Article

Sound Marks

Deborah R. Gerhardt† and Jon J. Lee††

A lion roars just before a film rolls. A doughboy giggles. A giant green man laughs a hearty, "Ho, Ho, Ho." These iconic sounds are all federally registered as trademarks. They identify specific brands and distinguish their products and services from the competition. Human brains treat sounds like these as categorization tools and cognitive shortcuts—ideal trademark symbols. But what about the sounds your favorite toys or electronic devices make? Or those made by a fictional character in the latest blockbuster?

This Article tackles these issues and others. We push back against the widely-held belief that all unconventional trademarks—product designs, colors, scents, flavors, and sounds—are conceptually similar and collectively less likely to receive trademark protection.

First, we review scientific literature on how humans process sound. Next, we explain how trademark law sorts sounds compared to other unconventional symbols in determining whether they may be protected as trademarks. Third, we empirically

† Paul B. Eaton Distinguished Professor of Law, University of North Carolina School of Law.

†† Associate Professor of Law, University of Oklahoma College of Law.

We are grateful for thoughtful feedback from Amy Adler, Barton Beebe, Noam M. Elcott, Allan Friedman, Jeanne Fromer, Brian Frye, Michael Goodyear, Laura Heyman, Peter Karol, Mark Lemley, Yvette Liebesman, Jessica Littman, Mark McKenna, Viv Moffat, Alexandra Roberts, Jennifer Rothman, Guy Rub, Jeremy Sheff, Jessica Silbey, Rebecca Tushnet, Jan Osei-Tutu, Ed Timberlake, Andrea Wallace, and many other participants who gave us feedback at the 2023 Harvard-NYU-Penn Trademark and Unfair Competition Scholars Roundtable, 2022 Intellectual Property Scholars Conference at Stanford University, and the 2022 Art Law Work in Progress Scholars Conference. We are grateful to Sophia Vouvalis, Caroline Kloster, and Melissa Parthmore for excellent research assistance.

analyze the prosecution of sound marks before the United States Patent and Trademark Office over the past four decades, showing how different categories of sound mark applications fared in the federal registration process.

Contrary to the common assumption that all unconventional marks face similar barriers to publication and registration, sound mark applications are much more likely to be successful than those for other unconventional marks—approaching the success rates for word mark applications. At the same time, sound marks are not a homogeneous category. They are a large, varied set. Sometimes categories of sound marks succeed with the high frequency typical of word marks, but others must overcome the more exacting standards of product design trade dress. After exploring reasons for this difference and other dynamics revealed in our empirical research, we conclude with recommendations for scholars, practitioners, and policymakers interested in the untapped power of sound marks.

TABLE OF CONTENTS

INTRODUCTION

In the fall of 2019, the rap musician Pitbull registered the sound "of a man yelling 'EEEEEEEYOOOOOO' in falsetto with 'E' drawn out followed by a 'U' sound" as a trademark with the United States Patent and Trademark Office (USPTO) for "entertainment services in the nature of live musical performances" and "musical sound recordings; musical video recordings."[1] Should brief sound segments like this one be protectable as intellectual property? And, if so, should copyright and trademark law both apply, or should such sounds be channeled into only one realm of protection?

Historically, intellectual property protection for sounds has been asserted through copyright law, which protects "original works of authorship."[2] Copyright's originality and fixation requirements are not difficult to meet, and registration with the United States Copyright Office (Copyright Office) is easier, less expensive, and involves less review than trademark prosecution before the USPTO.[3] Although the originality requirement—that the work was independently created and reflects a modicum of creativity—is a relatively modest one, the Copyright Office sometimes refuses to register sounds of short duration as insufficient to clear that bar.[4] Not all sounds are eligible for copyright protection. Sounds from nature—the distinctive chirps of different songbirds and animals growling, roaring, barking, and purring, for example—are not created by human authors and therefore may not be eligible for copyright protection.[5] And while

1. The mark is a sound. The mark consists of a man yelling "EEEEEEEYOOOOOO" in falsetto with "E" drawn out followed by a "U" sound, Registration No. 5,877,076; The mark is a sound. The mark consists of a man yelling "EEEEEEEYOOOOOO" in falsetto with "E" drawn out followed by a "U" sound, Registration No. 5,877,077. *See generally* Justin F. McNaughton et al., *EEEEEEEYOOOOOO!: Reflections on Protecting Pitbull's Famous* Grito, 9 N.Y.U. J. INTELL. PROP. & ENT. L. 179, 188 (describing why Pitbull was issued two trademark registrations).

2. 17 U.S.C. § 102(a).

3. *See* Miriam Marcowitz-Bitton & Emily Michiko Morris, *The Distributive Effects of IP Registration*, 23 STAN. TECH. L. REV. 306, 352 (2020) (noting the "relative simplicity and low cost of copyright registration").

4. *See* U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 802.5(B) (3d ed. 2021) (warning that "short musical phrases are not copyrightable because they lack a sufficient amount of authorship").

5. *Id.* § 802.5(C) ("A musical work created solely by an animal would not be [copyrightable], such as bird song or a whale song.").

copyrights can last for over a century, they eventually go into the public domain.[6] At first glance, it might seem that many sounds are not protectable as intellectual property.

Enter trademark law, which protects symbols that signal the source of goods or services from deceptive or confusingly similar uses.[7] Because sounds can signal source, companies have increasingly turned to trademark law to protect sounds used in connection with their offerings—even though the sounds might not qualify for copyright protection. Some classic examples help us intuitively understand that sounds can function as memorable source identifiers. The roar of the MGM lion,[8] the Chicken of the Sea tuna song,[9] and the joyful *Looney Tunes* theme[10] are iconic examples of sound marks. But what about the sounds our devices make, or the signature expressions of fictional characters? They can also serve as trademarks, as we can see from the registrations of Apple's synthesized bell tones for electronic devices[11] and the registration of "D'oh!," the phrase Homer Simpson busts out every time something goes wrong.[12]

Trademark protection has several advantages for those seeking intellectual property protection for sound. There is no

---

6. *See, e.g.*, Michael Cavna, *'Winnie-the-Pooh' Just Entered the Public Domain. Here's What That Means for Fans.*, WASH. POST (Jan. 8, 2022), https://www.washingtonpost.com/arts-entertainment/2022/01/08/winnie-pooh-public-domain [https://perma.cc/3QWQ-Y5AS] (discussing several Disney characters entering the public domain and the implications for copyright and trademark protection).

7. *See* 1 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 3:1 (5th ed. 2023) (defining "trademark").

8. The mark consists of the sound of a cat's meow, Registration No. 2,158,156.

9. The mark is a sound. The mark consists of a male vocalist singing "ASK ANY MERMAID YOU HAPPEN TO SEE, WHAT'S THE BEST TUNA?, CHICKEN OF THE SEA," accompanied by electric bass, rock drum kit, and electric guitar [. . .], Registration No. 4,446,624.

10. The mark consists of the Looney Tunes Theme Song which consists of eighteen (18) musical notes comprising the notes, E4, D4, C4, D4, E4, EFlat4, E4, C4, D4, D4, D4, D4, C4, AFlat3, A3, D4, E4, and G4, Registration No. 2,471,345.

11. The mark consists of a sound. The mark consists of a synthesized bell tone playing a G#5 sixteenth note, followed by another G#5 sixteenth note, Registration No. 4,689,364; The mark consists of a sound. The mark consists of a synthesized bell tone playing a G#5 sixteenth note, followed by another G#5 sixteenth note, Registration No. 4,689,043.

12. The mark consists of the spoken word "D'OH," Registration No. 3,411,881.

originality or novelty requirement, and short sound clips or sounds from nature are just as protectable as complex music.[13] While copyrights expire after their term of protection, trademark protection can last as long as its owner uses the mark in connection with goods and services.[14] Despite these advantages, the protection of sound trademarks has not been thoroughly analyzed from theoretical, doctrinal, or empirical perspectives.

This Article fills that gap. It expands on prior research exploring whether sensory stimuli used to express meaning may also be the subject of intellectual property protection. In a previous article, *Owning Colors*, we analyzed whether colors convey trademark meaning in addition to their significant embodied and referential meanings.[15] Like colors, sounds may convey multiple meanings. After the U.S. Supreme Court's decision in *Qualitex Co. v. Jacobson Products Co.*,[16] color marks received significant attention, and hundreds of applications to register them followed.[17] But no judicial decision involving sound has been so impactful. Because colors have received the most attention among the varied field of unconventional trademark subjects, scholars and practitioners often treat color as the model that typifies all unconventional marks.[18]

---

13. *See generally* MCCARTHY, *supra* note 7, § 6:6 (illustrating the differences between trademark and copyright requirements).

14. *See id.* § 6:30 (discussing the relationship between copyright and trademark protection for the same subject matter, the former of which is time-limited).

15. Deborah R. Gerhardt & Jon McClanahan Lee, *Owning Colors*, 40 CARDOZO L. REV. 2483 (2019) (presenting the results of a comprehensive examination on the trademark protection of color). *See generally id.* at 2487 (detailing, in part, that "embodied meaning results from the human body's biological reaction to a particular stimulus," while referential meaning is "learned" and "triggered by cultural associations that are wholly external to the stimulus").

16. 514 U.S. 159 (1995).

17. Gerhardt & Lee, *supra* note 15, at 2540–41 (presenting results of an empirical study on single color marks, which showed a "dramatic spike in color mark applications [that] corresponded with the Supreme Court's consideration of color as a mark in *Qualitex*"). *See generally* Paige Stratton Bass, Note, *Trademark Law:* Qualitex Co. v. Jacobson Products Co. — *The Supreme Court Upholds Trademark Protection for a Color*, 49 OKLA. L. REV. 193, 199–210 (1996) (discussing the *Qualitex* decision).

18. *See, e.g.*, Justin Hughes, *Non-Traditional Trademarks and the Dilemma of Aesthetic Functionality*, *in* THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES 107, 109–23 (Irene Calboli & Martin Senftleben eds., 2018) (discussing single colors at length when exploring the

But, as this Article will show, the human brain processes sound differently from color. Because sound can embed itself so deeply in memory and may not trigger as many embodied and referential meanings, it can function as an especially strong and durable source identifier. These differences may explain the results of our ensuing empirical study, which show that sound mark applications succeed more frequently before the USPTO than those for single colors or other unconventional marks[19]—despite the unique technical and substantive hurdles they encounter to federal registration.

In recent years, neuroscientists and psychologists have made tremendous advances in understanding the complex coordination of neural pathways that results in sound perception. Part I of this Article explores the literature on how people perceive, interpret, and remember sound. Many studies report that sounds are particularly durable in human memory, making them theoretically strong candidates for trademarks. Part II explains how intellectual property law channels sound into different modes of protection and describes how the law has evolved to protect sounds as trademarks. Part III presents a comprehensive empirical study of USPTO trademark application and registration data spanning four decades. The data show that sound marks do not fit neatly into any existing trademark category. Sometimes, the USPTO treats them like word marks, but in other instances, it applies the more exacting standards developed for single colors and product design trade dress. After identifying these patterns, we explore the technical and substantive barriers to sound mark registration. We conclude with practical advice for those seeking to protect sound marks and policy recommendations for the USPTO to consider adopting to minimize technical obstacles for sound mark applicants.

---

issue of whether unconventional marks may be deemed functional); Jerome Gilson & Anne Gilson LaLonde, *Cinnamon Buns, Marching Ducks and Cherry-Scented Racecar Exhaust: Protecting Nontraditional Trademarks*, 95 TRADEMARK REP. 773, 819 (2005) (lumping all unconventional marks together and assuming that, like single colors, none can be inherently distinctive).

19. *See infra* Part III.B.

I. HOW HUMANS PERCEIVE, UNDERSTAND, AND REMEMBER SOUND

Unlike word marks, which may be seen or heard, and design marks, which are only perceived visually, sound marks have no visual element. While they may be presented to consumers with visual imagery, the sound mark applications that are the focus of our study consist only of sounds. For example, although the MGM roar may be accompanied by a video clip of a male lion, MGM sought registration separately for the sound that appears in our study.[20] Because trademark protection was traditionally developed for text and visual symbols,[21] one may question whether sounds—with no visual elements—are capable of creating sufficiently distinctive impressions to function as trademarks.

To explore this question, we begin with literary references showing that the power of sound has been a defining part of the human experience for centuries. Next, we review scholarship from neuroscience, psychology, music, marketing, and cognitive science. This interdisciplinary collection gives us insight into the cultural significance and ubiquity of sound, and how the human mind processes it. Virtually every region of the brain integrates sound in its own way, impacting memory, culturally shared meaning, emotions, and physical responses. When activated, these regions may fire simultaneously to form a neural network of deep and lasting meaning. Because sound and music impact human physiology so profoundly, various kinds of sounds have been shown to impact purchasing behavior. These attributes suggest that sounds are not only capable of functioning as trademarks, but also that they may create a lasting impression in consumers' minds.

A. THE SIGNIFICANCE OF SOUND AND MUSIC

Communication through sound is a nearly universal part of being human. Reacting to sounds of prey or danger was essential to surviving the prehistoric environment. But sounds also were used by ancient humans simply to communicate or

20. *See* The mark consists of the sound of a cat's meow, Registration No. 2,158,156.

