermore, applicants appear to be acting on this knowledge by applying for neologisms and longer marks.¹⁹⁵ 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.¹⁹⁶

Figure 16 shows the increasing proportion of applications containing text that triggered at least one section 2(d) refusal. Section 2(d) refusal rates in the apparel and beverages sectors have grown especially high; for example, nearly one in five applications (19.8%) in the beverages sector faced a section 2(d) refusal in 2014 as compared to 13.5% eleven years prior.¹⁹⁷

¹⁹³ 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* p. 973.

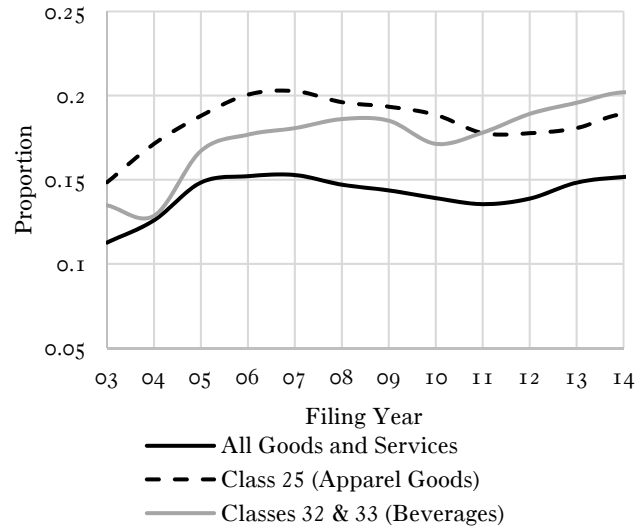
¹⁹⁴ *See supra* section I.C, pp. 970–72.

¹⁹⁵ *See supra* section III.C, pp. 999–1003.

¹⁹⁶ Some of these applicants might be relatively unsophisticated and not realize that 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.

¹⁹⁷ Some classes, like Class 5 (pharmaceuticals), have lower rates of section 2(d) refusals. However, even in these classes, there have been relatively similar increases in the proportion 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* pp. 1038–39.

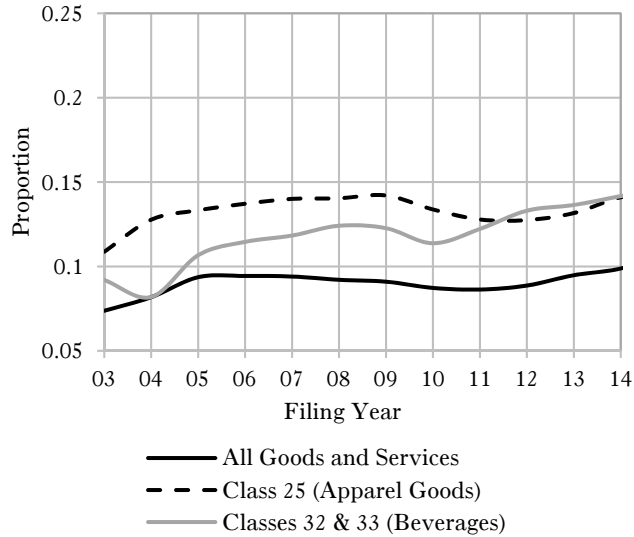
Figure 16: Proportion by Filing Year of Applications Containing Text that Triggered a Section 2(d) Refusal, 2003–2014



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 and Appeal Board that there is no likelihood of confusion.¹⁹⁸ 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.

¹⁹⁸ 37 C.F.R. § 2.63 (2016); see also TMEP, *supra* note 55, § 713.

Figure 17: Proportion of Applications Containing Text that Triggered a Section 2(d) Refusal and Failed to Publish by Filing Year, 2003–2014



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 section 2(d) refusals. Figure 18 shows relevant trends over time. Specifically, it shows by filing year the proportion of single-word applications that received a section 2(d) refusal and then failed to publish where those applications consisted either of a 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.¹⁹⁹

¹⁹⁹ 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, *supra* pp. 965–66. Yet our data show that both categories of word marks are increasingly being depleted over time, *see supra* section III.B, pp. 981–99, and Figure 18’s upward-trending lines for both non-neologisms and neologisms corroborate this.

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

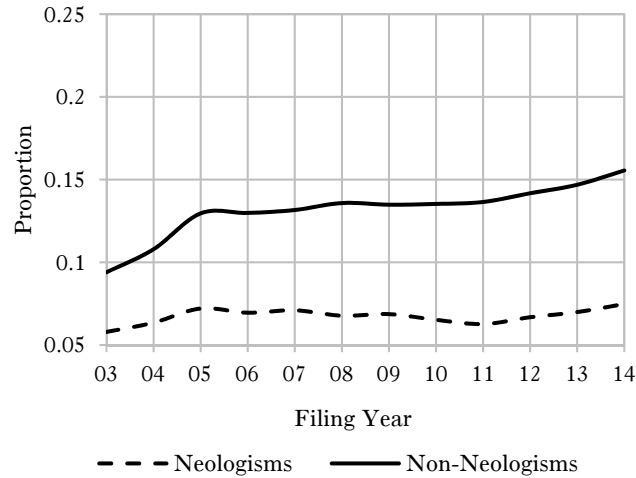
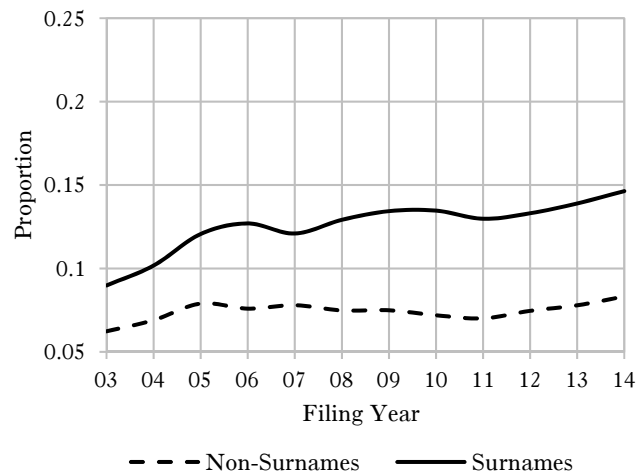


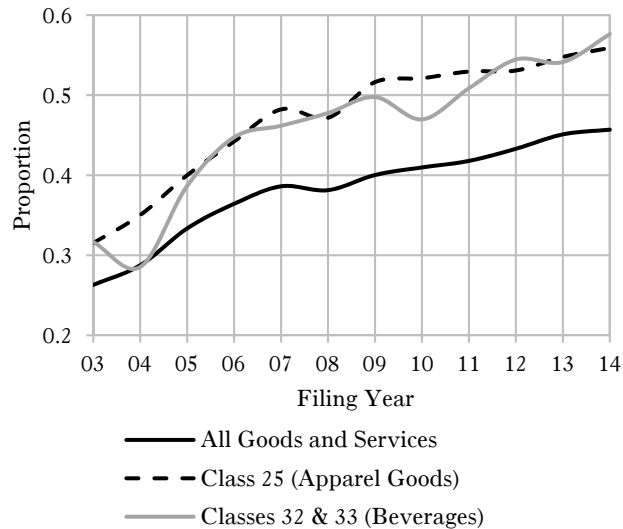
Figure 19 further focuses only on single-word applications consisting of a word that matches a frequently occurring surname. Here again, a remarkably high proportion of such applications are now both receiving a section 2(d) refusal and subsequently failing to publish.

Figure 19: Proportion of Single-Word Applications Containing Text that Triggered a Section 2(d) Refusal and Failed to Publish, Surnames vs. Non-Surnames by Filing Year, 2003–2014



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).

Figure 20: Proportion of Applications Failing to Publish that Received a Section 2(d) Refusal by Filing Year, 2003–2014



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.²⁰⁰

²⁰⁰ 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 remarked on this expansion. See, e.g., Jessica Litman, *Breakfast with Batman: The Public Interest in the Advertising Age*, 108 YALE L.J. 1717, 1721–25 (1999) (describing the expanding scope of trademark protection in the second half of the twentieth century); see also Barton Beebe, Essay, *Search and Persuasion in Trademark Law*, 103 MICH. L. REV. 2020, 2069–72 (2005) (discussing the rise of the “[s]overeign [t]rademark,” *id.* at 2069). Indeed, more generally, this expansion in trademark scope serves to accelerate trademark depletion and congestion and to worsen the severity of their impact on competition and the public domain. We discuss possible reforms to the likelihood-of-confusion standard in trademark law below. See *infra* p. 1041.