21. *See* MCCARTHY, *supra* note 7, § 5:1–4 (discussing the historical development of trademark law).

entertain.[22] "More than 30,000 years ago early humans were already playing bone flutes, percussive instruments and jaw harps—and all known societies throughout the world have had music."[23] *The Bible* has many references to music as an ideal vehicle for prayer and source of comfort.[24] Jane Austen wrote that "without music, life would be a blank to me."[25]

Richard Wagner's music formalized the expressive use of the leitmotif as a recurring device announcing the presence of a theme or character.[26] Modern film scores employ this device to identify recurring characters, moods, or themes.[27] The power of music also has been a central theme of art and poetry that bridges cultures to bind us in a common human experience. Shakespeare wrote repeatedly of its magic and transformative power. Even in comedy, Shakespeare would sometimes pause the action for a reflective moment about the power of music:

> For Orpheus' lute was strung with poets' sinews,
> Whose golden touch could soften steel and stones,
> Make tigers tame, and huge leviathans
> Forsake unsounded deeps to dance on sands.[28]

---

22. *See* Marcus Pearce & Martin Rohrmeier, *Music Cognition and the Cognitive Sciences*, 4 TOPICS COGNITIVE SCI. 468, 470–71 (2012) (describing music as "ubiquitous, powerful, and ancient" human trait that serves a variety of functions); DANIEL J. LEVITIN, THIS IS YOUR BRAIN ON MUSIC: THE SCIENCE OF HUMAN OBSESSION 5–6 (Plume 2007) ("No known human culture now or anytime in the recorded past lacked music.").

23. Norman M. Weinberger, *Music and the Brain*, SCI. AM., Nov. 2004, at 88, 90.

24. *See, e.g.*, 1 *Samuel* 16:23 (English Standard Version) ("And whenever the harmful spirit from God was upon Saul, David took the lyre and played it with his hand. So Saul was refreshed and was well, and the harmful spirit departed from him."); *Psalms* 57:7–8 (New International Version) ("My heart, O God, is steadfast, my heart is steadfast; I will sing and make music. Awake, my soul! Awake, harp and lyre! I will awaken the dawn.").

25. JANE AUSTEN, EMMA 246 (Ward, Lock & Co., 1881) (1815). While this line is delivered in a passage meant to show a character's arrogance in expressing her need to be among high culture, Austen (who reportedly practiced the piano daily) seemingly could not resist giving her this poetic moment.

26. *See generally* MATTHEW BRIBITZER-STULL, UNDERSTANDING THE LEITMOTIF: FROM WAGNER TO HOLLYWOOD FILM MUSIC 1–11 (2015) (defining "leitmotif").

27. *Id.* at 1–6 (illustrating the leitmotif with modern examples).

28. WILLIAM SHAKESPEARE, THE TWO GENTLEMEN OF VERONA act 3, sc. 2, ll. 77–80 (Mary Beth Rose ed., Penguin Books 2002).

Centuries later, Shakespeare's descriptions of sound's power echo with contemporary resonance.[29] Many writers have remarked on the comfort and connection we find in music. Victor Hugo observed that "[m]usic expresses that which cannot be said, and on which it is impossible to be silent."[30] Louis Armstrong put it this way: "'Music is 'life it'self."[31]

The evocative power of sound and music is nearly universal to the human experience. Although the ability to perform musical compositions may be acquired through practice and training, the subconscious's "ability to listen, process, and respond emotionally to music is shared across most of the population."[32] While human brains are wired for sound processing,[33] cultural referents retune and adjust its meaning. Psychoacoustic expert Thomas Fritz explains that sound cultures "dock in" to both a set of universal perceptions and learned culture-specific features.[34]

In considering how humans process sound, one may wonder whether music exerts a more powerful impact than non-musical sounds. To test that theory, one would need to define "music."

29.

> Be not afeard: the isle is full of noises,
> Sounds and sweet airs that give delight and hurt not.
> Sometimes a thousand twangling instruments
> Will hum about mine ears; and sometime voices
> That, if I then had waked after long sleep,
> Will make me sleep again; and then, in dreaming,
> The clouds methought would open and show riches
> Ready to drop upon me, that, when I waked,
> I cried to dream again.

WILLIAM SHAKESPEARE, THE TEMPEST act 3, sc. 2, ll. 134–42 (Peter Holland ed., Penguin Books 2002).

> If music be the food of love, play on . . . .

WILLIAM SHAKESPEARE, TWELFTH NIGHT act 1, sc. 1, l. 1 (Jonathan Crewe ed., Penguin Books 2002).

30. VICTOR HUGO, WILLIAM SHAKESPEARE 73 (London, Hurst & Blackett 1864).

31. Letter from Louis Armstrong to L/Cpl. Villec (1967), *in* LOUIS ARMSTRONG, IN HIS OWN WORDS: SELECTED WRITINGS 169, 170 (Thomas Brothers ed., 1999) (apostrophes original).

32. Marc Ettlinger et al., *Implicit Memory in Music and Language*, FRONTIERS PSYCH., Sept. 2011, at 1, 5.

33. *See* Isabelle Peretz & Robert J. Zatorre, *Brain Organization for Music Processing*, 56 ANN. REV. PSYCH. 89, 90–99 (2005) (describing how the human brain processes sound).

34. Thomas Fritz, *The Dock-in Model of Music Culture and Cross-Cultural Perception*, 30 MUSIC PERCEPTION 511, 511 (2013).

For decades, this task has been the subject of intense debate among musicologists.[35] Andrew Kania's frequently cited definition states: "[M]usic is (1) any event intentionally produced or organized (2) to be heard, and (3) *either* (a) to have some basic musical features, such as pitch or rhythm, *or* (b) to be listened to for such features."[36] But other musicologists assert that the definition should be broader or contend that music is so variable that no one can create a comprehensive definition.[37] None of the proposed definitions limit music to any particular amount of time or to sounds made from human voices or particular instruments.

Given the lack of expert consensus on the definition of "music," we will not choose a side in this debate. When we review studies on how humans process sounds, we use the term "music" when researchers use it to identify the subject of their research. In our empirical analysis, we do not attempt to isolate music as a separate category. Instead, we sort sound marks by duration and sound sources, such as human voices, musical instruments (e.g., piano or guitar), other objects (e.g., car exhaust or billiard cue), or natural sources (e.g., wind or birds).[38] This approach makes it possible to sidestep the definitional debate while proceeding to compare sounds emanating from people, animals, musical instruments, and other objects to examine which types have been the subject of federal trademark registration.

---

35. *Compare* Irving Godt, *Music: A Practical Definition*, MUSICAL TIMES, Spring 2005, at 83, 84 (proposing a ten-part definition of music), *with* Jonathan McKeown-Green, *What Is Music? Is There a Definitive Answer?*, 72 J. AESTHETICS & ART CRITICISM 393, 393 (2014) (arguing against a definition of music arising from an analysis of folk conceptions).

36. Andrew Kania, *The Philosophy of Music*, STAN. ENCYCLOPEDIA OF PHIL. (2017), https://plato.stanford.edu/archives/fall2017/entries/music [https://perma.cc/8AYH-64PJ].

37. Ian Cross & Iain Morley, *The Evolution of Music: Theories, Definitions, and the Nature of the Evidence*, *in* COMMUNICATIVE MUSICALITY: EXPLORING THE BASIS OF HUMAN COMPANIONSHIP 61, 68–69 (Stephen Malloch & Colwyn Trevarthen eds., 2009) (advocating for a broad definition of music because of some of music's ambiguous qualities).

38. *See infra* notes 350–69 and accompanying text (describing the categorization method used in the study).

B. HOW THE HUMAN BRAIN PROCESSES SOUND

Studies attempting to find the brain's sound processing center unexpectedly uncovered no specialized area.[39] Instead, scientists discovered that sound engages areas "distributed throughout the brain, including those that are normally involved in other kinds of cognition."[40] Through advanced imaging, scientists constructed a detailed map of how the ear and brain work together to process sound. Functional magnetic resonance imaging (fMRI) allowed researchers to examine the brain's interconnectivity as people listen.[41] Using this technology, researchers have been able to discern, in real time, how our brains process sound stimuli.[42]

These studies reveal that our brains process sound through a complex network of multiple neurologic paths, recruiting every part of the brain and neural subsystem.[43] Human listening begins when molecules, moving through the air at various frequencies, collide with our eardrums.[44] "A sound reaching the eardrum sets into motion a complex cascade of mechanical, chemical, and neural events in the cochlea, brain stem, midbrain nuclei, and cortex that eventually—but rapidly—results in a percept."[45] Inside the ear, sound waves are converted into fluid waves where the stapes, a tiny bone inside the inner ear, is pushed into the cochlea.[46] "Humans have an auditory range that spans three orders of magnitude . . . and can handle sound waves with a

39. Weinberger, *supra* note 23, at 90.

40. *Id.*

41. *See* Donald A. Hodges & Robin W. Wilkins, *How and Why Does Music Move Us? Answers from Psychology and Neuroscience*, 101 MUSIC EDUCATORS J. 41, 42 (2015) (discussing "Network Science," which has made this sort of imaging possible); *see also* Daniela Perani et al., *Functional Specializations for Music Processing in the Human Newborn Brain*, 107 PROC. NAT'L ACAD. SCIS. U.S. 4758, 4758–59 (2010) (describing a study using fMRI data to test infants' responses to music).

42. Hodges & Wilkins, *supra* note 41, at 42–44 (detailing findings from an experiment that measured brain activity of young adults while listening to music).

43. *See* LEVITIN, *supra* note 22, at 9 ("Music listening, performance, and composition engage nearly every area of the brain that we have so far identified, and involve nearly every neural subsystem.").

44. *Id.* at 24–29 (providing an overview of how humans hear).

45. Peretz & Zatorre, *supra* note 33, at 90.

46. *See* Weinberger, *supra* note 23, at 91 (describing how the brain receives and processes music).

million-fold variation in amplitude . . . . [T]he key action involves how the ear hair cells actively conspire to achieve the requisite amplification, sensitivity, frequency selectivity, and range . . . ."[47] Vibrations in the basilar membrane of the cochlea prompt these hair cells to send electrical signals to the auditory nerve.[48]

To assign meaning to sound, we subconsciously perform multiple complex, sequential calculations to determine the source of the sound, the direction it is coming from, and what it means.[49] The brain "must solve a similar computational problem to that faced by any perceptual system: It must generate internal representations of any given input, permitting the stimulus to be segregated from its background, analyzed along several dimensions, recognized, and possibly acted upon."[50] Sound stimulates the frontal lobe where thinking, decision-making, and planning occurs; the temporal lobe, which processes it; and Broca's area, which enables speech.[51] Sound analysis and pleasure trigger Wernicke's area, a region linked with written and spoken language processing.[52] When we "feel shivers go down [our] spine" during moments of dissonance or melodic climax, the amygdala is especially engaged.[53] Melodic sound affects heart

47. Kosar Mozaffari et al., *A Minimal Physics-Based Model for Musical Perception*, PROC. NAT'L ACAD. SCIS. U.S., Jan. 24, 2023, at 1, 1.

48. *How Do We Hear?*, NAT'L INSTS. OF HEALTH: NAT'L INST. ON DEAFNESS & OTHER COMMC'N DISORDERS (Mar. 16, 2022), https://www.nidcd.nih.gov/health/how-do-we-hear [https://perma.cc/SH6F-RT95] (providing a high-level overview of the process).

49. *See* Benjamin Michael Skerritt-Davis, Statistical Inference in Auditory Perception 6–7 (Sept. 2020) (Ph.D. dissertation, Johns Hopkins University) (ProQuest) (advocating for the use of statistical models to mimic auditory processes).

50. Peretz & Zatorre, *supra* note 33, at 90.

51. *Your Brain on Music*, PEGASUS MAG. (2017), https://www.ucf.edu/pegasus/your-brain-on-music [https://perma.cc/G7GP-9BAB] (illustrating research shared by neuroscientist Kiminobu Sugaya and prominent violinist Ayako Yonetani).

52. *Id.*

53. *Id.*; *see also* Anne J. Blood & Robert J. Zatorre, *Intensely Pleasurable Responses to Music Correlate with Activity in Brain Regions Implicated in Reward and Emotion*, 98 PROC. NAT'L ACAD. SCIS. U.S. 11818, 11818 (2001) ("As intensity of these chills increased, cerebral blood flow increases and decreases were observed in brain regions thought to be involved in reward/motivation, emotion, and arousal, including ventral striatum, midbrain, amygdala, orbitofrontal cortex, and ventral medial prefrontal cortex.").

rate and blood pressure,[54] and it can stimulate dopamine production so forcefully that its effect is similar to that produced by cocaine.[55]

Although researchers have tried to locate which part of the brain dominates sound processing and interpretation, it appears that multiple regions in both hemispheres contribute in various ways.[56] "Musical listening, performance, and interaction involve a wide range of cognitive functions and processes, including auditory scene analysis, streaming, attention, learning and memory, formation of expectations, multimodal integration, recognition, syntactic processing, processing of forms of meaning, emotion, and social cognition."[57] Sound perception is so integrated that it is difficult to tease out differences in embodied and referential meaning.[58] Prior exposure and interaction with sound can create discrete embodied meanings. Even a "referential" response to sound is based in brain chemistry and is experienced physically, like "embodied" meaning.[59]

Another robust scholarly debate explores whether musical and linguistic processing overlap or are two independent neural systems. While some studies assert that music and language are

54. Cyrus Darki et al., *The Effect of Classical Music on Heart Rate, Blood Pressure, and Mood*, CUREUS, July 27, 2022, at 1, 4–5 (enumerating findings of music's effect on heart rate and blood pressure).

55. *Your Brain on Music*, *supra* note 51; *see also* Darki et al., *supra* note 54, at 5 (discussing studies finding dopamine release during the playing of classical music).

56. *See* Meagan Curtis, *Music and Language*, *in* THE SCIENCE AND PSYCHOLOGY OF MUSIC: FROM BEETHOVEN AT THE OFFICE TO BEYONCÉ AT THE GYM 111, 113 (William Forde Thompson & Kirk N. Olsen eds., 2021) ("Brain imaging data suggest that the auditory cortex in the right hemisphere is more specialized for processing pitch and timbre, and the auditory cortex of the left hemisphere is more specialized for processing rapid temporal changes, though both hemispheres are involved in processing language and music to some extent.").

57. Pearce & Rohrmeier, *supra* note 22, at 473.

58. *See* Rui (Juliet) Zhu & Joan Meyers-Levy, *Distinguishing Between the Meanings of Music: When Background Music Affects Product Perceptions*, 42 J. MKTG. RSCH. 333, 343–45 (2005) (proposing a method for disentangling perceived meaning from music).

59. *See id.* at 334 ("Whereas using embodied meaning to form perceptions requires simply identifying the meaning's diffuse hedonic value and then transferring it to an evaluative continuum (i.e., scale), using referential meaning requires activating more extensive and distal associative networks in memory, charting and assessing the semantic overlap between the referential meaning and the queried perception dimension, and then mapping this perceived overlap onto an evaluative continuum.").

processed independently,[60] others suggest that they are processed in the same regions of the brain.[61] Studies of patients with traumatic brain injuries support the independent theory.[62] Multiple documented cases reveal that a person may lose all language memory but retain music memory, or vice versa.[63] Patients with brain injuries may not recognize a once familiar melody but can still identify lyrics or the sound of a familiar human voice.[64] One scholar theorizes that while musical and linguistic perceptions are processed separately, both recruit overlapping neural resources.[65]

Our ability to process sound changes over time as our brains recruit additional resources to interpret stimuli deemed worthy of attention.[66] Even before birth, babies in utero recognize music that was played for them repeatedly.[67] Infant brains show "a hemispheric specialization in processing music as early as the first postnatal hours [and that] the neural architecture underlying music processing in newborns is sensitive to . . . tonal key, consonance, and dissonance."[68] But as our brains continue to be exposed to sounds that are considered "behaviorally important," they will be retuned "so that more cells respond" to them.[69] In this way, the human brain dynamically adapts to sound, and

60. *See, e.g.*, LEVITIN, *supra* note 22, at 127 (concluding that "the brain's music system appears to operate with functional independence from the language system"); Peretz & Zatorre, *supra* note 33, at 106 (describing research indicating processing independence).

61. *See, e.g.*, Isabelle Peretz et al., *Neural Overlap in Processing Music and Speech*, PHIL. TRANSACTIONS: BIO. SCIS., Mar 15, 2015, at 1, 6 (documenting neural overlap but cautioning whether that circumstance necessarily means that there is neural "sharing").

62. LEVITIN, *supra* note 22, at 124–27.

63. *Id.* at 125 (describing several examples).

64. Peretz & Zatorre, *supra* note 33, at 106.

65. ANIRUDDH D. PATEL, MUSIC, LANGUAGE, AND THE BRAIN 282–84 (2008) (describing the "shared syntactic integration resources hypothesis," which hypothesizes that "overlapping resource networks" process both language and music).

66. Weinberger, *supra* note 23, at 92 ("Individual brain cells each respond optimally to a particular pitch or frequency. Cells shift their original tuning when an animal learns that a specific tone is important." (citations omitted)).

67. *See, e.g.*, *id.* at 94 ("[A]bout two weeks before birth, fetuses recognized the difference between the theme music of the 'Neighbors' TV show, heard daily by their mothers for weeks, and a novel song.").

68. Perani et al., *supra* note 41, at 4758.

69. Weinberger, *supra* note 23, at 93.

experience can become a neurological basis for distinction and preference in pitch and tone.[70]

C. BUILDING BLOCKS OF MUSICAL PERCEPTION

Many studies on sound are conducted by musicologists or researchers who are focused on how our brains process music. These studies show that, like color, sound may seem to emanate from a finite set of tones—like the basic color wheel or the eighty-eight keys on a piano.[71] But just like color, sound is infinitely variable. "Music perception relies on sophisticated cognitive skills for the decoding of pitch, rhythm, and timbre and for the processing of sequential elements that form hierarchical structures and convey emotional expression and meaning."[72] Rhythm is the perception of a musical beat pattern or time signature.[73] Research shows that it is not only present at birth, but also that it can strengthen over time and in response to our environment.[74] Melody refers to the arc of a musical phrase as a series of pitches moves in time.[75] Timbre describes the quality of the music—how the same pitch sounds different when played on a cello, flute, or harmonica, or sung by Lady Gaga, Bob Dylan, or a songbird.[76]

Research shows that melody, rhythm, and timbre are processed independently in different regions of the brain.[77] This may account for why changes in instrumentation and tempo do

70. *See id.* ("This cellular adjustment process extends across the cortex, 'editing' the frequency map so that a greater area of the cortex processes important tones.").

71. *See, e.g.*, Carol L. Krumhansl, *The Psychological Representation of Musical Pitch in a Tonal Context*, 11 COGNITIVE PSYCH. 346, 347 (1979) ("In Western music, as in most musical cultures, the set of musical tones consists of a finite set of pitches. This finite set can be thought of, for example, as the complete set of notes on the piano keyboard." (citation omitted)).

72. Perani et al., *supra* note 41, at 4758.

73. *See* RAY ALLEN ET AL., MUSIC: ITS LANGUAGE, HISTORY, AND CULTURE 5 (2014) (describing rhythm).

74. JUSTIN LONDON, HEARING IN TIME: PSYCHOLOGICAL ASPECTS OF MUSICAL METER 64 (2d ed. 2012).

75. ALLEN ET AL., *supra* note 7373, at 6 (describing melody).

76. *See* LEVITIN, *supra* note 22, at 16 (describing timbre as "a kind of tonal color" that is a product of specific vibrations).

77. Peretz & Zatorre, *supra* note 33, at 91 (summarizing study findings).

not alter one's ability to recognize a song.[78] Most people can identify the timbre of a tone with ease, making it possible to recognize a familiar person's voice or identify the instruments played in a recording.[79] But variations in individual processing strengths may explain why people who cannot distinguish pitch or carry a tune can still have a strong sense of rhythm, whereas others without rhythmic discrimination can hear and mimic pitch.[80]

There is also cultural variability in sound processing strengths. One study "found evidence of cultural differences in auditory processing."[81] Particularly, "speakers of a tone language show enhanced ability in processing musical pitch relative to those who speak a non-tone language."[82] This finding was not surprising because in tonal languages, "pitch is used to signal word meaning in addition to phrasal meaning through intonation . . . whereas in non-tone languages, like English and French, pitch is used to signal intonation only."[83]

D. SOUND AND MEMORY

Sound has complex and profound connections to human memory. George Sand observed: "It is uncanny how music can plunge you in memories!"[84] Contemporary research demystifies this connection. Sound recognition involves complex neural processing of perception filtered through other systems, such as

78. *See, e.g.*, Andrea R. Halpern et al., *Perception of Mode, Rhythm, and Contour in Unfamiliar Melodies: Effects of Age and Experience*, 15 MUSIC PERCEPTION 335, 350–53 (1998) (discussing prior research documenting this phenomenon in musicians and non-musicians alike, and replicating the study among older and younger musicians and non-musicians).

79. *See* LEVITIN, *supra* note 22, at 150 (explaining that humans more easily identify timbre than they identify pitch).

80. *See* Peretz & Zatorre, *supra* note 33, at 91 ("Brain damage can interfere with the discrimination of pitch relations while sparing the accurate interpretation of time relations. Conversely, rhythmic discrimination of musical events can be impaired while extraction of pitch content is spared." (citations omitted)).

81. Patrick C.M. Wong et al., *Effects of Culture on Musical Pitch Perception*, PLOS ONE, Apr. 2012, at 1, 5.

82. *Id.*

83. *Id.* at 2.

84. GEORGE SAND, STORY OF MY LIFE: THE AUTOBIOGRAPHY OF GEORGE SAND 199 (Thelma Jurgrau ed., 1991).

emotional analysis and memory associations.[85] Thanks to these features of human perception, most people can easily remember the sound of a familiar person's voice.[86]

Memory plays a critical role in musical identification.[87] To remember a sound, we rely on both conscious retrieval and our implicit memory banks, which hold acquired knowledge that we recruit subconsciously.[88] When a song functions as a unique cue in our neural pathways, it can trigger specific memories.[89] When we associate a song with the memory of an event, hearing the song may cue the memory in our conscious minds.[90] Strengths in musical perception vary as a function of strengths in different modalities of sound processing. While some people more easily

85. *See, e.g.*, Peretz & Zatorre, *supra* note 33, at 96 ("To enable recognition of a given tune, melodic and time relations must be mapped onto a stored long-term representation that contains invariant properties of the musical selection. As for words in language, the process of music recognition requires access and selection of potential candidates in a perceptual memory system. This musical memory is a perceptual representation system that is conceived as representing information about the form and structure of events, and not the meaning or other associative properties.").

86. *See* Carolyn McGettigan et al., *Human Voices Are Unique but We're Not That Good at Recognizing Them*, SCI. AM. (June 19, 2017), https://www.scientificamerican.com/article/human-voices-are-unique-but-were-not-that-good-at-recognizing-them [https://perma.cc/AZT3-ZZCM]. Interestingly, research indicates that it may be difficult to recognize strangers' voices. *See id.*

87. Peretz & Zatorre, *supra* note 33, at 96 ("The contribution of memory to music processing is crucial not only because music unfolds over long periods of time but also because music is highly structured along multiple principles that require the contribution of different sources of knowledge.").

88. *See* Lutz Jäncke, *Music, Memory and Emotion*, J. BIOLOGY, Aug. 8, 2008, at 1, 1–4 (reviewing research on the relationship between music and memory); Ettlinger et al., *supra* note 32, at 5–7 (compiling research demonstrating the implicit memory for music).

89. *See* LEVITIN, *supra* note 22, at 166 ("A song playing comprises a very specific and vivid set of memory cues . . . . [T]he music is linked to events of the time, and those events are linked to the music.").

90. *See* Jäncke, *supra* note 88, at 3 ("Autobiographical information associated with musical melodies is evoked when we hear relevant music or when we are engaged in conversation about music or episodes and events in our life in which music has been important."); Marlene Cimons, *Why Music Causes Memories to Flood Back*, WASH. POST (Feb. 26, 2023), https://www.washingtonpost.com/wellness/2023/02/26/songs-music-memory-connection [https://perma.cc/9RR4-9QUW] ("This ability of music to conjure up vivid memories is a phenomenon well known to brain researchers. It can trigger intense recollections from years past — for many, more strongly than other senses such as taste and smell — and provoke strong emotions from those earlier experiences.").

remember lyrics, others find it easier to recall a melody.[91] Scientists view these relative strengths as evidence that verbal and melodic processing occurs in different parts of the brain.[92]

Music may be deeply embedded in our subconscious memory bank because we process it through multiple neural pathways. "The contribution of memory to music processing is crucial not only because music unfolds over long periods of time but also because music is highly structured along multiple principles that require the contribution of different sources of knowledge."[93] Damage to one pathway may still leave other triggers of musical memory intact, showing once again that multiple neural networks contribute to sound recognition.[94]

Sounds powerfully stimulate memory retrieval. Multiple studies have shown that music can evoke qualitatively stronger autobiographical memories than other types of retrieval cues, including verbal cues of events or pictures of famous faces.[95] But

---

91. *See* Peretz & Zatorre, *supra* note 33, at 106 (displaying these differing strengths in the context of patients whose brain damage impacts their music recognition abilities).

92. *Id.* ("Hence, the evidence points to the existence of distinct processing modules for music and speech."); *see also* Isabelle Peretz & Max Coltheart, *Modularity of Music Processing,* 6 NATURE NEUROSCIENCE 688, 689 (2003) (discussing results of research on patients having brain damage to support theory).

93. Peretz & Zatorre, *supra* note 33, at 96.

94. *Id.* at 97 ("[A] patient with bilateral damage to the auditory cortex was normal at recognizing and memorizing spoken lyrics, whereas she performed at chance when required to recognize or to relearn the corresponding melody (played without lyrics). The deficit was selective because the patient had no difficulties with other nonmusical auditory materials, such as voices and animal cries, and had no memory impairment for visual stimuli . . . . A milder dissociation between melodies and speech sounds has also been reported in patients with focal lesions of the medial temporal lobe. A lesion to either medial temporal region led to initial difficulties in learning the melodies; after right-sided lesions, retention of melodies was affected more severely and selectively over time." (citing Séverine Samson & Robert J. Zatorre, *Learning and Retention of Melodic and Verbal Information After Unilateral Temporal Lobectomy*, 30 NEUROPSYCHOLOGIA 815 (1992))).

95. *See, e.g.*, Kelly Jakubowski & Tuomas Eerola, *Music Evokes Fewer but More Positive Autobiographical Memories than Emotionally Matched Sound and Word Cues*, 11 J. APPLIED RSCH. MEMORY & COGNITION 272, 285 (2022) (explaining that music may produce fewer memories but that they are more "episodically vivid"); Krysten Zator & Albert N. Katz, *The Language Used in Describing Autobiographical Memories Prompted by Life Period Visually Presented Verbal Cues, Event-Specific Visually Presented Verbal Cues and Short Musical Clips of Popular Music*, 25 MEMORY 831 (2017) (showing that music

this effect is not limited to musical sounds. In fact, one study showed that environmental sounds can conjure up more memories than music.[96]

Research shows that musical memory is uniquely durable. Oliver Sacks, an author and neurology professor who studies patients with dementia, observed that:

> [M]usic acts as a sort of Proustian mnemonic, eliciting emotions and associations that had been long forgotten, giving the patient access once again to moods and memories, thoughts and worlds that had seemingly been completely lost. Faces assume expression as the old music is recognized and its emotional power felt. One or two people, perhaps start to sing along, others join them, and soon the entire group—many of them virtually speechless before—is singing together . . . .[97]

Studies involving Alzheimer's patients indicate that even when someone struggles to recognize close friends and family, if they grew up playing music, they can learn new songs and play old ones.[98] Patients with dementia may respond to their favorite music even after their brains stop responding to other stimuli. One study found that "in the late stages, Alzheimer's patients are generally unresponsive . . . . But once you put in the headphones that play [their favorite] music, their eyes light up. They start moving and sometimes singing. The effect lasts maybe 10 minutes or so even after you turn off the music."[99]

---

evokes more vivid autobiographical memories than verbal cues as well as verbal cues of past events that were visually presented); Amy M. Belfi et al., *Music Evokes Vivid Autobiographical Memories*, 24 MEMORY 979 (2016) (showing that music evokes more vivid autobiographical memories than famous faces); *cf.* Amee Baird & William Forde Thompson, *The Impact of Music on the Self in Dementia*, 61 J. ALZHEIMER'S DISEASE 827, 831 (2018) (identifying how "respondents used music as a device for producing autobiographical memories of special people, to relive events, and remind themselves of 'who they were' at a certain time").