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.²⁰¹ Otherwise that registration might form the basis of a refusal of the new application under section 2(d).²⁰² For example, a Korean company recently applied for the word TRY in Class 25 (apparel goods).²⁰³ In doing so, the company cited its prior registration of the word in stylized format in the same class.²⁰⁴ This disclosure prevented the possibility of a section 2(d) refusal based on that prior registration. Over the twelve-year period from 2003 through 2014,²⁰⁵ 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 nonincumbent 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 93.9%, than did nonincumbent applications, at 76.3%.

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 nonincumbents. For the twelve-year period from 2003 through 2014, 32.4% of all nonincumbent applications resorted to single-word neologisms as compared to 23.4% of incumbent applications.²⁰⁶ If non-neologisms are in many respects preferred as trademarks, incumbents are benefiting further from having staked claims to these marks when they were still available.

²⁰¹ See 37 C.F.R. § 2.36 (2016).

²⁰² See TMEP, *supra* note 55, § 812 (citing 15 U.S.C. § 1052(d)).

²⁰³ TRY, Registration No. 4,610,405.

²⁰⁴ *Id.* (citing TRY, Registration No. 1,543,608).

²⁰⁵ In this section, we restrict our analysis to applications filed from 2003 to 2014. We begin in 2003 because section 2(d) refusal data are not available for applications filed before this date. We end in 2014 because applications filed after this date may not have been fully processed by 2016, which would skew the publication rate data for such applications.

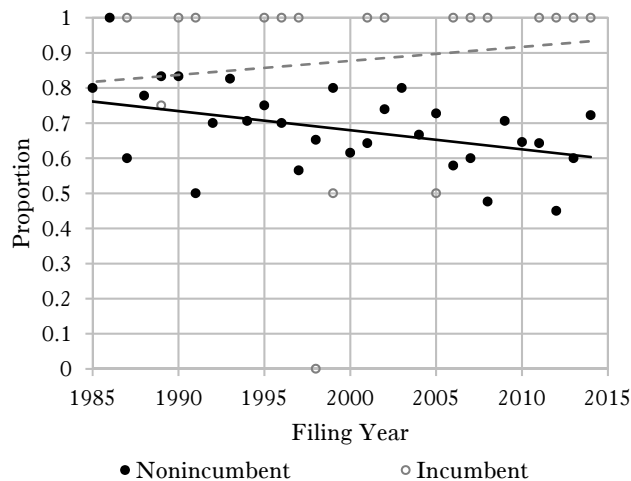
²⁰⁶ This difference continues through to the proportion of applications filed from 2003 through 2014 that resulted in registration and that consisted of a single-word neologism. For nonincumbents, 34.6% of applications filed over this period that resulted in registration consisted of single-word neologisms. 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 with nonincumbent applications. Similar differences appear in specific classes.

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

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

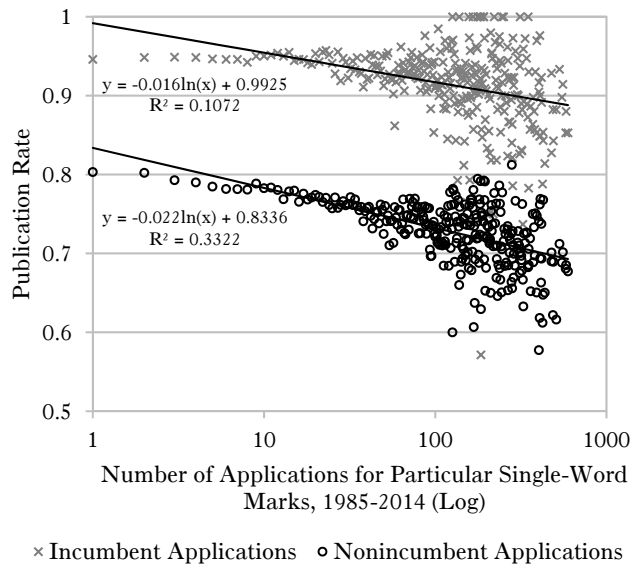
Figure 21: Incumbent vs. Nonincumbent Publication Rates for the Mark ECLIPSE by Filing Year, 1985–2014



The results for ECLIPSE are representative of the difference in publication rates between incumbents and nonincumbents 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 incumbent and nonincumbent publication rates for all applications for those words. For example, for a word applied for only once during this period, the publication rate for all nonincumbent applications was 80.3%. By comparison, the publication rate for incumbent applications for a word applied for only once was 94.6%. Figure 22 shows that with respect to both incumbent and nonincumbent 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 nonincumbent applications.

Figure 22: Publication Rate by Frequency of Applications for Particular Single-Word Marks, Incumbent vs. Nonincumbent 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, and thus 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 serious 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.²⁰⁷ For example, the registration for the single-word mark ACE for adhesive bandages was issued in 1949 and remains active.²⁰⁸ This registration did not prevent a different company from registering the single-word mark ACE for hardware goods in 1985²⁰⁹ and then for hardware store services in 1987.²¹⁰ Section 2(d) only bars the registration of marks that will confuse consumers as to source due to the similarity of these marks with previously registered marks; however, 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 ninety-five different registrants.²¹¹

Such parallel uses of word marks constitute word-mark congestion. They 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 a word mark that is already claimed 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 (1) a set of marks with respect to (2) a set of goods or services. Congestion occurs at the general level of all goods and services when different

²⁰⁷ See Sheff, *supra* note 131, at 101–19 (examining registrations of identical marks by different firms in different classes of goods or services).

²⁰⁸ ACE, Registration No. 507,884.

²⁰⁹ ACE, Registration No. 1,426,137.

²¹⁰ ACE, Registration No. 1,464,025.

²¹¹ The oldest active registration for ACE was issued on May 4, 1920 in connection with combs. See ACE, Registration No. 131,017.

entities each use the same mark but in different classes of goods or services (for example, 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 1000 most frequently used nouns and adjectives shows high degrees of congestion at the general level of all classes of goods and services and indeed also at the 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 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 that class. In contrast, 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 that 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 that class.

Depletion and congestion are linked conceptually. Once a set of words is entirely depleted with respect to a class, any subsequent claim to a word in that set will necessarily increase congestion of that word.²¹² Therefore, congestion always follows complete depletion if marks continue to be chosen from such a set of words.²¹³ 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

²¹² 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, *16 Fun Applications of the Pigeonhole Principle*, MIND YOUR DECISIONS (Nov. 25, 2008), <http://mindyourdecisions.com/blog/2008/11/25/16-fun-applications-of-the-pigeonhole-principle/> [<https://perma.cc/RV36-DLQM>] (“The pigeonhole principle states that if more than n pigeons are placed into n pigeonholes, some pigeonhole must contain more than one pigeon.”).

²¹³ 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.

congested — whether within a class or across classes — the more likely it will eventually become 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.²¹⁴ Finally, depletion and congestion are bound together with regard to their costs, as we discuss below, because over time new applicants increasingly face a catch-22 between exacerbating either depletion or congestion.²¹⁵

As we indicated above, congestion can occur even when section 2(d) is being properly applied. The primary way in which it can occur 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 as to source and no section 2(d) refusal would issue.

²¹⁴ See, e.g., TMEP, *supra* note 55, § 1207.01(b)(viii) (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.* § 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))). For the same reason, we suspect that for less inherently distinctive marks, by contrast, such as geographic designations or prefixes like “EZ,” the trademark system is more likely to tolerate substantially increasing levels of congestion without rendering those marks unavailable.

²¹⁵ See *infra* section V.A, pp. 1021–29. That applicants have to choose between increasing either depletion or congestion has another implication: both depletion and congestion can increase 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 rise together.

B. Congestion of Frequently Used Words

To assess trends in the degree of congestion of common English words, we focus on single-word registrations identically matching any one of the 1000 most frequently used nouns or adjectives regardless of Nice class.²¹⁶ Figure 23 shows two trends from 1985 through 2016. The bars (and the right axis) show by year the number of the 1000 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.²¹⁷ In 1985, 602 of the 1000 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 1000 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 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.

²¹⁶ We focus in this case on the 1000 most frequently used nouns and adjectives because the study of parallel ownership of the 1000 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 1000 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.

²¹⁷ In order to determine when registrations for identical marks were owned by different entities, we compared entity names listed in the Trademark Case Files Dataset using a matching algorithm based on a normalized Levenshtein edit distance rather than an algorithm based on identical matching. This approximate matching was necessary because the data contained a significant number of misspellings and slight changes in entity names; an identical-matching algorithm would thus result in an overestimation of the number of parallel users and the degree of congestion. Our algorithm employed the Stata module STRGROUP. See Julian Reif, *STRGROUP: Stata Module to Match Strings Based on Their Levenshtein Edit Distance*, IDEAS, <https://ideas.repec.org/c/boc/bocode/s457151.html> [<https://perma.cc/gDDE-3QN3>]. We used what was for our purposes a very conservative normalized Levenshtein edit distance of 0.40 (normalized to the length of the shorter string), such that any two entity names that yielded a Levenshtein score below 0.40 would be counted as matching and thus would not count as different registrants possessing parallel registrations of the same mark.

Figure 23: Number of the 1000 Most Frequently Used Nouns or Adjectives Registered as Single-Word Trademarks and Mean Number of Registrants per Noun or Adjective by Year, 1985–2016

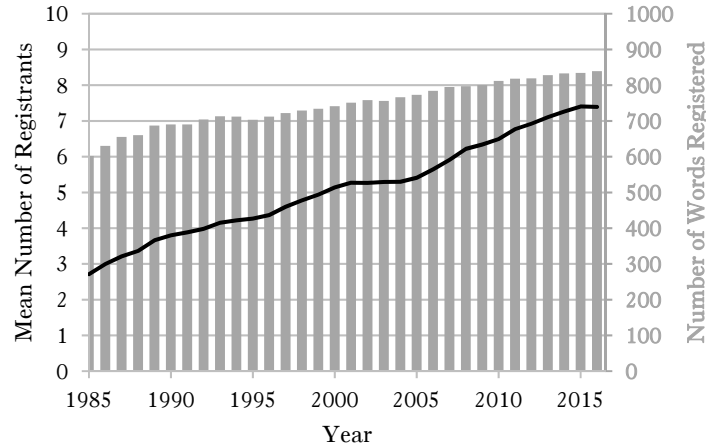
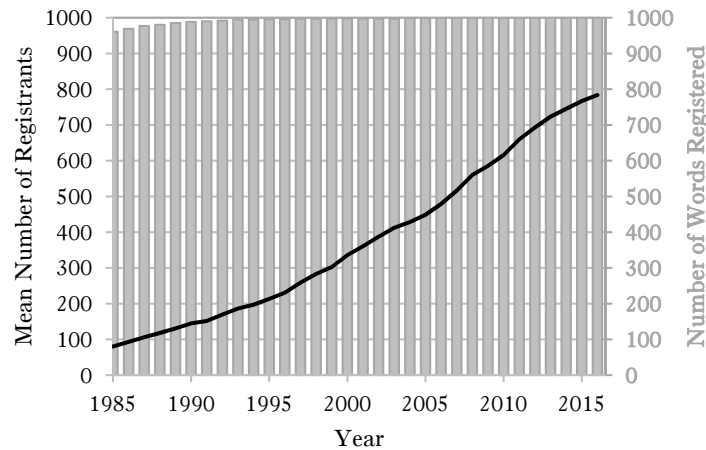


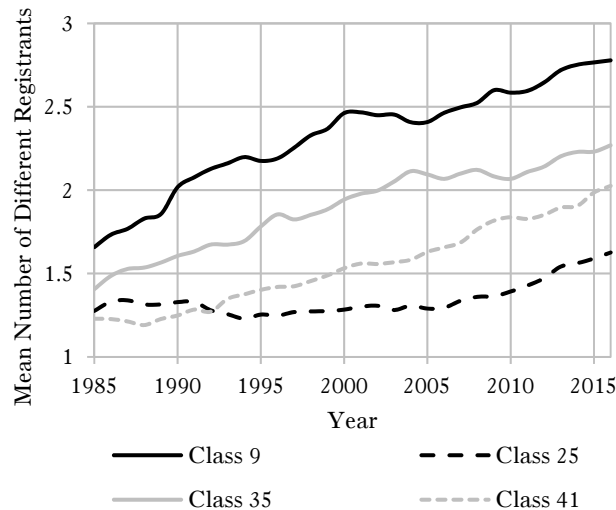
Figure 24 shows the same two trends as Figure 23 but for the proportion of the 1000 most frequently used nouns or adjectives that appeared as words *within* an active registration and the degree of congestion of these words. Evaluated by this metric, the increase in congestion is staggering. In 1985, 961 of the 1000 most frequently used nouns or adjectives appeared within registrations claimed by an average of 80.2 distinct registrants. By 2014, all 1000 such nouns or adjectives appeared within registrations claimed by an average of 745.2 distinct registrants.

Figure 24: Number of the 1000 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 1000 most frequently used nouns or adjectives, the average number of different registrants per word. Classes 9 (electronic goods) and 35 (general business services) are very broad classes, so it is entirely possible that two different companies could use the exact 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 the 1000 Most Frequently Used Nouns or Adjectives by Year, 1985–2016

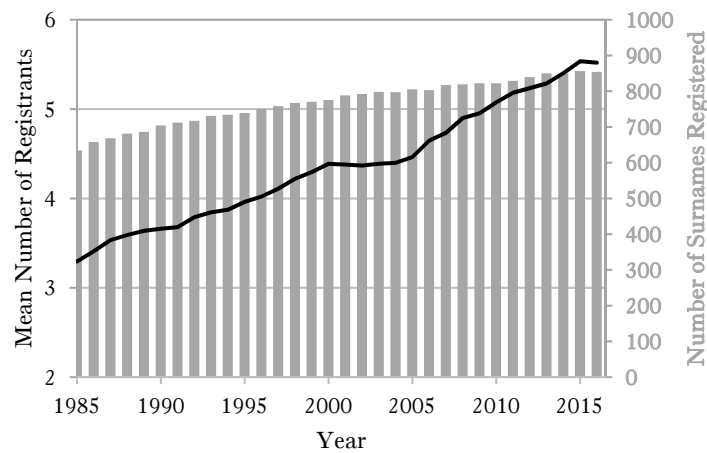


C. Congestion of Surnames

Congestion is also significant with respect to surnames. Here, we focus on single-word registrations identically matching any one of the 1000 most frequently occurring surnames regardless of Nice class. Just as Figure 23 above does for frequently used words, so Figure 26 shows two trends from 1985 through 2016. The bars show, by year, the number

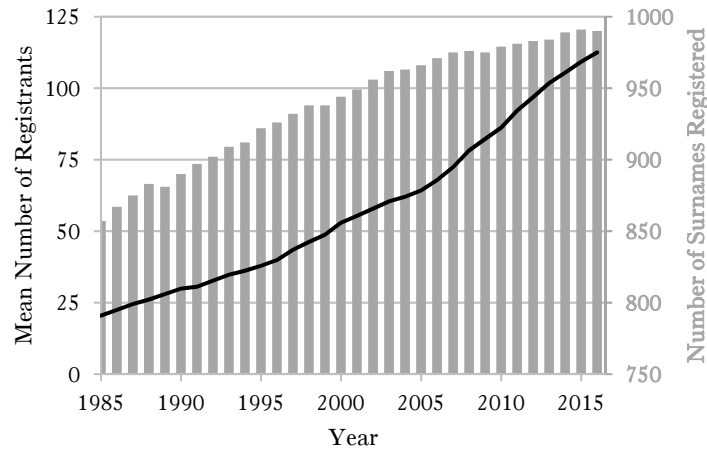
of the 1000 most frequently used surnames that were the subject of one or more active single-word registrations. The line shows, by year, the average number of different registrants for each such surname. By 2016, 854 of the 1000 most frequently occurring surnames were claimed as single-word trademarks by an average of 5.5 different registrants. As with words, so with surnames: multiple registrants of the same surname may not be confusing consumers as to source, but these parallel uses result in substantial congestion.

Figure 26: Number of the 1000 Most Frequently Occurring Surnames Registered as Single-Word Trademarks and Mean Number of Registrants per Surname by Year, 1985–2016



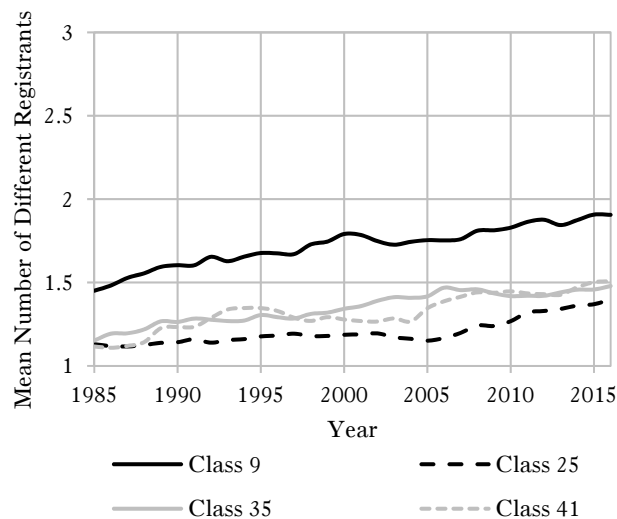
As for uses of the same surname as a word *within* trademarks registered by multiple different parties, the levels of congestion are extraordinarily high, as Figure 27 shows. In 2016, of the 1000 most frequently occurring surnames, 990 were claimed within an active registration by an average of 112.5 different registrants.