96. Jakubowski & Eerola, *supra* note 95, at 280.

97. OLIVER SACKS, MUSICOPHILIA: TALES OF MUSIC AND THE BRAIN 380 (2007).

98. *See Your Brain on Music*, *supra* note 51 ("An Alzheimer's patient, even if he doesn't recognize his wife, could still play the piano if he learned it when he was young because playing has become a muscle memory. Those memories in the cerebellum never fade out . . . .").

99. *Id.* The same neuroscientist responsible for this Alzheimer's study—Kiminobu Sugaya—has also "conducted neurological studies on songbirds." *Id.* This research found that "'canaries stop singing every autumn when the brain cells responsible for song generation die," but "the neurons grow back over the

E. SOUND AND EMOTION

Auditory processing can also evoke profound emotions.[100] Sacks explains that:

> We . . . "construct" music in our minds using many different parts of the brain. And to this largely unconscious structural appreciation of music is added an often intense and profound emotional reaction to music. "The inexpressible depth of music," [philosopher Arthur] Schopenhauer wrote, "so easy to understand and yet so inexplicable, is due to the fact that it reproduces all the emotions of our innermost being, but entirely without reality and remote from its pain. . . ."[101]

Different musical properties have been shown to stimulate discrete emotions. Faster or higher-pitched music is usually considered "happier" than slower or lower-pitched music.[102] "Firm" rhythms are perceived as more "serious," while "smooth-flowing" ones are thought to be more "playful."[103] Major keys are generally perceived as "express[ing] more animated and positive feelings" than minor keys.[104] Another study "showed that brass instruments carr[ying] the melody in songs [were] characterized as triumphant and/or grotesque, woodwinds expressed awkward and/or mournful feelings, melodies on a piano were perceived as brilliant and/or tranquil, and string sounds were associated with

---

winter months, and the birds learn their songs over again in the spring." *Id.* Sugaya concludes that "music may increase neurogenesis in the brain." *Id.*

100. Weinberger, *supra* note 23, at 95 (summarizing the work of several researchers); LEVITIN, *supra* note 22, at 9 ("Think of a typical chase scene in an action film, or the music that might accompany a lone woman climbing a staircase in a dark old mansion: Music is being used to manipulate our emotions, and we tend to accept, if not outright enjoy, the power of music to make us experience these different feelings.").

101. SACKS, *supra* note 97, at xi–xii (alteration in original) (quoting 1 ARTHUR SCHOPENHAUER, THE WORLD AS WILL AND REPRESENTATION 264 (E.F.J. Payne trans., Dover Publications 1969) (1818)).

102. Gordon C. Bruner II, *Music, Mood, and Marketing*, J. MKTG., Oct. 1990, at 94, 95 tbl.1.

103. *Id.* at 95 (citing Kate Hevner, *Experimental Studies of the Elements of Expression in Music*, 48 AM. J. PSYCH. 246 (1936)).

104. *Id.* at 95 tbl.1; *see also id.* at 97 ("[T]he minor mode has plaintive, angry, or mysterious qualities in contrast to the more happy, bright, or playful expressions of the major mode.").

pieces characterized as glad."[105] Volume matters too. Louder music is considered more triumphant.[106]

The perceived source of the sound may also be impactful. Natural sounds reportedly arouse a strong and broad emotional response, increasing "perceived restorative potential," calmness, awe, excitement, and nostalgia.[107] The beneficial effects of natural sounds have been found to occur even when the sounds are delivered digitally.[108]

There is ongoing discussion about the extent to which the emotional impact of music is innate or learned. Musicologist David Carr's work shows how the power of music is innate to human sensibilities. Carr describes music as an inherently emotional form with embodied meaning that is more powerful than the language of emotions and feeling.[109] Carr asserts that the emotional meaning created by music is not derived from its representational or symbolic properties.[110] His research is consistent with studies showing that even young children perceive emotions "such as happiness, anger, sadness, and tenderness in music."[111] Several studies also indicate that emotional responses to music are independent of prior experience. For example, the

105. *Id.* at 97 (citing Ralph H. Gundlach, *Factors Determining the Characterization of Musical Phrases*, 47 AM. J. PSYCH. 624 (1935)).

106. *Id.* at 98; *see also* Nicolas Schmuziger et al., *Is There Addiction to Loud Music? Findings in a Group of Non-Professional Pop/Rock Musicians*, 2 AUDIOLOGY RSCH. 57, 57–58 (2012) ("In studies conducted during aerobics classes, loud music has been shown to correlate positively with enjoyment and in pleasure derived from continuing these activities.").

107. Alexander J. Smalley et al., *Soundscapes, Music, and Memories: Exploring the Factors That Influence Emotional Responses to Virtual Nature Content*, J. ENV'T PSYCH., June 29, 2023, at 1, 6 (noting that the introduction of music led to some contrasting outcomes on these measures).

108. *See id.* at 8 (finding that "adding natural sounds to [a] digital scene enhanced participant evaluations of calmness, excitement, and perceived restorative potential, compared to the same scene without any sound").

109. *See* David Carr, *Music, Meaning, and Emotion*, 62 J. AESTHETICS & ART CRITICISM 225, 226 (2004) ("In sum, I shall argue: first, that music has emotional significance, not merely because it causally arouses feelings (which we may nevertheless admit that it does), but by virtue of its intrinsic emotional character; second, that it has such emotional meaning primarily in virtue of its intrinsic emotional qualities and not by way of representing or symbolizing emotion as feeling.").

110. *Id.*

111. *See* Tuomas Eerola & Jonna K. Vuoskoski, *A Review of Music and Emotion Studies: Approaches, Emotion Models, and Stimuli*, 30 MUSIC PERCEPTION 307, 311 (2013).

sensation of experiencing "chills" from hearing particular sounds can be reliably reproduced regardless of background, experience, or prior exposure.[112] Even when brain damage is so severe that all musical processing is lost, patients who cannot recognize musical pitch and time relations can identify the emotional tone of a piece.[113]

Other studies suggest that cultural exposure, lived experience, and other external stimuli may also affect how we perceive music. Research shows that some emotional responses to music may be triggered by experience or cultural learning, and we anticipate emotion based on prior exposure to similar sounds.[114]

The emotional power of sound may be amplified when it is experienced in a crowd. As anyone who has ever attended a live concert, religious service, campfire sing-along, or political rally can attest, music can be a powerful force in creating a sense of community.[115] Music "facilitates social cohesion within groups . . . to communicate emotional meaning and potential associations immediately and to many people at once."[116]

F. CONSUMER PURCHASING BEHAVIOR AND SOUND

In a *Seinfeld* episode, George Costanza compared his dating persona to a memorable advertising jingle. He joked: "You know the way I work. I'm like a commercial jingle. At first, it's a little irritating. Then you hear it a few times, you hum it in the

112. Peretz & Zatorre, *supra* note 33, at 99 (citing Jaak Panksepp, *The Emotional Sources of "Chills" Induced by Music*, 13 MUSIC PERCEPTION 171 (1995)).

113. *Id.* at 98 (citing Isabelle Peretz & Lise Gagnon, *Dissociation Between Recognition and Emotional Judgements for Melodies*, 5 NEUROCASE 21 (1999)).

114. *See* Gunter Kreutz et al., *Using Music to Induce Emotions: Influences of Musical Preference and Absorption*, 36 PSYCH. MUSIC 101, 102 (2008) ("[B]eyond the physical characteristics of music stimuli, emotional responses to music listening are significantly influenced by variables indicating cultural learning.").

115. *Cf.* Jill Suttie, *Four Ways Music Strengthens Social Bonds*, GREATER GOOD MAG. (Jan. 15, 2015), https://greatergood.berkeley.edu/article/item/four_ways_music_strengthens_social_bonds [https://perma.cc/V6X8-FU5T] ("Studies find that social cohesion is higher within families and among peer groups when young people listen to music with their family members or peers, respectively. This effect is true even in cultures where interdependence is less valued, pointing to music's potential to act as 'social glue' that binds people together.").

116. Pearce & Rohrmeier, *supra* note 22, at 472; *see also* LEVITIN, *supra* note 22, at 258 ("Humans need social linkages to make society work, and music is one of them.").

shower, by the third date it's 'By Mennen!'"[117] Although many of us may remember advertising jingles along with other songs we learned as children, more research is needed to know whether memories of particular sound marks impact consumer decision-making.

Outside the trademark context, multiple studies indicate that music influences consumer behavior. In 2019, the American Psychological Association reported that music stimulates impulse purchases.[118] Experiments also show that shoppers spend more money in stores that play music and that the type of music matters, as well. In one famous study, "British wine shoppers bought five times as many French bottles as German bottles when French accordions played in the store; when an oompah band sounded, German wine outsold the French."[119]

Music can alter how a viewer emotionally responds to advertisements by impacting "attitude and purchase intent . . . [a]nd this effect can be positive or negative . . . . demonstrat[ing] how sensitive and careful advertisers must be when pairing music and advertisements."[120] While Top 40 music has been correlated with customers opting for cheaper brands,[121] "classical music is associated with customers being prepared to pay more for the same products than when other musical styles or no music are played."[122]

---

117. *Seinfeld: The Chicken Roaster* (NBC television broadcast Nov. 14, 1996).

118. S. Dingfelder, *Music Motivates Impulse Buyers, Not Thoughtful Shoppers*, MONITOR ON PSYCH., Nov. 2005, at 17, 17 ("Shoppers who had made an unplanned purchase spent, on average, $32.89 more when music was playing than those in the control condition.").

119. Laura Bliss, *Why Washing Machines Are Learning to Play the Harp*, ATLANTIC (Sept. 2019), https://www.theatlantic.com/magazine/archive/2019/09/why-are-washing-machines-learning-to-play-the-harp/594706 [https://perma.cc/ZJJ2-ZJGW] (presenting results of several research studies).

120. Jon D. Morris & Mary Anne Boone, *The Effects of Music on Emotional Response, Brand Attitude, and Purchase Intent in an Emotional Advertising Condition*, 25 ADVANCES CONSUMER RSCH. 518, 522 (1998).

121. *See* Charles S. Areni & David Kim, *The Influence of Background Music on Shopping Behavior: Classical Versus Top-Forty Music in a Wine Store*, 20 ADVANCES CONSUMER RSCH. 336, 336–40 (1993) (comparing Top 40 music with classical music).

122. Adrian C. North et al., *Music Congruity Effects on Product Memory, Perception, and Choice*, 92 J. RETAILING 83, 87 (2016).

Music also affects emotional responses to television commercials.[123] Although upbeat music in an advertisement can induce a happier mood, sad music can produce higher purchasing intentions.[124] Moreover, perceptions of advertisements may vary with the musical preferences of the audience. When the music from an advertisement matches a listener's preferences, the listener is more likely to view the advertisement favorably.[125] For example, one study found that an association between a picture of a pen and preferred music could significantly affect pen selection.[126]

Volume also impacts consumer behavior. Studies have linked louder sounds with increased sales.[127] In one study, researchers measured the time and money that diners spent in a restaurant. They found that higher volumes of ambient sound positively influenced the amount of time and money the diners spent in the restaurant.[128] But there are limits. A robust qualitative study of shopping behavior in retail stores found that when consumers believed music to be uncomfortably loud or "out of place," they avoided entering or spending time in the store.[129]

---

123. *See* Bruner, *supra* note 102, at 98 (citing study demonstrating that "supporting music seems to intensify whereas counteracting music reduces the intensity of the dimension being characterized positively in the ad").

124. Judy I. Alpert & Mark I. Alpert, *Background Music as an Influence in Consumer Mood and Advertising Responses*, 16 ADVANCES CONSUMER RSCH. 485, 488–90 (1989) (presenting the results of a study involving greeting cards).

125. Bruner, *supra* note 102, at 98 (citing John D. Simpkins & Jack A. Smith, *Effects of Music on Source Evaluations*, 18 J. BROAD. 361 (1974)).

126. *Id.* at 99 (citing Gerald J. Gorn, *The Effects of Music in Advertising on Choice Behavior: A Classical Conditioning Approach*, J. MKTG., Winter 1982, at 94).

127. *Id.* at 99 (citing Patricia Smith & Ross Curnow, *Arousal Hypothesis and the Effects of Music on Purchasing Behavior*, 50 J. APPLIED PSYCH. 255 (1966)) (finding that grocery store sales per minute were higher when music was louder).

128. Cynthia Tarlao et al., *Influence of Sound Level on Diners' Perceptions and Behavior in a Montreal Restaurant*, APPLIED ACOUSTICS, Mar. 2021, at 1, 1 ("For every decibel increase, time and money spent increased by 3.3 min and CA$2.2 respectively. Ambient sound level also significantly influenced the perception of the sound environment: as sound level increased, so did the ratings of eventfulness, while ratings of perceived chaos and unpleasantness decreased.").

129. C.E. Nell & M.C. Cant, *Sound and Consumer Buying Behavior: Do Apparel Retailers Take Note of the Effect of Sound on Buying Behaviour*, 11 CORP. OWNERSHIP & CONTROL 375, 379 (2013).

Additionally, slower tempos have been shown to coincide with more deliberate consumer behavior. In one grocery store study, slow music coincided with more time spent in the store and a 32% increase in gross product sales.[130] A possible explanation is that fast music may increase arousal, leading consumers to move at a faster pace, while slower music may encourage consumers to take their time as they shop, which may lead to more purchases.[131] These results are consistent with another restaurant study that showed a correlation between slow music and longer meals, with customers spending more money on alcohol.[132]

While atmospheric sound may impact buying behavior, a sound must be associated with a source for a product or service to function as a trademark. Multiple marketing studies suggest that music helps us remember brands with specificity.[133] One study found that when jingles include "meaningful background lyrics," they enhance recall of information about the product being advertised.[134] These findings make sense because iconic advertising jingles generate feelings of familiarity, can stimulate recognition, and influence brand preferences and purchasing

130. Madeline Ford, *The Psychology of Music: Why Music Plays a Big Role in What You Buy*, MOTIVEMETRICS: BLOG (July 15, 2013) (citing Ronald E. Milliman, *Using Background Music to Affect the Behavior of Supermarket Shoppers*, J. MKTG., Summer 1982, at 86, 90), http://blog.motivemetrics.com/The-Psychology-of-Music-Why-Music-Plays-a-Big-Role-in-What-You-Buy [https://perma.cc/UX2R-Y3ED].

131. *Id.*

132. Clare Caldwell & Sally A. Hibbert, *Play That One Again: The Effect of Music Tempo on Consumer Behaviour in a Restaurant*, 4 EUR. ADVANCES CONSUMER RSCH. 58 (1999). Research also indicates that ambient sound can influence healthy food choices. In experiments conducted with consumers in both Denmark and China, researchers showed that altering ambient sounds can increase the selection of healthy food. Danni Peng-Li et al., *Sounds Healthy: Modelling Sound-Evoked Consumer Food Choice Through Visual Attention*, APPETITE, Apr. 16, 2021, at 1.

133. *See, e.g.*, Pooja Jain & Utkarsh Jain, *Study of the Effectiveness of Advertising Jingles*, 3 ADVANCES ECON. & BUS. MGMT. 496, 496–97 (2016) (compiling literature on the relationship between the use of jingles and other sounds in advertising and brand recall); *see also* Margarita Alexomanolaki et al., *Music and Memory in Advertising: Music as a Device of Implicit Learning and Recall*, 1 MUSIC, SOUND, & MOVING IMAGE 51, 51 (2007) (showing that music in advertising or a low-attention condition facilitates recall at a subconscious level).

134. G. Douglas Olsen & Richard D. Johnson, *The Impact of Background Lyrics on Recall of Concurrently Presented Verbal Information in an Advertising Context*, 29 ADVANCES CONSUMER RSCH. 147, 147 (2002).

behavior.[135] Studies have also found that listeners prefer music they have heard before, particularly when exposed to the stimulus through incidental listening.[136] Because these preferences arise from our implicit subconscious memories, familiarity influences our musical choices in a "largely unconscious, automatic mode."[137]

Aesthetic psychologists have uncovered why some songs or jingles get stuck in our minds. To better understand this phenomenon, Kelly Jakubowski led a team studying involuntary musical imagery, known to scientists by the acronym "INMI" and to lay people as "earworms."[138] Their research revealed that INMI tunes tend to be faster in tempo with a melodic contour that corresponds with established norms for the genre.[139] For pop music, the melodic contour is typically in the shape of an arch. If an INMI tune did not correspond to an established norm, it generally had a "highly unusual" contour pattern that possibly made it more memorable.[140]

Further research is needed to test the impact of sound marks (such as trademarked jingles) compared to familiar music not claimed as a mark, visual symbols, and marks that include sounds and visual content. But given the wide array of variables that may contribute to distinctive sounds and the durability of sound in human memory, it is understandable that companies may seek to develop sound marks "to distinguish their brands and to create a sense of familiarity with, and even affection for, their products."[141] One also might expect many such sounds to be registered as trademarks. But that has not yet happened.

---

135. Jain & Jain, *supra* note 133, at 496–97.

136. *See, e.g.*, Karl K. Szpunar et al., *Liking and Memory for Musical Stimuli as a Function of Exposure*, 30 J. EXPERIMENTAL PSYCH.: LEARNING, MEMORY & COGNITION 370, 378 (2004) (presenting results of several experiments, one of which found that "[a]fter incidental listening, liking *and* memory ratings increased linearly with exposure, although increases in recognition confidence were much smaller").

137. Isabelle Peretz et al., *Exposure Effects on Music Preference and Recognition*, 26 MEMORY & COGNITION 884, 897 (1998).

138. Kelly Jakubowski et al., *Dissecting an Earworm: Melodic Features and Song Popularity Predict Involuntary Musical Imagery*, 11 PSYCH. AESTHETICS, CREATIVITY & ARTS 122, 122 (2017); *see also* LEVITIN, *supra* note 22, at 155 (discussing "ear worms" or "stuck song syndrome").

139. Jakubowski et al., *supra* note 138, at 130.

140. *Id.*

141. Bliss, *supra* note 119.

Next, we consider why sounds have been relegated to the trademark periphery compared to words, graphic designs, and color.

II. LEGAL DOCTRINE CHANNELING PROTECTION OF SOUND

While our focus is on trademark protection for sounds, copyright law is often the first area of intellectual property that comes to mind when considering protection for auditory works, like music or podcasts. Therefore, our discussion begins by delineating how intellectual property generally channels protection, to the extent it is available, for sounds.

A. THE COPYRIGHT AND TRADEMARK DIVIDE

Copyright law attaches automatically to fixed works that originate from an author and reflect some creativity.[142] When copyright attaches to a musical work or other creation consisting of sounds, federal copyright law gives its author the exclusive right to copy, create new versions, and publicly perform or distribute the work.[143]

To the extent that intellectual property protection is afforded at all, the Copyright Office and the USPTO routinely channel shorter sounds towards trademark protection and longer auditory works into the realm of copyright. The Copyright Office guidelines provide that shorter segments of content do not reflect sufficient originality to warrant copyright protection and, therefore, those seeking intellectual property protection for shorter sound segments may find it easier to protect them through trademark law.[144] Similarly, trademark law and USPTO practices also channel longer sound claimants towards

142. 17 U.S.C. § 102(a)(7) (including "sound recordings" within copyrightable matter); *see* Olufunmilayo B. Arewa, *A Musical Work Is a Set of Instructions*, 52 HOUS. L. REV. 467, 470 (2014) (discussing the expansion of copyright to include sound recordings).

143. 17 U.S.C. § 106 (exclusive rights); *see* 1 HOWARD B. ABRAMS & TYLER T. OCHOA, THE LAW OF COPYRIGHT § 5:1 (2023) (providing overview of the rights granted to copyright owners).

144. *See, e.g.*, U.S. COPYRIGHT OFF., CIRCULAR 56: COPYRIGHT REGISTRATION FOR SOUND RECORDINGS 1–2 (2021), https://www.copyright.gov/circs/circ56.pdf [https://perma.cc/PT2L-R3ZV] ("Short sound recordings may lack a sufficient amount of authorship to warrant copyright protection, just as words and short textual phrases are not copyrightable."); U.S. COPYRIGHT OFF., *supra* note 4, § 313.4(C) (indicating that "[a] trademark consisting of three musical notes" would not be copyrightable).

copyright law. This channeling practice may help explain the portion of our empirical analysis showing that it is relatively difficult to register long sound segments.[145]

Courts have not created clear divisions between copyright and trademark law, as they have between trademarks and utility patents, which protect inventions for "new and useful process[es], machine[s], [articles of] manufacture, [and] composition[s] of matter."[146] In *TrafFix Devices, Inc. v. Marketing Displays, Inc.*,[147] the Supreme Court concluded that after a utility patent expires, the useful invention enters the public domain and cannot be reclaimed by trademark law.[148]

The Supreme Court confronted a similar channeling question between trademark and copyright law in *Dastar Corp. v. Twentieth Century Fox Film Corp.*[149] After a copyrighted film entered the public domain, Dastar edited and repackaged the footage without seeking permission from the former copyright owner.[150] The Supreme Court held that when a copyrighted work enters the public domain, others may sell the work in a manner that truthfully acknowledges the source of distribution, even if the seller does not identify those who created the work.[151] Holding otherwise, the Court explained, would extend copyright law to create a right of attribution akin to an antiplagiarism statute, which would create practical difficulties, especially for

145. *See, e.g.*, *infra* notes 405–06 and accompanying text (identifying instances in which USPTO trademark examiners issued office actions noting that the length of the sound made it more appropriate for copyright rather than trademark protection).

146. 35 U.S.C. § 101 (listing the subject matter of utility patents).

147. 532 U.S. 23 (2001).

148. *See id.* at 30 ("Where the expired patent claimed the features in question, one who seeks to establish trade dress protection must carry the heavy burden of showing that the feature is not functional, for instance by showing that it is merely an ornamental, incidental, or arbitrary aspect of the device."); *see also* Matthew G. Sipe, *A Fragility Theory of Trademark Functionality*, 169 U. PA. L. REV. 1825, 1875 (2021) (discussing the effect of the *TrafFix* decision on the intersection of patent and trademark law).

149. 539 U.S. 23 (2003).

150. *Id.* at 26–27.

151. *See id.* at 38 ("For merely saying it is the producer of the video, however, no Lanham Act liability attaches to Dastar."). *See generally* David A. Gerber, *Copyright Reigns—Supreme: Notes on* Dastar Corp. v. Twentieth Century Fox Film Corp., 93 TRADEMARK REP. 1029 (2003) (discussing the *Dastar* opinion and its implications).

collaborative works.[152] Professor Mark McKenna has argued that *Dastar* should be interpreted to provide trademark law with a clear channeling rule for copyrighted content, as *TrafFix* has for patented inventions.[153] McKenna notes that some courts have interpreted *Dastar* to prohibit others from using trademark law to make false attribution or false advertising claims about the source of creative works.[154]

But the USPTO and courts have not interpreted *Dastar* to presumptively restrict trademark protection over material no longer protected by copyright, as they have for inventions no longer protected by patent law. When the copyright in a musical work expires, the music may be used and protected as a trademark. For example, the Principal Register includes trademarks in entertainment services for copyrighted music (e.g., Warner Brothers' *Looney Tunes* theme[155]) and compositions in the public domain (e.g., Harlem Globe Trotters' use of "Sweet Georgia Brown"[156]).

One explanation for this channeling difference may be that while copyright law provides exclusive rights to reproduce, distribute, and create derivative works, trademark protection is limited to confusingly similar or diluting uses. Even if someone asserts trademark rights in a piece of music, trademark's noncommercial use and expressive defenses would protect the rights

152. *See Dastar Corp.*, 539 U.S. at 35–36 (describing the "serious practical problems" given the number of entities involved).

153. Mark P. McKenna, Dastar*'s Next Stand*, 19 J. INTELL. PROP. L. 357, 387 (2012) (concluding that "*Dastar* should be understood, or at least should be extended, to rule out any claims based on confusion that is attributable to the content of a creative work, however that claim is denominated," in part because "[t]his approach is better than ruling out trademark protection for all copyrightable works").

154. *Id.* at 361.

155. The mark consists of the Looney Tunes Theme Song which consists of eighteen (18) musical notes comprising the notes, E4, D4, C4, D4, E4, EFlat4, E4, C4, D4, D4, D4, D4, C4, AFlat3, A3, D4, E4, and G4, Registration No. 2,469,364.

156. The mark consists of the melody "SWEET GEORGIA BROWN," Registration No. 1,700,895; Anandashankar Mazumdar, *The Lifecycle of Copyright: 1925 Works Enter the Public Domain*, LIBR. OF CONG.: COPYRIGHT (Jan. 29, 2021), https://blogs.loc.gov/copyright/2021/01/the-lifecycle-of-copyright-1925-works-enter-the-public-domain [https://perma.cc/QU5N-M283] (explaining that the song is now in the public domain).

of anyone seeking to perform or use the music creatively.[157] For example, a passage from Hanson's romantic symphony is used as a trademark by the Interlochen Center for the Arts,[158] a famous arts school and camp, and it also was incorporated expressively into the final scenes of Ridley Scott's horror film, *Alien*.[159] Neither use would prevent others from performing or recording the music or from using it as a trademark provided that the use is not confusingly similar to Interlochen's use.

While a work's copyright status may not affect its trademark potential, other limiting principles narrow the field of protectable sound marks. To be protected as a trademark, a sound must be used as a mark. In *EMI Catalogue Partnership v. Hill, Holliday, Connors, Cosmopulos Inc.*,[160] the Second Circuit held that although music may act as a trademark for other goods and services, a song cannot be a trademark for the song itself.[161] The dispute arose after Spalding hired a music production company to record a version of the 1930s jazz tune, "Sing, Sing, Sing (With a Swing)," which was popular in the swing era. Spalding used the song in an advertisement for a new line of golf clubs.[162] EMI sued the production company and Spalding for copyright and trademark infringement.[163] EMI claimed it owned the song as a trademark for the tune itself. The court rejected that contention, however, explaining that to function as a trademark, a symbol must be different from the product so that it can be used to distinguish that item from competitive products sold by someone

157. *See generally* Mark Bartholomew & John Tehranian, *An Intersystemic View of Intellectual Property and Free Speech*, 81 GEO. WASH. L. REV. 1, 41–56 (2013) (describing relationship between trademark law and the First Amendment).