Figure 27: Number of the 1000 Most Frequently Occurring Surnames Appearing Within an Active Registration and Mean Number of Registrants per Surname by Year, 1985–2016



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 (electronic goods).

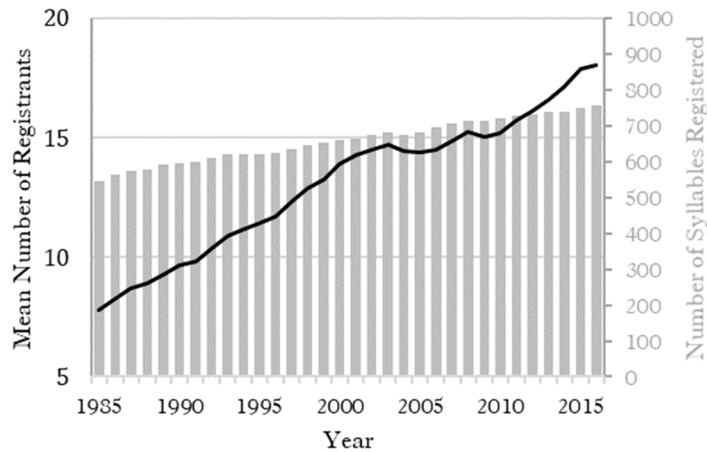
Figure 28: Mean Number of Registrants per Word for Single-Word Trademarks Consisting of 1000 Most Frequently Occurring Surnames by Year, 1985–2016



D. Congestion of One-Syllable Words

We also find significant evidence of congestion with respect to identical-sounding one-syllable words including neologisms. Here, we define congestion as the process by which increasing numbers 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 1000 most frequently used syllables in the Corpus of Contemporary American English and the number of different registrants for words that sound like those syllables. Figure 29 shows, by year, both the number of the 1000 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. In 1985, 545 of the 1000 most frequently used syllables sound-matched at least one registered mark and each of these 545 syllables sound-matched words registered by an average of 7.7 different registrants. By 2016, 758 syllables sound-matched registered marks owned by an average of 18.0 different registrants.²¹⁸

Figure 29: Number of the 1000 Most Frequently Used Syllables Registered as Single-Syllable Trademarks and Mean Number of Registrants Per Syllable by Year, 1985–2016



* * *

²¹⁸ 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 identical-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 that 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 examine, in section A, the costs of depletion and congestion and, in section B, 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.²¹⁹ 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.

i. 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.²²⁰ Trademark depletion subverts both of these purposes. It also represents a significant hazard to the public domain. We turn first to the harms that depletion inflicts on competition.

The anticompetitive effects of depletion take several forms. First, as depletion worsens, entrants face higher costs than incumbents had faced earlier when devising a mark that is both competitively effective and also not confusingly similar to an already-registered mark. Media reports across a variety of industries — including beer, music, and cosmetics — confirm that these costs are substantial and represent a significant barrier to entry.²²¹ Our data show that it is becoming increasingly difficult even to develop neologisms that are free of conflicts with already-registered marks.²²² Second, entrants are generally forced to settle for less effective marks, and empirical studies show that, all else

²¹⁹ We discuss a number of these important interrelationships above at pp. 1013–14.

²²⁰ See *supra* Part I, pp. 954–72 (invoking these goals in the context of describing trademark law and practice).

²²¹ See *supra* pp. 948–50.

²²² See *supra* section III.B.1.c, pp. 987–90.

equal, firms with less effective marks have less success in the marketplace than those with more effective marks.²²³ 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 section 2(d) refusal rates.²²⁴ 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.²²⁵ 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.²²⁶ 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 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.²²⁷ The ENTREPRENEUR example is not unique. Trademark scholars have documented similarly unreasonable conduct by many trademark owners.²²⁸

²²³ See sources cited *supra* note 85 and accompanying text.

²²⁴ See *supra* sections III.C–III.E, pp. 999–1012.

²²⁵ See *supra* section III.E, pp. 1009–12.

²²⁶ Our data do not show whether newer businesses are trying to overcome congestion or depletion by licensing more desirable, but already claimed, marks from preexisting businesses that have rights in those marks. Such private ordering might limit somewhat the anticompetitive advantages of incumbency. However, we are skeptical that this private ordering is occurring on any significant scale because, as a general matter, existing firms have incentives not to license their marks to producers of competing goods or services. See Jeanne C. Fromer, *The Unregulated Certification Mark(et)*, 69 STAN. L. REV. 121, 129–30 (2017) (observing that, in contrast to the requirement that certification marks be compulsorily licensed to any business meeting the certifier’s certification standard, trademarks generally need not be, and for good reason might not be, licensed to third parties).

²²⁷ 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), <https://nyti.ms/2hID8VC> [<https://perma.cc/4HH9-JTLN>]). Trademark law typically allows third parties to make descriptive uses of words that others have registered as trademarks. Otherwise, markholders could undercut efficient competition by monopolizing words needed to describe relevant goods or services. See 15 U.S.C. § 1115(b)(4) (2012) (providing a statutory fair-use defense against trademark infringement when a defendant uses a term or device “otherwise than as a mark . . . [if the term or device] is descriptive of and used fairly and in good faith only to describe the goods or services of such party, or their geographic origin”); *New Kids on the Block v. News Am. Publ’g, Inc.*, 971 F.2d 302, 306–08 (9th Cir. 1992); Ramsey, *supra* note 152, at 1126–27; *supra* p. 980.

²²⁸ See Grinvald, *supra* note 227, at 642–53 (describing the phenomenon of trademark bullying as “the enforcement of an unreasonable interpretation by a large corporation of its trademark rights

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.²²⁹ 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.²³⁰ 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.²³¹ Third and perhaps most importantly, developing coined words into meaningful commercial symbols for consumers is significantly more costly than familiarizing consumers with noncoined words.²³² 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 (noncoined) 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.²³³ 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

against a [vulnerable] small business or individual through the use of intimidation tactics,” *id.* at 642, such as economic pressure or coercive persuasion); *see also* William T. Gallagher, *Trademark and Copyright Enforcement in the Shadow of IP Law*, 28 SANTA CLARA COMPUTER & HIGH TECH. L.J. 453, 485–88 (2012); Kenneth L. Port, *Trademark Extortion: The End of Trademark Law*, 65 WASH. & LEE L. REV. 585, 589–91 (2008). The prevalence of trademark bullying prompted the Department of Commerce to report to Congress on the issue in 2011. U.S. DEP’T OF COMMERCE, REPORT TO CONGRESS: TRADEMARK LITIGATION TACTICS AND FEDERAL GOVERNMENT SERVICES TO PROTECT TRADEMARKS AND PREVENT COUNTERFEITING 1 (2011), <https://www.uspto.gov/sites/default/files/trademarks/notices/TrademarkLitigationStudy.pdf> [https://perma.cc/AND4-NVVW].

²²⁹ *See supra* notes 1, 82 and accompanying text (elaborating on this conventional wisdom).

²³⁰ *See supra* Part III, pp. 977–1012 (presenting the data).

²³¹ *See supra* section I.B.2, pp. 964–70.

²³² *See supra* section I.B.2, pp. 964–70.

²³³ *See supra* section I.B.1, pp. 962–64 (elaborating on this conventional wisdom).

to find usable marks, but at ever-greater cost in pursuit of ever-less benefit.²³⁴ 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 to quickly link a mark with the source and qualities it is intended to represent is directly related to how memorable the mark is to consumers.²³⁵ 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, that class begins to take on the characteristics of a “crowded field”²³⁶ of trademarks — or of a “trademark thicket.”²³⁷ In the infringement analysis, courts have long recognized that certain areas of trademark usage are heavily populated with closely

²³⁴ See *supra* Part III, pp. 977–1012.

²³⁵ See *supra* pp. 954–55 (discussing the role of consumer search costs in trademark law).

²³⁶ See 2 MCCARTHY, *supra* note 22, § 11:85, at 11-268 to-73 (discussing “crowded field[s]” 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) (quoting 1 J. THOMAS MCCARTHY, TRADEMARK AND UNFAIR COMPETITION LAW § 11:26, at 511 (2d ed. 1984))).

²³⁷ A trademark thicket is analogous in some ways to the patent thicket, a crowded area of patent rights, in which rights to the many patents comprising the thicket must be secured for freedom of operation in the space, which can raise cost issues and anticompetitive concerns. See, e.g., Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1614–15, 1627, 1694–95 (2003); Rochelle Cooper Dreyfuss, *Giving the Federal Circuit a Run for Its Money: Challenging Patents in the PTAB*, 91 NOTRE DAME L. REV. 235, 235–39 (2015); Katherine J. Strandburg et al., *Law and the Science of Networks: An Overview and an Application to the “Patent Explosion,”* 21 BERKELEY TECH. L.J. 1293, 1322, 1346–48 (2006); see also Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998). But see Jonathan M. Barnett, *From Patent Thickets to Patent Networks: The Legal Infrastructure of the Digital Economy*, 55 JURIMETRICS J. 1 (2014) (arguing that the patent thicket does not exist).

similar marks.²³⁸ The Trademark Trial and Appeal Board has recognized the same in the section 2(d) analysis.²³⁹ 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.”²⁴⁰ 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.²⁴¹ The result of the “crowded field” doctrine is that such fields are allowed to become even more depleted and even more crowded.