158. The mark is a musical excerpt of fourteen bars from the second movement (Andante con tenerezza) of Howard Hanson's Symphony 2, op. 30 (Romantic), Registration No. 75,591,273.

159. *See* DAVID MCINTEE, BEAUTIFUL MONSTERS: THE UNOFFICIAL AND UNAUTHORISED GUIDE TO THE ALIEN AND PREDATOR FILMS 38 (2005) (indicating that Hanson's Symphony Number 2 replaced the original score's end title theme).

160. 228 F.3d 56 (2d Cir. 2000).

161. *Id.* at 64 ("We hold therefore that a musical composition cannot be protected as its own trademark under the Lanham Act."); *see also* Michael S. Mireles, Jr., *Aesthetic Functionality*, 21 TEX. INTELL. PROP. L.J. 155, 201 (2013) (explaining the *EMI* decision and exploring its implications).

162. *EMI*, 228 F.3d at 60.

163. *Id.* (seeking injunctive relief and damages "for unfair competition in violation of § 43(a) of the Lanham Act . . . and of state law").

else.[164] In affirming summary judgment for the defendants, the court explained that allowing a song to "serve as an identifying mark of the song itself would stretch the definition of trademark . . . too far and give trademark law a role in protecting the very essence of the song, an unwarranted extension into an area already protected by copyright law."[165] While copyright law may prohibit a wide array of uses, trademark law only protects a composition's ability to signal the source of *other* goods and services.

In *Oliveira v. Frito-Lay, Inc.*,[166] the Second Circuit reinforced its *EMI* decision.[167] The plaintiff in that case, Austrud Oliveira, was a recording artist whose career launched when her recording of "The Girl from Ipanema" became famous, forging a connection between her and the song that was so strong, its title was often used to refer to her.[168] She claimed that her signature song constituted an unregistered trademark.[169] However, she did not own the rights in the musical composition or the recording, and Frito-Lay licensed the music from those who did.[170] Although the Second Circuit in *Oliveira* confirmed that music may serve as a trademark, as it had in *EMI*, it dismissed the plaintiff's claim because "granting to a song the status of trademark *for itself* would . . . cause disruptions as to reasonable commercial understandings."[171] Had Oliveira asserted trademark rights in the song title as a designation for entertainment services (analogous to a band name) or for the song used in connection

164. *Id.* at 62.

165. *Id.* at 64; *see also* Viva R. Moffat, *Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection*, 19 BERKELEY TECH. L.J. 1473, 1525–30 (2004) (discussing courts' reticence to recognize concurrent trademark and copyright protection).

166. 251 F.3d 56 (2d Cir. 2001).

167. *Id.* at 62 (identifying the similarities between *EMI* and *Oliveira*); *see* Kevin K. McCormick, *"Ding" You Are Now Free to Register That Sound*, 96 TRADEMARK REP. 1101, 1108 (2006) (summarizing *Oliveira*).

168. *Oliveira*, 251 F.3d at 58–59.

169. *Id.* at 59 ("[Oliveira] claims that as the result of the huge success of [her] 1964 Recording . . . she has become known as The Girl from Ipanema and is identified by the public with [her] 1964 Recording. She claims as a result to have earned trademark rights in the 1964 Recording, which she contends the public recognizes as a mark designating her as a singer.").

170. *Id.* at 58; *see* Iyanu Lipede, Comment, *Let's Hear It for Sound Marks: Trademark Protection in Copyrighted Songs*, 16 LIBERTY U. L. REV. 491, 512 (2022) (discussing the licensing agreement).

171. *Oliveira*, 251 F.3d at 62 (citing EMI Catalogue P'ship v. Hill, Holliday, Connors, Cosmopulos Inc., 228 F.3d 56, 64 (2d Cir. 2000)).

with the advertising for other goods or services, the result may have been different. However, even when consumers associate a song with someone who performs it, the association may not support a trademark claim against other recording artists who lawfully cover the song pursuant to copyright law's mechanical license provisions.[172] Courts outside the Second Circuit have also adopted this reasoning when confronted with similar facts.[173]

But this channeling practice does not automatically exclude longer sound segments from trademark protection. Jingles, or catchy melodic tunes, were often used in the golden age of radio to help consumers remember advertisements.[174] The Wheaties song, first aired on the radio in 1926, launched the musical genre.[175] However, since their heyday in the mid-twentieth century, the use of jingles has declined.[176] In 2010, Oscar Mayer retired its famous wiener jingle even though it was hailed as the longest-running iconic tune in advertising history.[177]

---

172. *See generally* 17 U.S.C. § 115 ("compulsory licensing" provision of copyright law).

173. *See, e.g.*, Romantics v. Activision Publ'g, Inc., 574 F. Supp. 2d 758, 770 (E.D. Mich. 2008) (denying a rock band's claim against a distributor of a video game which used a new recording of one of its sounds on the ground that "a musical composition [could not] be protected as its own trademark under the Lanham Act" (quoting *EMI*, 228 F.3d at 64)); G.M.L., Inc. v. Mayhew, 188 F. Supp. 2d 891, 896 (M.D. Tenn. 2002) (finding no protectable trademarks in sound recordings because they were themselves the goods being sold).

174. *See generally* Juan Manual Hernandez Chico, "*Have You Tried Wheaties?": The Lost Art of Jingle Writing*, UNIV. OF MD. UNIV. LIBRS., https://exhibitions.lib.umd.edu/libraryofamericanbroadcasting/featured/jingles [https://perma.cc/W55F-2ZV8] (providing a history of the origin of the jingle, which had its roots in the nineteenth century print advertising).

175. *Id.*; Tiffany Stanley, *What Killed the Jingle?*, ATLANTIC (Aug. 29, 2016), https://www.theatlantic.com/business/archive/2016/08/what-killed-the-jingle/497291 [https://perma.cc/M3VX-5YAS].

176. *See* Stanley, *supra* note 175 (discussing the rise and fall of the jingle).

177. *Id.* ("In 2010, the company announced a new ad campaign . . . . 'What we did not want to do was write jingles,' an ad exec told *The New York Times*."); *Oscar Mayer Says Goodbye to Wiener Song*, NPR (Jan. 15, 2010), https://www.npr.org/templates/story/story.php?storyId=122599414 [https://perma.cc/89GH-LFL3] ("The Oscar Mayer Wiener song debuted in 1963, and according to the company's Web site, it's the longest running commercial jingle still in use."); *see also* Hernandez Chico, *supra* note 174 (noting that the song had "reached an estimated 49 million people in 19 countries worldwide").

Instead of jingles, contemporary brands often partner with well-known celebrity musicians to play popular songs.[178] Although serious musicians once looked down on such commercialism as "selling out," changes in the industry have necessitated new income streams from licensing in a broad array of subjects, including advertising, film scores, and ring tones in genres ranging from classical to jazz to hip hop.[179] For example, Microsoft commissioned the ambient-sound legend Brian Eno to compose a six-second overture for Windows 95, which is described as "a starry ripple trailed by a fading echo."[180]

These collaborations may result in multiple intellectual-property rights coexisting in the same performance. Copyright may attach to the composition and to particular recordings, and trademark protection may attach as well if those works are used with the copyright owner's permission to signal source.[181] The celebrity may also have publicity rights in the use of their name, image, and likeness.[182] Alternatively, once a copyrighted work

178. *See* Stanley, *supra* note 175 (positing that a 1984 partnership between Pepsi and Michael Jackson "inspired a deluge of celebrity partnerships" that extends into the present); *see also* Mark Knight, *When Bands Meet Brands: The Mutual Benefits of Music Partnerships*, GUARDIAN (Oct. 14, 2015), https://www.theguardian.com/media-network/2015/oct/14/bands-brands-benefits-music-industry-partnerships [https://perma.cc/V92U-6RSN] ("Brand association can mean financial support for musicians and large and enthusiastic audiences for brands[.]").

179. Stanley, *supra* note 175; *see, e.g.*, Lindsay Rittenhouse, *Want Your Brand to Be a Hit with Consumers? Try Partnering with a Musician*, ADWEEK (Mar. 4, 2019), https://www.adweek.com/brand-marketing/brands-can-unlock-unique-opportunities-in-making-deals-with-music-artists-if-done-right [https://perma.cc/P6T3-EPZY] (discussing lucrative Super Bowl ads in 2019 that featured Chance the Rapper, Backstreet Boys, Cardi B, Lil Jon, and Michael Bublé, among others).

180. Bliss, *supra* note 119; *see* also Sam Kemp, *Windows 95: How Brian Eno's Music Defined the Sound of the Internet Age*, FAR OUT MAG. (Aug. 24, 2021), https://faroutmagazine.co.uk/how-brian-eno-made-windows-95-start-up-music [https://perma.cc/CEQ8-SPPW] (explaining the "challenge" of creating "a piece of music that is inspiring, universal . . . , optimistic, futuristic, sentimental, emotional . . . and . . . must be 3.25 seconds long").

181. *Cf.* Moffat, *supr*a note 165, at 1506–09 (discussing the potential for overlapping copyright and trademark protection, focusing on the issue of intellectual property protection for characters).

182. *See* Grace Greene, Comment, *Instagram Lookalikes and Celebrity Influencers: Rethinking the Right to Publicity in the Social Media Age*, 168 U. PA. L. REV. ONLINE 153, 173–74 (2020) (describing the expansion of name, image, and likeness claims).

enters the public domain, a brand owner may choose to use it as a trademark for their products or services, without having to concern themselves with another set of rightsholders.[183]

On the flipside, musicians may protect specific sound bites as source identifiers if the sound functions as a mark and can be identified separately from a set of products or services. Pitbull's distinctive "EEEEEEEYOOOOOO!" yell is a consistent feature of his songs and alerts audiences when he is the lead performer, is experimenting with new genres, or is making guest appearances with other artists.[184] The sound also evokes his Mexican heritage, in which many adopt a signature yell, known as a "grito."[185] Pitbull's grito became so well known that when J Balvin and Willy William released the song "Mi Gente" with a similar sounding yell, Pitbull was praised for his guest appearance on the track even though he did not participate.[186] To minimize and deter future instances of confusion, Pitbull registered his grito as a sound mark with the USPTO.[187]

As demonstrated in Part I, sounds have attributes that enable them to function as strong trademarks. Sounds may bridge language barriers and evoke shared meaning. They affect individuals in powerful and dramatic ways. Sounds can endure deep in our memories. They naturally trigger associations with other concepts and may last a lifetime—whether or not we are consciously aware of them. Because these attributes suggest that sounds may serve as especially effective trademarks, one might

183. *See* Moffat, *supr*a note 165, at 1515–16 (arguing that the extension of trademark protection beyond the expiration of a copyright "disrupts the balance established by Congress and deprives the public of the benefits of the copyright bargain").

184. McNaughton et al., *supra* note 1, at 180 (discussing Pitbull's use of a number of catchphrases and his signature yell, the latter of which is now the subject of federal trademark registrations).

185. *Id.* at 181–82.

186. *Id.* at 180–81.

187. The mark is a sound. The mark consists of a man yelling "EEEEEEEYOOOOOO" in falsetto with "E" drawn out followed by a "U" sound, Registration No. 5,877,076; The mark is a sound. The mark consists of a man yelling "EEEEEEEYOOOOOO" in falsetto with "E" drawn out followed by a "U" sound, Registration No. 5,877,077; *see also* McNaughton et al., *supra* note 1, at 183 (explaining what prompted Pitbull to seek federal trademark registration); Leila Cobo, *That Pitbull Yell? It's Now a Trademarked Sound and You'd Better Not Use It*, BILLBOARD (Apr. 21, 2020), https://www.billboard.com/pro/pitbull-yell-trademarked-sound-eeeeeeeyoooooo [https://perma.cc/B5ZV-RGQW] (noting the groundbreaking nature of Pitbull's sound mark registration).

expect to find many sound marks in the USPTO data. But that is not the case, and there remains much uncertainty around how sound fits in the trademark universe.

B. LOCATING SOUND IN THE FIELD OF NONVERBAL MARKS

Most trademarks consist of words or visual designs.[188] Prior to the Lanham Act's enactment in 1946, applicants could, with limited exceptions, register marks only if they consisted of inherently distinctive words or symbols.[189] If those were "traditional" trademarks, then descriptive words, slogans, and other subjects not protected prior to the Lanham Act are in some sense "nontraditional." But among trademark professionals, "nontraditional" is not a fixed category. Often the traditional category includes designs or conventional forms of trade dress (e.g., product packaging), while the "nontraditional" or unconventional category includes product design trade dress, colors, scents, textures, sounds, and décor.[190] Rather than drawing a line between traditional and nontraditional marks based on the passage of the Lanham Act or based on conceptual groupings (which surely would be porous), we use the term "unconventional" for categories that constitute less than 0.1% of the applied-for marks in the USPTO's federal registration database.[191]

---

188. Gerhardt & Lee, *supra* note 15, at 2531 fig.VII (depicting the distribution of trademark applications filed between 1987 and 2017, showing that over 99.9% were for text and/or design marks).

189. *See* Sara Stadler Nelson, *The Wages of Ubiquity in Trademark Law*, 88 IOWA L. REV. 731, 738–41 (2003) (explaining that registration under the Trademark Act of 1905 generally was limited to "technical trademarks," which had to be inherently distinctive); Margreth Barrett, *Finding Trademark Use: The Historical Foundation for Limiting Infringement Liability to Uses "In the Manner of a Mark,"* 43 WAKE FOREST L. REV. 893, 904–05 (2008) (discussing the limits of federal registration at the time).

190. *See* Irene Calboli & Martin Senftleben, *Introduction* to THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES, *supra* note 18, at 2–3 (describing the universe of unconventional trademarks). *See generally* Anne Gilson LaLonde & Jerome Gilson, *Getting Real with Nontraditional Trademarks: What's Next After Red Oven Knobs, the Sound of Burning Methamphetamine, and Goats on a Grass Roof?*, 101 TRADEMARK REP. 186 (2011) (providing an overview of the enforcement challenges for unconventional trademarks).

191. *See infra* Figure II (indicating that trademark applications claiming only a single color or nonvisual matter (which includes sound) together constitute 0.024% of all applications).

The Supreme Court has held that two trademark categories often considered "nontraditional"—single colors and product design—require proof of acquired distinctiveness before they receive protection.[192] Therefore, some may assume that such additional proof is required for all unconventional marks. Below, we consider whether that assumption makes sense, and we conclude that sound marks are unusual in that they run the trademark analytical gamut.

To appreciate why that is so, it is important to understand the doctrine of trademark distinctiveness—one of the two substantive requirements for trademark protection. A symbol may be protected as a mark only if it is (1) used in commerce; and (2) identifies and distinguishes goods or services "from those manufactured or sold by others."[193] Distinctiveness works as follows. When we see a shoe marked with the word "Nike" or its well-known swoosh, that word or symbol tells us that the shoe comes from Nike, Inc. and is not made by one of Nike's competitors.[194]

In 1906, the Supreme Court first suggested that a mark without words could receive trademark protection.[195] In 1946, when Congress enacted the Lanham Act, it codified that possibility by broadening federal trademark protection. In its current form, the Lanham Act states that a mark can be "any word, name, symbol, or device, or any combination" of these elements.[196] While not limited in subject matter, the definition of a trademark narrows protectable marks to symbols that are: (1) used in commerce (or in good faith intended for use in

192. *See* Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 162–63 (1995) (holding that a single color on a product must have secondary meaning to be protectable); Wal-Mart Stores, Inc. v. Samara Bros., 529 U.S. 205, 212 (2000) (applying similar reasoning to product design trade dress). *See generally* Lars Smith, *Trade Distinctiveness: Solving Scalia's* Tertium Quid *Trade Dress Conundrum*, 2005 MICH. ST. L. REV. 243, 266–75 (discussing the evolution of the doctrine as a result of the Supreme Court cases).

193. 15 U.S.C. § 1127 (statutory definition of "trademark").

194. *See also* Alexandra J. Roberts, *How to Do Things with Word Marks: A Speech-Act Theory of Distinctiveness*, 65 ALA. L. REV. 1035, 1048 (2014) (defining distinctiveness and explaining its importance to consumers as indicating a "consistent" source).

195. *See* A. Leschen & Sons Rope Co. v. Broderick & Bascom Rope Co., 201 U.S. 166, 171 (1906), *abrogated by* Hurn v. Oursler, 289 U.S. 238 (1933).

196. 15 U.S.C. § 1127.

commerce); and (2) distinctive.[197] This definition limits the symbols that can serve as marks in several ways. It indicates that the *goods* must be different from the *symbol* used to identify their source.[198] It also tells us that a symbol is distinctive only if it signals that the product comes from a particular producer. Therefore, if a symbol is used by multiple competitors, it cannot be distinctive.[199]

The concept of distinctiveness was developed through cases in which courts defined two paths: one that is automatic and another that takes time.[200] Symbols like coined words (e.g., XEROX for copiers) are inherently instinctive. They were created to serve as trademarks and have no other meaning. Likewise, words used arbitrarily (e.g., APPLE for computers) clearly signal that they are trademarks and can be registered as soon as they are in use. Words that suggest but do not directly describe products or services may be deemed suggestive (e.g., NIKE for athletic apparel) and also be protected upon adoption.[201] Other symbols, like descriptive words, generally may be used by multiple competitors.[202] To promote free commercial discourse and fair competition, trademark doctrine permits intellectual property protection of descriptive words only if they have been used exclusively for enough time that consumers have learned to see them as

197. *Id.*; *see also* Jon J. Lee, *Racism and Trademark Abandonment*, 91 GEO. WASH. L. REV. 932, 956–58 (2023) (detailing the use and distinctiveness requirements).

198. *See* 15 U.S.C. § 1127; *see also* Deborah R. Gerhardt, *The Last Breakfast with Aunt Jemima and Its Impact on Trademark Theory*, 45 COLUM. J.L. & ARTS 231, 238 (2022) (discussing the triangular connection between symbol, good, and producer).

199. *See* Alfred C. Yen, *The Constructive Role of Confusion in Trademark*, 93 N.C. L. REV. 77, 104 (2014) (discussing the use of the same symbol by multiple competitors and the resultant inevitable confusion).

200. *See* Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 768–70 (1992) (describing inherent and acquired distinctiveness); Graeme B. Dinwoodie, *Reconceptualizing the Inherent Distinctiveness of Product Design Trade Dress*, 75 N.C. L. REV. 471, 485–88 (1997) (describing the differences between these types of distinctiveness).

201. Roberts, *supra* note 194, at 1049 (describing the categories of inherently distinctive marks).

202. *Cf.* Jake Linford, *The False Dichotomy Between Suggestive and Descriptive Trademarks*, 76 OHIO ST. L.J. 1367, 1378 (2015) (explaining that a court will not inquire whether a competitor's use of a descriptive mark would create a likelihood of confusion unless the putative trademark holder can demonstrate acquired distinctiveness).

having acquired distinctiveness.[203] Trademark professionals often refer to the concept of acquired distinctiveness as "secondary meaning."[204] Examples of descriptive words that have acquired sufficient secondary meaning to be protected are "BESTBUY" and "AMERICAN AIRLINES."[205]

In *Abercrombie & Fitch Co. v. Hunting World, Inc.,* the Second Circuit identified a spectrum of distinctiveness categories ranging from unprotectable generic terms; to descriptive words which require secondary meaning; to suggestive, arbitrary, or fanciful marks which are inherently distinctive.[206] While this rubric fits well for word marks, it often poses challenges in assessing the distinctiveness of nonverbal marks.

An ideal illustration of the difficulty can be seen in *Amazing Spaces, Inc. v. Metro Mini Storage*.[207] A company providing storage services asserted trademark rights in a star design it claimed was inherently distinctive.[208] Under the *Abercrombie* spectrum, that claim made sense because the word "star" does not describe or suggest storage services and, therefore, could be deemed arbitrary. But the company was located in Texas, where the design is known as the star of Texas and is used in selling all kinds of goods and services (including by other storage service vendors) in the state.[209] Because such ubiquity is inconsistent with distinctiveness, the test did not adequately address the facts in the case.

---

203. *See* 2 MCCARTHY, *supra* note 7, § 15:1; *see also* Alexandra J. Roberts, *Mark Talk*, 39 CARDOZO ARTS & ENT. L.J. 1001, 1008–10 (2021) (discussing two types of reasons why descriptive marks are not immediately protectable, one based in consumer expectations and the other based in promoting competition).

204. 2 MCCARTHY, *supra* note 7, § 15:1.

205. *See* Barton Beebe, *The Semiotic Analysis of Trademark Law*, 51 UCLA L. REV. 621, 670 (2004) (using both "BEST BUY" and "AMERICAN AIRLINES" as examples of descriptive marks that needed secondary meaning in order to be protectable); *see also* Deborah R. Gerhardt, *Beware the Trademark Echo Chamber: Why Federal Courts Should Not Defer to USPTO Decisions*, 33 BERKELEY TECH. L.J. 643, 669–72 (2018) (discussing the *Abercrombie* spectrum and role of the trademark examiner in the classification).

206. Abercrombie & Fitch Co. v. Hunting World, Inc., 537 F.2d 4, 9 (2d Cir. 1976); *see* Linford, *supra* note 202, at 1375–79, 1402–03 (summarizing how the *Abercrombie* spectrum is commonly understood, yet noting that many are critical of its accuracy and utility).

207. 608 F.3d 225 (5th Cir. 2010).

208. *Id.* at 230.

209. *Id.* at 231–32.

To solve this analytical problem, the court applied the test articulated in *Seabrook Foods, Inc. v. Bar-Well Foods, Ltd.*[210] to determine (1) "whether it was a 'common' basic shape or design"; (2) "whether it was unique or unusual in a particular field"; (3) "whether it was a mere refinement of a commonly-adopted and well-known form of ornamentation for a particular class of goods viewed by the public as a dress or ornamentation for the goods"; and (4) "whether it was capable of creating a commercial impression distinct from the accompanying words."[211] Applicants seeking to register product packaging or analogous trade dress either must show their mark is inherently distinctive or establish secondary meaning before the USPTO will register the mark.[212] The *Amazing Spaces* court found that the star design under consideration was not inherently distinctive because similar star designs were commonly used, both by direct competitors and by other businesses, throughout Texas. Therefore, in that market, the design did not automatically create a distinct commercial impression.[213]

Since *Seabrook* was decided, it has been adopted by most federal courts as the primary test for determining whether design marks are inherently distinctive. The Second Circuit, however, still relies on the *Abercrombie* spectrum to classify design marks.[214] Unfortunately, trademark law does not clearly delineate when to use *Seabrook* and when to use *Abercrombie*. In addition to the differences among the circuits, no definitive boundary clearly separates trade dress from word marks. Therefore, it is not surprising that confusion would arise about the extent to

---

210. 568 F.2d 1342, 1344 (C.C.P.A. 1977); *see* Dustin Marlan, *Visual Metaphor and Trademark Distinctiveness*, 93 WASH. L. REV. 767, 808 (2018) (discussing the Fifth Circuit's use of the *Seabrook* test in *Amazing Spaces*).

211. *Seabrook Foods, Inc.*, 568 F.2d at 1344 (footnotes omitted); *see also* Dinwoodie, *supra* note 200, at 515 (characterizing *Seabrook* as a "much more workable test" for nonverbal marks than *Abercrombie*).

212. U.S. PAT. & TRADEMARK OFF., TRADEMARK MANUAL OF EXAMINING PROCEDURE § 1202.02(b)(ii) (2023); *In re* Chippendales USA, Inc., 622 F.3d 1346, 1351–52 (Fed. Cir. 2010) (outlining the two routes for distinctiveness of some categories of trade dress).

213. *Amazing Spaces, Inc.*, 608 F.3d at 246–47; Marlan, *supra* note 210, at 808 (discussing the *Amazing Spaces* ruling).

214. MCCARTHY, *supra* note 7, § 8:13 (noting the widespread adoption of *Seabrook*). *But see, e.g.*, Star Indus., Inc. v. Bacardi & Co., 412 F.3d 373, 382, 384–86 (2d Cir. 2005) (citing *Seabrook* yet ultimately classifying the plaintiff's mark to be "suggestive, but just barely").

which sound marks and other unconventional trademarks may be inherently distinctive.

C. TRADEMARK PROTECTION OF UNCONVENTIONAL MARKS

The first time the Supreme Court considered whether an unconventional symbol could serve as a trademark was in *Inwood Laboratories, Inc. v. Ives Laboratories, Inc.*, which involved a manufacturer's use of a color on a prescription drug tablet.[215] The Court used the case as a vehicle to articulate a test for functionality, a doctrine that bars trademark protection. According to *Inwood*, "a product feature is functional if it is essential to the use or purpose of the article or if it affects the cost or quality of the article."[216] Although the Court did not definitively rule on whether the color was functional in that context, the two-pronged standard raised questions about the extent to which unconventional marks would be protectable.[217]

Ten years later, in *Two Pesos, Inc. v. Taco Cabana, Inc.*, the Supreme Court held that trade dress in the form of restaurant décor could be inherently distinctive.[218] While this decision opened both distinctiveness paths (inherent and acquired) to trade dress, within three years of deciding *Taco Cabana*, the Court began to carve out categories that required taking the longer path of acquiring distinctiveness.[219] The first of these decisions considered whether a single color, independent of any text or design, could be protected as a mark. In *Qualitex Co. v. Jacobson Products Co.*, the Supreme Court held that a single

---

215. 456 U.S. 844, 847 (1982).

216. *Id.* at 850 n.10; *see also* Margreth Barrett, *Consolidating the Diffuse Paths to Trade Dress Functionality: Encountering* TrafFix *on the Way to* Sears, 61 WASH. & LEE L. REV. 79, 87–88 (2004) (describing the Supreme Court's discussion of functionality).

217. *Cf.* Barrett, *supra* note 216, at 88–89 (explaining the "conflicting interpretations" of the *Inwood* standard).

218. 505 U.S. 763, 776 (1992); *see also* Dinwoodie, *supra* note 200, at 521–29 (discussing *Taco Cabana* and the uncertainty that surrounded how far its reasoning would extend to product configuration).

219. 4 LOUIS ALTMAN & MALLA POLLACK, CALLMANN ON UNFAIR COMPETITION, TRADEMARKS AND MONOPOLIES § 19:8 (4th ed. 2023) (setting out the sequence of decisions from *Taco Cabana* to *Samara*). *See generally* Russ VerSteeg, *Reexamining* Two Pesos*,* Qualitex*, &* Wal-Mart*: A Different Approach . . . or Perhaps Just Old* Abercrombie *Wine in a New Bottle?*, 23 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1249, 1259–66 (2013) (describing the facts and holdings in the three Supreme Court cases).

color may be protected as a trademark, but only if it passed two hurdles. First, it must not be functional.[220] To resolve this question, the Court applied the test that it used in *Inwood* and added a consideration of whether "exclusive use of the feature would put competitors at a significant non-reputation-related disadvantage."[221] The second hurdle involved the requisite showing of distinctiveness.[222] The Court held that by its nature, a single color could not *automatically* signal a source like an inherently distinctive word.[223] Thereafter, for a single color to be protected as a mark, an applicant must show that the color mark has acquired distinctiveness.[224]

Next, in *Wal-Mart Stores, Inc. v. Samara Bros., Inc.*, the Supreme Court concluded that product design trade dress was also incapable of automatically signaling source and therefore had to acquire distinctiveness to be protected as a trademark.[225] In reaching its decision, the Court expressed concern over the anticompetitive effects that could result if trademark protection were easily extended to designs like Samara's seersucker infant clothing with floral and bug decals.[226] While secondary meaning takes time to develop, the Supreme Court noted that protection may be secured by design patent or copyright law if the design

220. Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 166 (1995).