A final, albeit more amorphous, cost of trademark depletion is to the noncommercial 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 almost nine-tenths consists of words confusingly similar to registered marks.²⁴² In such a situation, we use all of our language in the shadow of trademark rights. To be sure, trademark law allows noncommercial, nonconfusing uses of terms claimed by others as trademarks. 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 *Lies and the Lying Liars Who Tell Them: A Fair and Balanced Look at the Right*.²⁴³ But not all defendants are

²³⁸ See, e.g., *Hansen Beverage Co. v. Nat’l Beverage Corp.*, 493 F.3d 1074, 1079 (9th Cir.) (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”), *vacated as moot*, 499 F.3d 923 (9th Cir. 2007); *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* p. 969 (observing similar suffixes for word marks in the dating-app space).

²³⁹ See, e.g., *In re The Lucky Co.*, 209 U.S.P.Q. 422, 423 (T.T.A.B. 1980) (“[T]his complete saturation of the market with somewhat similar stripe and bar designs leave[s] 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 . . .”).

²⁴⁰ *Miss World*, 856 F.2d at 1449 (quoting 1 MCCARTHY, *supra* note 236, § 11:26, at 511).

²⁴¹ See Klink, *supra* note 103, 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.” (citation omitted)). *But cf.* Mark P. McKenna, *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, *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).

²⁴² See *supra* sections III.B.1–III.B.2, pp. 981–94.

²⁴³ See Susan Saulny, *In Courtroom, Laughter at Fox and a Victory for Al Franken*, N.Y. TIMES (Aug. 23, 2003), <https://nyti.ms/2j2uTah> [<https://perma.cc/7QNP-A5NK>] (describing a federal court’s denial of Fox News’s motion for a preliminary injunction blocking publisher Penguin and author Al Franken from using the phrase in the book title).

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.²⁴⁴ 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."²⁴⁵ 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 videos of different groups of people reacting to anything and everything ranging from old technologies to video games.²⁴⁶ 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 subtler 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"²⁴⁷ before linking the mark with one of those multiple sources. In other words, parallel uses cause something akin to "dilution by blurring."²⁴⁸ 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 a mark after it has been published.²⁴⁹ But in both cases, only "famous" marks qualify for antiblurring protection.²⁵⁰ In this sense, the law's concern with blurring would

²⁴⁴ See *supra* note 228 (citing scholarship that examines this type of trademark bullying).

²⁴⁵ Grinvald, *supra* note 227, at 652 (alteration omitted) (quoting DAVID BOLLIER, BRAND NAME BULLIES: THE QUEST TO OWN AND CONTROL CULTURE 129 (2005)).

²⁴⁶ See *supra* p. 950.

²⁴⁷ Posner, *supra* note 87, at 75.

²⁴⁸ See 4 MCCARTHY, *supra* note 22, § 24:69, at 24-209 ("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)).

²⁴⁹ See 15 U.S.C. § 1125(c)(1) (2012) (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, because section 2 of the Lanham Act provides that registration can be refused on such a basis only under 15 U.S.C. § 1063. *Id.* § 1052(f).

²⁵⁰ 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").

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.²⁵¹ 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 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 nonfamous or new. Consider the example of the word mark ACE. In 2016, four new single-word registrations for ACE were issued to four new registrants, each using the mark in a different class.²⁵² With 126 ACE registrations preceding them, two of which (one for adhesive bandages and another for hardware services) are very well known,²⁵³ these market entrants will face considerable challenges in establishing an effective link in consumers' minds between their marks and their respective sources.²⁵⁴

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, doctors or pharmacists may inadvertently substitute one for the other with potentially lethal consequences.²⁵⁵ In fact, between eight and twenty-five percent of

²⁵¹ See, e.g., Maureen Morrin & Jacob Jacoby, *Trademark Dilution: Empirical Measures for an Elusive Concept*, 19 J. PUB. POLY & MARKETING 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, *The Continuing Search for Evidence of Trademark Dilution: An Experimental Approach* (Aug. 14, 2017) (unpublished manuscript) (on file with the Harvard Law School library) (presenting experimental evidence showing no blurring of famous marks after exposing experimental subjects to blurring stimuli).

²⁵² ACE, Registration No. 5,089,980; ACE, Registration No. 5,033,663; ACE, Registration No. 4,981,322; ACE, Registration No. 4,934,824.

²⁵³ See *supra* p. 1012.

²⁵⁴ 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 251; see also Tushnet, *supra* note 87, at 536–42. By contrast, our discussion here focuses on nonfamous marks. We suggest that such marks, particularly when used by market entrants, may suffer significant impairment from parallel uses.

²⁵⁵ FDA, CONTENTS OF A COMPLETE SUBMISSION FOR THE EVALUATION OF PROPRIETARY NAMES: GUIDANCE FOR INDUSTRY 4 (2016) [hereinafter FDA EVALUATION OF PROPRIETARY NAMES], <https://www.fda.gov/downloads/Drugs/Guidances/ucm075068.pdf> [<https://perma.cc/Y4L6-MJFT>]; cf. *Alfacell Corp. v. Anticancer Inc.*, 71 U.S.P.Q.2d 1301, 1306 (T.T.A.B. 2004) ("[W]here . . . marks are used on pharmaceuticals and confusion as to source can lead to serious consequences, it is extremely important to avoid that which will cause confusion."). The Institute for Safe Medication Practices maintains a nine-page chart of drug names that are easily confused,

medication errors are attributed to name confusion.²⁵⁶ 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.”²⁵⁷ As we discuss further below, the Food and Drug Administration (FDA) has taken important steps to alleviate congestion in drug marks, from which trademark law can more generally learn.²⁵⁸

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.²⁵⁹

* * *

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

with tips to disambiguate them and avoid medication error. INST. FOR SAFE MEDICATION PRACTICES, ISMP’S LIST OF CONFUSED DRUG NAMES (2015), <http://www.ismp.org/tools/confuseddrugnames.pdf> [<https://perma.cc/5LMC-7ANE>].

²⁵⁶ Amy Nordrum, *Why Do Prescription Drugs Have Such Weird Names? Blame Branding Consultants and the FDA*, INT’L BUS. TIMES (June 24, 2015, 1:33 PM), <http://www.ibtimes.com/why-do-prescription-drugs-have-such-weird-names-blame-branding-consultants-fda-1981819> [<https://perma.cc/ZG5T-T75S>]. Although the PTO’s focus in the evaluation of a trademark registration application is consumer confusion, the FDA’s focus is medical safety and thus the FDA takes into account doctor and pharmacist confusion in addition to consumer confusion. Deirdre A. Clarke, Comment, *Proprietary Drug Name Approval: Taking the Duel out of the Dual Agency Process*, 12 LOY. J. PUB. INT. L. 433, 441–42 (2011).

²⁵⁷ Nordrum, *supra* note 256.

²⁵⁸ See *infra* notes 310–15 and accompanying text.

²⁵⁹ In many ways, the loss of distinctiveness caused by congestion is comparable to the loss of distinctiveness caused by genericide. Genericide is the process by which a mark loses distinctiveness of a particular source, when it becomes the primary way that consumers and competitors refer to a genus of goods, and to all species of goods within that genus. Marks anywhere along the spectrum of distinctiveness, be they descriptive, suggestive, arbitrary, or fanciful, see section I.A.1, pp. 957–58, can become so congested as to become generic. Congestion represents one of the primary processes through which marks lose distinctiveness to such an extent that they become generic. Genericide is congestion taken to its extreme.

been claimed, the entrant is forced either to choose a less desirable word or words (from the same set or another set of words) or to seek to use an already-claimed word in parallel with other entities' usages.²⁶⁰ Later entrants thus are necessarily disadvantaged compared with earlier ones. 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 that are permissible to claim in parallel. Neither will be as helpful as an 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 will contribute yet further to depletion or congestion.

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 depletion and congestion and minimize their negative effects.²⁶¹ 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.²⁶² 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

²⁶⁰ The policies undergirding trademark law might counsel in favor of choosing, as a systematic matter, worsening depletion over worsening congestion, or vice versa. The question is an interesting one but lies beyond this Article's scope.

²⁶¹ Cf. Tushnet, *supra* note 77, at 927–29 (relying on our findings herein to advocate for declodging the trademark register to improve the trademark system).

²⁶² Cf. Abraham Bell & Gideon Parchomovsky, *Reinventing Copyright and Patent*, 113 MICH. L. REV. 231, 232–33 (2014) (observing that “[i]ntellectual property systems all over the world are modeled on a one-size-fits-all principle,” *id.* at 232, which makes them “easy to administer,” *id.* at 233).

depletion or congestion. This could help to forestall the advance of depletion and congestion in areas where they have not yet reached chronic levels. Yet this approach also raises concerns. Uniform policies might prove costly if they result in making more effective marks less available even in non-depleted and uncongested areas, thereby undermining competition and consumer protection.²⁶³

An alternative approach is to adopt tailored reforms that operate more strictly precisely in those areas that are undergoing depletion or congestion and to the degree that they are doing so. 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.²⁶⁴ For this reason, any package of policy reforms must be directed toward both current registrations and new applications.²⁶⁵

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 as little as \$300 per class each decade to renew the registration.²⁶⁶ By imposing greater financial — and perhaps also administrative — burdens on registrants to maintain their registrations, increased fees may improve the

²⁶³ Cf. *id.* at 238 (“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.”).

²⁶⁴ See *supra* section V.A, pp. 1021–29 (discussing the harms depletion and congestion cause for new entrants, as compared with earlier rightsholders).

²⁶⁵ Cf. Tushnet, *supra* note 77, at 918 (“We should register fewer marks and cancel more.”).

²⁶⁶ 37 C.F.R. § 2.6(a)(5), (12) (2016); see also *Keeping Your Registration Alive*, USPTO, <https://www.uspto.gov/trademarks-maintaining-trademark-registration/keeping-your-registration-alive> [<https://perma.cc/Y58U-CGRY>].

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.²⁶⁷ Moreover, even when trademark owners choose to pay increased fees and thereby to retain registered rights in their marks, they would be 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 registrant's and registered mark's characteristics and the degree of depletion or congestion in the mark's class. We think it would be administratively simplest to increase these fees equally across the board. Yet as discussed above, doing so would impose on all mark owners an equally increased financial burden regardless of whether their marks are contributing to depletion or congestion.²⁶⁸ Still, this burden might nonetheless be justified given how low these fees currently are and the general benefits of raising the probability that good 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 should not.

Alternatively, the PTO could increase fees in a more targeted fashion to force only those firms operating in particularly depleted or congested areas to bear more of the costs that their trademark choices impose on others²⁶⁹: the higher the degree of depletion or congestion in a particular area, the higher the fee. Such targeted increases would impose a form of "congestion pricing," sometimes also called "peak pricing,"²⁷⁰ to ensure that registrants in especially depleted or congested areas internalize

²⁶⁷ 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 patents issued in 1991 were allowed to expire when patentees failed to pay these fees, *id.* at 1530); 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.").

²⁶⁸ See *supra* p. 1030.

²⁶⁹ See *supra* p. 1030.

²⁷⁰ Congestion pricing compels users of a resource to internalize some or all of the negative externalities their use imposes on others. It thereby encourages users to act in ways that may decrease congestion (for example, by shifting their use of a resource to times when it is not congested or by making a more efficient use of the resource). Congestion-pricing schemes have been especially successful in minimizing traffic congestion. 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, 694–739 (2008) (analyzing the economic advantages of congestion pricing over building new roadways to address road traffic).

some of the costs that they are imposing on the trademark system by adding to that depletion or congestion.²⁷¹ Congestion pricing might also dissuade firms from adopting marks that would significantly increase depletion and congestion.²⁷² 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.²⁷³ 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,²⁷⁴ something particularly

Congestion pricing makes sense as a means of minimizing both trademark congestion and trademark depletion. The link between congestion pricing and trademark congestion is straightforward. With respect to trademark depletion, the analogy to traffic congestion is that depletion causes increasing numbers of words in particular categories to be used as marks.

There is another important link between congestion pricing for traffic and for trademark registrations. The traditional approach to traffic congestion has involved generating additional roadway capacity, which then tends to become equally or more congested, thereby not solving and sometimes worsening the problem of congestion. Building new roads does not work. *Id.* at 694–704. Similarly, while it is often imagined that a reliance on neologisms will solve the problems of depletion and congestion, we do not see neologisms as an adequate solution, as we explain above. *See supra* p. 1023.

For an economic overview of peak pricing, see W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, *ECONOMICS OF REGULATION AND ANTITRUST* 447–53 (4th ed. 2005).

²⁷¹ Cf. Charles Komanoff, *Pollution Taxes for Roadway Transportation*, 12 PACE ENVTL. 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.” (footnote omitted)); Nash, *supra* note 270, 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 situation by requiring drivers to internalize the costs that otherwise would be externalized.” (footnotes omitted)).

²⁷² Cf. Nash, *supra* note 270, at 725 (emphasizing that congestion pricing “reduces uneconomic overuse of roads”); Lior Jacob Strahilevitz, *How Changes in Property Regimes Influence Social Norms: Commodifying California’s Carpool Lanes*, 75 IND. L.J. 1231, 1243–44 (2000) (“Current policy [without congestion pricing] ma[kes] no distinction between those who value[] their time very highly and those with lower valuations — traffic congestion affect[s] all commuters on a road equally, regardless of differentials in how desperately they need[] to reach their destinations. Congestion pricing was a scheme developed . . . to help correct these inefficiencies.” (footnotes omitted)).

²⁷³ 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 271, at 132.

²⁷⁴ *See* Nash, *supra* note 270, 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.” (footnotes omitted)); cf. Strahilevitz, *supra* note 272, 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.” *Id.* at 1245 (footnotes omitted)).

troubling here if the aim is to lower barriers to entry in ways that help competition and consumers, not to 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).²⁷⁵ This approach might be adapted to trademark fees, for example, by setting fees lower for SMEs or by channeling increased revenues toward SME business development.²⁷⁶

While closely targeted fee increases would help 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 it is an admirable goal, we 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.²⁷⁷

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.²⁷⁸ The requirement preserves the constitutional basis for Congress's authority

²⁷⁵ Cf. Strahilevitz, *supra* note 272, at 1246.

²⁷⁶ Analogously, in its recent trademark fee increases, the European Union has sought to avoid the regressive effect of congestion pricing by keeping prices down for options likely to be chosen by SMEs. See *infra* note 277.

²⁷⁷ Recently, the European Union increased trademark fees with a tiered approach as a way to accomplish analogous goals. See Regulation (EU) 2015/2424, of the European Parliament and of the Council, 2015 O.J. (L 341) 21, 34. It 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 previously required an extra fee for each additional product class only beyond the third class). European Commission Press Release MEMO/15/4824, Package to Modernise the European Trade Mark System — Frequently Asked Questions (Apr. 21, 2015), http://europa.eu/rapid/press-release_MEMO-15-4824_en.htm [<https://perma.cc/KP3L-TTFL>]. 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 congestion 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.*

²⁷⁸ See *supra* note 32. For a discussion of the precise nature of the use requirement, see Stacey L. Dogan & Mark A. Lemley, *Grounding Trademark Law Through Trademark Use*, 92 IOWA L. REV. 1669, 1675–82 (2007).

to enact trademark law pursuant to the Commerce Clause.²⁷⁹ 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.²⁸⁰

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 that randomly audited a sample of trademark registrations to determine if they actually met the statutory requirement of use with respect to all or even any of the goods or services specified in the registration.²⁸¹ 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 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.²⁸²

At the conclusion of the two-year pilot period, the PTO reported the results of the audit program.²⁸³ Of the 500 audited registrations, approximately half could not be verified as being in use as claimed.²⁸⁴ As

²⁷⁹ 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, 94–95 (1879)).

²⁸⁰ See *id.* at 1613–15; Dogan & Lemley, *supra* note 278, at 1676; see also Tushnet, *supra* note 77, at 918–21 (discussing the concerns raised by registered marks that are not truly in use).

²⁸¹ Changes in Requirements for Specimens and for Affidavits or Declarations of Continued Use or Excusable Nonuse in Trademark Cases, 77 Fed. Reg. 30,197 (May 22, 2012) (to be codified at 37 C.F.R. pts. 2, 7).

²⁸² *Id.* at 30,197.

²⁸³ U.S. PATENT & TRADEMARK OFFICE, POST REGISTRATION PROOF OF USE PILOT STATUS REPORT (2014), http://www.uspto.gov/trademarks/notices/Post_Registration_Proof_of_Use.doc [<https://perma.cc/VUT5-UGWU>].

²⁸⁴ *Id.* at 1.

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.²⁸⁵ In light of the significant proportion of "deadwood"²⁸⁶ 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 10% of continuing-use affidavits filed that year "in which the mark is registered for more than one good or service per class."²⁸⁷

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 integrity²⁸⁸ but also decreases depletion and congestion by making unused — and likely desirable — marks available 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 a streamlined process for third parties to petition the PTO to cancel a mark based on nonuse,²⁸⁹ something the PTO is currently considering.²⁹⁰

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.²⁹¹ Trademark law allows a registered mark in continuous use for five years following registration to become incontestable, so long as certain conditions

²⁸⁵ *Id.*

²⁸⁶ See Tushnet, *supra* note 77, at 869.

²⁸⁷ 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) (to be codified at 37 C.F.R. pts. 2, 7).

²⁸⁸ Tushnet, *supra* note 77, at 869, 918.

²⁸⁹ See Leonard Robert Seifter III, Note, *Clearing the Brush: The Best Solution for the USPTO's Continued "Deadwood" Problem*, 23 J. INTELL. PROP. L. 143, 163–65 (2015) (analyzing such a proposal, with regard to a similar procedure in place in Canada).

²⁹⁰ Improving the Accuracy of the Trademark Register: Request for Comments on Possible Streamlined Version of Cancellation Proceedings on Grounds of Abandonment and Nonuse, 82 Fed. Reg. 22,517 (proposed May 16, 2017). For the comment we filed with the PTO in support of a streamlined process, see Barton Beebe & Jeanne Fromer, Comment on Possible Streamlined Version of Cancellation Proceedings on Grounds of Abandonment and Nonuse (Aug. 14, 2017), https://www.uspto.gov/sites/default/files/documents/StreamlinedCancellation_Comment_from_Beebe-Fromer_NewYorkUniversity.pdf [<https://perma.cc/DY9D-LUBC>].

²⁹¹ Rebecca Tushnet, *Fixing Incontestability: The Next Frontier?*, 23 B.U. J. SCI. & TECH. L. 434 (2017). It might also be worthwhile to eliminate the possibility of incontestability, but we recognize that is more radical.

are met, such as the absence of a final decision adverse to the mark's continuing registration.²⁹² Once a mark achieves incontestable status, it is susceptible to invalidation only on a limited number of grounds.²⁹³ Most importantly, the mark can no longer be invalidated for being descriptive and lacking the requisite secondary meaning.²⁹⁴ Tushnet presents evidence of marks undeserving of incontestability status that are allowed to claim it.²⁹⁵ This is troublesome generally and particularly so for descriptive marks. Given the severe costs associated with the depletion of descriptive terms,²⁹⁶ the Lanham Act should be amended either to limit the availability of incontestable status for descriptive marks or to allow challenges to a descriptive mark's claim of acquired distinctiveness even when that mark is incontestable.

Certain reforms directed toward new applicants may also help to alleviate depletion and congestion by making it tougher to register marks, with benefits and costs similar to those discussed above for existing registrants.²⁹⁷ 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,²⁹⁸ the PTO could more strictly enforce the use requirement against applicants 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.²⁹⁹ Finally, the PTO might also insist on more robust and direct evidence that applied-for descriptive marks have acquired distinctiveness.³⁰⁰ 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.³⁰¹ This evidence can often be quite weak.³⁰² The PTO might either require direct evidence of acquired distinctiveness, likely in the form of survey evidence, or at least establish an adverse inference

²⁹² 15 U.S.C. § 1065 (2012).

²⁹³ *Id.* § 1115(b).

²⁹⁴ *Park 'N Fly, Inc. v. Dollar Park & Fly, Inc.*, 469 U.S. 189, 196–97 (1985).

²⁹⁵ Tushnet, *supra* note 291, at 440–49.

²⁹⁶ *Supra* section III.A, pp. 978–81.

²⁹⁷ *See supra* pp. 1031–33.

²⁹⁸ *Supra* pp. 1034–35.

²⁹⁹ *See* 15 U.S.C. § 1051(d) (establishing a six-month period, extendable upon application for an additional thirty months, in which an intent-to-use applicant must file a statement of use).

³⁰⁰ *See supra* p. 958 (summarizing the rule of “acquired distinctiveness” for descriptive marks to be protectable).

³⁰¹ *See* TMEP, *supra* note 55, §§ 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. 2 MCCARTHY, *supra* note 22, § 15:30, at 15-61 to -62 & n.6 (citing cases).

³⁰² Ouellette, *supra* note 126, at 353.

that the lack of such evidence weighs heavily against a finding of acquired distinctiveness.³⁰³

The reforms we have proposed so far are those that we think are the most administratively feasible and politically viable. They are not, however, the only policy levers that might be adjusted. We consider two additional reforms that are more radical and whose effects on depletion and congestion are more difficult to predict. On balance, we think each is unlikely to result in net benefits to the trademark system.

First, with respect to the geographic extent of exclusive rights, the Lanham Act could cease to grant constructive nationwide priority to registered marks.³⁰⁴ In other words, registered trademark protection could revert to a common law framework in which the registrant can claim priority in a mark only in the geographic areas in which it is the first to make actual use of the mark, plus any natural zone of expansion.³⁰⁵ Such a reform could conceivably diminish trademark depletion because different firms could use the same mark in different geographic areas provided that no consumer confusion results. This would represent a significant break from current law, which allows a firm that owns a registered mark it uses only in, say, Hawaii to assert priority rights over the entirety of the United States.³⁰⁶ There are, however, several problems with this approach. Most significantly, given the development of the internet, many firms can now arguably claim that they use their marks nationally online.³⁰⁷ There would also be the substantial administrative burden of mapping out which geographic areas belong to which registrants. Finally, such a reform would open the door to multiple parallel uses and trademark congestion on a national scale. As the development of internet technology intensifies even further, and as physical travel increases, a framework of geographically limited parallel uses would become increasingly untenable.

Second, the Lanham Act could be reformed to provide that the PTO would no longer search the register to determine if an applied-for mark is confusingly similar to an already-registered mark. In essence, the

³⁰³ The PTO's rules emphasize that such evidence is probative of acquired distinctiveness, but they do not currently require or prioritize it. See TMER, *supra* note 55, §§ 1212, 1212.06(d); see also *In re Olin Corp.*, 2017 WL 4217176, at *15–16 (T.T.A.B. 2017) (Lykos, J., concurring in part) (calling for a stricter standard for the showing that the acquired distinctiveness of previously registered marks may be transferred to a mark applied for on an intent-to-use basis).

³⁰⁴ 15 U.S.C. § 1057(c); *supra* p. 962.

³⁰⁵ See, e.g., *Hanginout, Inc. v. Google, Inc.*, 54 F. Supp. 3d 1109, 1121 (S.D. Cal. 2014) (quoting *Optimal Pets, Inc. v. Nutri-Vet, LLC*, 877 F. Supp. 2d 953, 958 (C.D. Cal. 2012)).

³⁰⁶ See 15 U.S.C. §§ 1057(c), 1072.

³⁰⁷ See AJ Agrawal, *Ten Reasons Why Businesses Are Going Global*, HUFFINGTON POST (Aug. 14, 2016, 3:51 PM), http://www.huffingtonpost.com/aj-agrawal/ten-reasons-why-businesse_b_11512636.html [https://perma.cc/E7EL-GKHT].

PTO would no longer act as the first filter of incoming trademark applications on the question of confusing similarity; section 2(d) review would be left entirely to current registrants, who would need to become much more vigilant in monitoring applications and filing oppositions. This has long been the approach of European Union trademark law.³⁰⁸ Here too, however, there are several problems in addition to the obvious problem of shifting more monitoring costs onto current registrants. Applied-for marks that the PTO might previously have refused as confusingly similar might now slip through to registration without attracting the notice of current registrants, thus diminishing the impact of depletion. But this would at the same time result in the registration of confusingly similar marks and leave lurking conflicts unresolved, making them costlier to resolve down the line if they emerge. Furthermore, to the extent that this reform would allow the registration of nonconfusingly similar marks that would formerly have been filtered out by the PTO's review, the result would be an increase in parallel uses and trademark congestion.

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 situation we discuss above,³⁰⁹ provide an instructive case. The FDA, tasked with ensuring public safety with regard to drugs, not only regulates which drugs are to be approved for the market but also, in recent years, which marks businesses might use to market and sell drugs once approved.³¹⁰ Applicants submit up to two proposed names for evaluation, along with their intended pronunciation, possible derivations, in-

³⁰⁸ See Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union Trade Mark art. 8, 2017 O.J. (L 154) 1, 9–10. In 2007, the United Kingdom Intellectual Property Office adopted a comparable approach, in which it searches earlier trademarks and notifies the applicant of the existence of conflicting registrations. If the applicant proceeds with the registration, the Office notifies the owners of the conflicting registrations (provided they qualify for notification) and the owners may then oppose the applicant's registration. See U.K. INTELL. PROP. OFF., CONSOLIDATED TRADE MARKS RULES § 14 (2017); see also Christopher Benson & Oliver Loach, *Abolition of Relative Grounds Examination in the U.K.*, LAW360 (Nov. 26, 2007, 12:00 AM), <https://www.law360.com/articles/40873> [<https://perma.cc/M582-Y7XX>].

³⁰⁹ See *supra* pp. 1027–28.

³¹⁰ See Hannah Brennan, *The Cost of Confusion: The Paradox of Trademarked Pharmaceuticals*, 22 MICH. TELECOMM. & TECH. L. REV. 1, 17–18 (2015). A medication may be referred to by one of its three separate names: its chemical name, its generic (nonproprietary) name, and its brand (proprietary) name. *Id.* at 16. As Hannah Brennan notes as an 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 principally use brand names to refer to drugs, FDA EVALUATION OF PROPRIETARY NAMES, *supra* note 255, at 4; Brennan, *supra*, at 18, which is why limiting congestion of these names is important.

tended meaning of any prefixes or suffixes, and pharmacologic category.³¹¹ The FDA uses a rigorous multipronged approach to identify which submitted names are too confusingly similar to an already-existing drug name, including 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 packaging similarities; searches against drug databases; and prescription simulation studies.³¹² Of the 500 names reviewed annually, the FDA rejects “roughly one-third.”³¹³ 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.”³¹⁴ Not surprisingly, our data show that there is comparatively less congestion and lower rates of section 2(d) rejections in Class 5 (pharmaceuticals) than other classes.³¹⁵

³¹¹ FDA EVALUATION OF PROPRIETARY NAMES, *supra* note 255, at 10–11. Applicants can file proposed names for approval as early as after completion of a product’s Phase II clinical trials. *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.*

³¹² *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. 1, 2011), <http://www.inta.org/INTABulletin/Pages/TheBasicsOfDrugandMedicalDeviceNaming.aspx> [<https://perma.cc/XX7D-HGAY>]. The FDA’s name approval process is distinct from the PTO’s trademark registration process. See Frances M. Jagla & Boris Umansky, *Naming the Product: The Intersection of FDA and Trademark Law*, IP LITIGATOR, Jan.–Feb. 2009, at 13, 14. The PTO could, in theory, approve a drug mark only to have the FDA reject it, or vice versa. See *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 105. The United States Adopted Name Council assigns a new drug’s generic name in accordance with its own rules to avoid confusion with other generic drug names. *Id.*

³¹³ Scheib & Witherell, *supra* note 312.

³¹⁴ Nordrum, *supra* note 256; accord Scutti, *supra* note 105 (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/> [<https://perma.cc/HWR6-EZER>] (“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?”).

³¹⁵ See *supra* sections III.D, pp. 1003–08, & IV.B, pp. 1015–17 (reporting class-by-class section 2(d) refusals and class-by-class results of congestion of frequently used words). 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. See Hannah Brennan, Amy Kapczynski, Christine H. Monahan & Zain Rizvi, *A Prescription for Excessive Drug Pricing: Leveraging Government Patent Use for Health*, 18 YALE J.L. & TECH. 275, 279, 343 (2016). Fewer entrants mathematically means less opportunity for depletion or congestion. Compare Class 5 with the

It is crucial to note that all of the recommended — and even proposed but rejected — changes set forth above affect only the registration of marks. Comparable reforms should be implemented outside of the context of registration. Most pertinently, federal law also protects unregistered marks.³¹⁶ Such marks should be subject to the same heightened requirements for the showing of use in commerce and, when they are descriptive, for the showing of acquired distinctiveness.³¹⁷ More generally, in light of the harms of depletion and congestion, courts should feel empowered to adjudicate more permissively the fair use defense, both in its descriptive and normative forms.³¹⁸ Relatedly, with respect to the basic test for the likelihood of consumer confusion, courts may increasingly be compelled to strike a difficult balance in which they allow somewhat confusingly similar marks to remain in the marketplace in order to promote competition, even though doing so may impose greater search costs on consumers.³¹⁹

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 “Merely Informational Matter” examination guide that seeks to tighten current standards on the registration of matter that merely provides information about a good or service and is not perceived by consumers as source denotative.³²⁰ Data like ours not only show the need for this reform but could be used

relatively higher degrees of depletion and congestion in Class 25 (apparel goods) and Classes 32–33 (beers and other alcoholic beverages), in which the barriers to entry are significantly lower. Maureen Farrell, *How to Set Up a Clothing Retailer: Start-Up Costs*, FORBES (Jan. 9, 2007, 6:00 PM), https://www.forbes.com/2007/01/09/startupcost-inventory-rent-ent-manage-cx_mf_0109fundamentalsretailcosts.html [<https://perma.cc/56MK-VV6U>]; Steve Nicasastro, *How to Start a Craft Brewery*, NERD-WALLET (Mar. 11, 2016), <https://www.nerdwallet.com/blog/small-business/how-much-does-it-cost-to-start-a-craft-brewery/> [<https://perma.cc/3KHN-ZVYD>].

³¹⁶ 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, pp. 961–62, ought to be held to the same standards specified in the Lanham Act and developed by courts for registered marks. See Tushnet, *supra* note 77, at 881–916; *supra* note 77 (discussing Tushnet’s work).

³¹⁷ See *supra* pp. 1036–37.

³¹⁸ 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,” *id.* at 119, and holding that “some possibility of consumer confusion must be compatible with fair use,” *id.* at 121).

³¹⁹ See McKenna, *supra* note 241, at 86–92. Another possibility is to enable private actors to do more to allocate trademarks among themselves as a way to ameliorate depletion and possibly congestion. However, trademark law prohibits assignments in gross, which are sales of a trademark divorced from its good will. See *Topps Co. v. Cadbury Stani S.A.I.C.*, 526 F.3d 63, 70 (2d Cir. 2008) (“An assignment ‘in gross’ is a purported transfer of a trademark divorced from its goodwill, and it is generally deemed invalid under U.S. law.”). To facilitate a market in trademarks, trademark law could become more permissive about allowing trademark assignments in gross.

³²⁰ See U.S. PATENT & TRADEMARK OFFICE, EXAMINATION GUIDE 2-17: MERELY INFORMATIONAL MATTER (2017), https://www.uspto.gov/sites/default/files/documents/Merely-Informational_Matter_Exam_Guide_July_2017.doc [<https://perma.cc/224T-BYGS>].

in the future to aid in determining what matter in particular cases should be deemed merely informational because it is highly congested.

In sum, the depletion and congestion data clearly show that, going forward, trademark policy must address the degree to which depletion and congestion impose significant barriers to entry on nonincumbents 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 increasingly 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 find such signs at greater cost and with less benefit. Incumbent advantages will grow as will barriers to entry for nonincumbents. Consumer search costs will continue to increase. More and more of our daily language, both commercial and noncommercial, 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. 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.³²¹ A full understanding of depletion and

³²¹ See, e.g., Tushnet, *supra* note 77, at 927–29 (discussing, in light of this article's findings, a recent Federal Circuit opinion concerning the PTO's refusal to register a paw print trademark for clothing, which noted the multitude of other paw print designs already registered or in use as trademarks on clothing (citing *Jack Wolfskin Ausrüstung Fur Draussen GmbH & Co. KGAA v. New Millennium Sports, S.L.U.*, 797 F.3d 1363 (Fed. Cir. 2015))).

congestion should also incorporate semantic similarity, such as when a mark like TORNADO for wire fencing precludes the registration of the mark CYLCONE for the same goods.³²² Our results are conservative because we have not included this dimension of 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 and financial market stock symbols. Finally, a great deal of work remains to be done on specific trends revealed by the PTO's Case Files Dataset, including 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: 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. Over the two centuries of its development, the American trademark system has always assumed the existence of an open frontier of unclaimed, competitively effective trademarks. This assumption pervades American trademark law and policy. Yet our data show that this frontier is closing. Our hope is that the data will prompt recognition of and guide adaption to this new condition.

³²² See *Hancock v. Am. Steel & Wire Co. of N.J.*, 203 F.2d 737 (C.C.P.A. 1953) (affirming the PTO's refusal to register CYCLONE for wire fencing because of its semantic similarity with TORNADO for the same goods and noting that "[t]he meaning of these two words is the crux of the case," *id.* at 740).

APPENDIX: 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 food-stuffs; 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; nonmedicated soaps; perfumery, essential oils, nonmedicated cosmetics, nonmedicated hair lotions; nonmedicated 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; nonelectric 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 (nonmetallic); nonmetallic rigid pipes for building; asphalt, pitch and bitumen; nonmetallic 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 (nontextile).

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 nonalcoholic 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.