221. *Id.* at 165; Justin Hughes, *Cognitive and Aesthetic Functionality in Trademark Law*, 36 CARDOZO L. REV. 1227, 1232–33 (2015).

222. *Qualitex Co.*, 514 U.S. at 162.

223. *Id.* at 162–63.

224. *See id.* at 163 ("We cannot find in the basic objectives of trademark law any obvious theoretical objection to the use of color alone as a trademark, where that color has attained 'secondary meaning' and therefore identifies and distinguishes a particular brand (and thus indicates its 'source')."); VerSteeg, *supra* note 219, at 1262–63 (noting some ambiguity in the language of the opinion, while simultaneously acknowledging that the opinion has been interpreted in that manner).

225. Wal-Mart Stores, Inc. v. Samara Bros., 529 U.S. 205, 212 (2000); *see also* Smith, *supra* note 192, at 271–73 (discussing Justice Scalia's majority opinion in detail).

226. *Wal-Mart Stores, Inc.*, 529 U.S. at 213 (explaining that "consumers should not be deprived of the benefits of competition with regard to the utilitarian and esthetic purposes that product design ordinarily serves by a rule of law that facilitates plausible threats of suit against new entrants based upon alleged inherent distinctiveness").

qualifies.[227] Given this doctrinal history, especially in light of the paucity of additional Supreme Court precedent, it is not surprising that those seeking protection for sound marks may be uncertain about whether they too will need evidence of secondary meaning and proof that their mark is not functional. In the next Section, we consider whether these obstacles pose challenges for those seeking to protect sound marks.

D. TRADEMARK PROTECTION OF SOUNDS

The phrase "sound mark" was first recognized by the Trademark Trial and Appeal Board (TTAB) in 1978, when a radio station claimed the sound of a ship's bell clock as a mark for broadcasting services.[228] In *General Electric*, the TTAB held that sounds were not automatically disqualified from trademark protection because "sounds may, under certain conditions . . . function as source indicators in those situations where they assume a definitive shape or arrangement and are used in such a manner so as to create in the hearer's mind an association of the sound with a service."[229] Nonetheless, the TTAB affirmed the refusal of the radio station's application.[230] Its analysis echoed both *Seabrook*, which was decided the previous year, and *Abercrombie*, from earlier that decade:

> [A] distinction must be made between unique, different, or distinctive sounds and those that resemble or imitate "commonplace" sounds or those to which listeners have been exposed under different circumstances. This does not mean that sounds that fall within the latter group, when applied outside of the common environment, cannot

---

227. *Id.* at 214; *see* Laura A. Heymann, *Overlapping Intellectual Property Doctrines: Election of Rights Versus Selection of Remedies*, 17 STAN. TECH. L. REV. 239, 256 (2013) ("The Court thus contemplated that an IP owner might successfully, and properly, invoke all three regimes for an inherently distinctive design: copyright or design patent at the outset of the design's use, and trademark law once the design had spent enough time in the marketplace to acquire meaning as a source identifier.").

228. *In re* Gen. Elec. Broad. Co., 199 U.S.P.Q. (BL) 560, 561 (T.T.A.B. 1978) (noting that the mark consists of "a series of bells tolled during four, hour sequences, beginning with one ring at approximately a first half hour and increasing in number by one ring at approximately each half hour thereafter").

229. *Id.* at 563; *see* Daniel R. Bumpus, *BING, BANG, BOOM: An Analysis of* In re Vertex Group LLC *and the Struggle for Inherent Distinctiveness in Sound Marks Made During a Product's Normal Course of Operation*, 21 FED. CIR. B.J. 245, 248 (2011) (discussing *General Electric* and the landscape of sound trademarks at the time).

230. *In re Gen. Elec. Broad. Co.*, 199 U.S.P.Q. (BL) at 563.

> function as marks for the services in connection with which they are used. But, whereas the arbitrary, unique or distinctive marks are registrable as such on the Principal Register without supportive evidence, those that fall within the second category must be supported by evidence to show that purchasers, prospective purchasers and listeners do recognize and associate the sound with services offered and/or rendered exclusively with a single, albeit anonymous, source.[231]

Like the court in *Seabrook*, the TTAB considered whether the sound was "common" or "unique" in its market. As in *Abercrombie*, the TTAB considered whether the mark was "arbitrary." By using terms from both tests, the *General Electric* decision set the stage for sound marks to be analyzed using tools designed for textual marks and those developed for trade dress.

Following the *General Electric* decision, the TTAB and courts regularly considered the extent to which an applied-for sound was "unique" or "commonplace" in the commercial context for which the applicant sought to register the mark—with the latter requiring a showing of acquired distinctiveness.[232] The Supreme Court also approvingly cited the registration of NBC's three chimes in *Qualitex* when it determined that color alone was eligible for trademark protection.[233] The Supreme Court's implicit ratification of sound as a legitimate basis for a trademark solidified sound as a symbol on which future applicants could claim trademark protection, although the opinion did not provide any direction on how such claims should be evaluated.[234] Having no additional guidance, the USPTO and lower courts have been left to fill in the gaps.

---

231. *Id.*

232. Bumpus, *supra* note 229, at 246; MCCARTHY, *supra* note 7, § 7:104 (discussing trademark protection for sound marks); *see, e.g., In Re* Vertex Grp. LLC, 89 U.S.P.Q.2d (BL) 1694, 1702 (T.T.A.B. 2009) (concluding that "alarm sounds consisting of a series of sound pulses, including those at frequency or decibel levels approximating those employed by applicant's alarms, are commonplace," which would require secondary meaning); Ride the Ducks, L.L.C. v. Duck Boat Tours, Inc., 75 U.S.P.Q.2d (BL) 1269, 1271, 1275 (E.D. Pa. 2005) (applying the test to "quacking" of duck call devices, deeming them a "familiar noise" and not protectable via a showing of secondary meaning due to a lack of evidence).

233. *See* Qualitex Co. v. Jacobson Prods Co., 514 U.S. 159, 162 (1995) ("If a shape, a sound, and a fragrance can act as symbols why, one might ask, can a color not do the same?"). *See generally infra* note 311 and accompanying text (noting that NBC's three chimes sound was the first registered sound mark).

234. *See Qualitex Co.*, 514 U.S. at 164 (explaining that it "is the source-distinguishing ability of a mark—not its ontological status as color, shape, fragrance, word, or sign—that permits it to serve" as a mark).

The next Section identifies some of the issues that have arisen in connection with the federal registration of sound marks. Very few TTAB and court opinions concern the protectability of sound marks; therefore, only a few tentative conclusions may be drawn from them.

E. REGISTRATION OF SOUND MARKS WITH THE USPTO

Little guidance exists for applicants trying to determine how sound marks will be evaluated. Applicants seeking to register sound marks may be unclear on how to test the mark for distinctiveness and whether the USPTO will require proof that the mark is not functional.[235] Before turning to these questions, we will summarize the trademark registration process.

Applicants must confront two challenges in prosecuting a trademark application: first, examination by the USPTO; and second, the opportunity for third parties to oppose registration.[236] After an application is filed, the USPTO assigns it a serial number and uploads information from the application into the USPTO's publicly available online database.[237] Next, a USPTO trademark examiner is assigned to review the application, identify any technical defects, search for confusingly similar pending or registered marks that may have priority, assess whether it is distinctive, and determine whether it may be statutorily barred.[238] As part of the application, the applicant must identify at least one filing basis.[239] The two most common bases are: (1) use, for marks currently used in commerce; and (2) intent to use, for applicants with a bona fide intent to use the mark

235. *Cf.* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 1202.02 (setting out the requirements for registration of trade dress but noting that "the nature of a potential trade dress mark may not be readily apparent").

236. *See* Barton Beebe, *Is the Trademark Office a Rubber Stamp?*, 48 HOUS. L. REV. 751, 757–58 (2011) (outlining the stages of the registration process).

237. *Search Our Trademark Database*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks/search [https://perma.cc/MU93-8BTX] (publicly available online database).

238. *See Trademark Process*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks-getting-started/trademark-process [https://perma.cc/RP3X-G47W] (describing the examiner's role).

239. Beebe, *supra* note 236, at 756–57 (identifying the various filing bases); *see also Basis*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks/apply/basis [https://perma.cc/H9UP-QYWT] (providing information to applicants on how to select a filing basis).

in the near future.[240] Applicants also provide information including their domicile, citizenship, claimed goods or services, a specimen showing how the mark is used, and a drawing of the mark.[241]

If an applicant fails to satisfy any substantive or technical requirement for registration, the trademark examiner will issue an office action.[242] At that point, the applicant either must amend the application or respond to the examiner's objections.[243] If the examiner remains unpersuaded by the applicant's response, the examiner will issue a final refusal. But if the applicant provides evidence to alleviate the examiner's concerns—which may involve several office actions and responses—the mark will publish in the USPTO's *Official Gazette*.[244]

Following publication, third parties have the opportunity to oppose the registration if they believe they may be harmed by it.[245] Only 3% of published marks receive an opposition prior to registration.[246] If there is no opposition (or if the oppositions are unsuccessful), the mark will register, provided that the applicant submitted evidence that the mark was used in commerce prior to publication.[247] If the applicant did not submit evidence of use before publication, the USPTO instead will issue a "Notice of Allowance."[248] In this case, the applicant is required to submit

240. Deborah R. Gerhardt & Jon J. Lee, *A Tale of Four Decades: Lessons from USPTO Trademark Prosecution Data*, 112 TRADEMARK REP. 865, 882–83 (2022) (showing that over 90% of all single-basis applications are filed on a use or intent-to-use basis).

241. 15 U.S.C. § 1051(a)(2); *see also Trademark Initial Application Form*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks/apply/initial-application-forms [https://perma.cc/W9X9-J8S3] (online portal for trademark applications).

242. *Trademark Process*, *supra* note 238.

243. *Id.* (detailing the response requirement and timeline); *see also Responding to Office Actions*, U.S. PAT. & TRADEMARK OFFICE, https://www.uspto.gov/trademarks/maintain/responding-office-actions [https://perma.cc/WHL5-MZAR] (providing guidance on how to respond to office actions).

244. *Trademark Process*, *supra* note 238; Gerhardt & Lee, *supra* note 240, at 870–71 (discussing USPTO's ex parte examination of the application).

245. *See Trademark Process*, *supra* note 238 ("[A]ny party who believes it may be damaged by registration of the mark has 30 days from the publication date to file either an opposition to registration or a request to extend the time to oppose.").

246. Gerhardt & Lee, *supra* note 240, at 871.

247. *Trademark Process*, *supra* note 238.

248. *See* 15 U.S.C. § 1051(d).

evidence of use in commerce prior to registration, which will be reviewed by the USPTO for accuracy.[249]

The USPTO maintains two registers: the Principal Register and the Supplemental Register. Marks are placed on the preferred Principal Register if they comport with all of the statutory requirements outlined above.[250] Marks may be placed on the Supplemental Register if they are capable of acquiring distinctiveness, but the applicant has not provided evidence that they have done so.[251] A supplemental registration can give the applicant time to compile this evidence and then reapply for admission to the Principal Register.[252] Placement on the Supplemental Register gives owners the right to use the familiar "®" trademark symbol, but it does not confer nationwide priority or the ability to enjoin others from using a confusingly similar mark.[253] It is at best a consolation prize. For these reasons, when this Article references "registration" or "registration success," it refers to placement on the Principal Register, unless otherwise indicated.

1. Technical Barriers to Registration

All applicants must satisfy technical requirements to register a trademark. Because these requirements were developed for textual marks, applying them to sound marks is often challenging. Applicants generally must submit a written description,[254]

249. *See id.* (outlining the process for filing a verified statement that a published mark is being used in commerce).

250. Gerhardt & Lee, *supra* note 240, at 875.

251. *See* 15 U.S.C. § 1091(a) ("All marks capable of distinguishing applicant's goods or services and not registrable on the principal register . . . which are in lawful use in commerce by the owner thereof, on or in connection with any goods or services may be registered on the supplemental register . . . .").

252. *See* Anne Gilson LaLonde & Jerome Gilson, *The United States Supplemental Register: Solace, Substance, or Just Extinct?*, 103 TRADEMARK REP. 828, 882–83 (2013) (discussing how a five-year period of use can be prima facie evidence of acquired distinctiveness, yet noting its limited utility for supplemental registrations).

253. *See id.* at 859, 878–83 (identifying the limited advantages and considerable disadvantages of the Supplemental Register); *see also* Deborah R. Gerhardt & Jon P. McClanahan, *Do Trademark Lawyers Matter?*, 16 STAN. TECH. L. REV. 583, 587–88 (2013) (comparing the Principal and Supplemental Registers).

254. 37 C.F.R. § 2.37 (2024) ("A description of the mark must be included if the mark is not in standard characters. In an application where the mark is in

drawing,[255] and a specimen[256] showing use of the mark in commerce. While these requirements are relatively straightforward for word and design marks, they are not met as easily by sound mark applicants. Although sound mark applicants need not submit a "drawing," they must include a "detailed description of the mark."[257] Applicants may satisfy this requirement with a textual description, an audio recording "to supplement or clarify the description," and/or a copy of the musical score.[258] A recording of the mark used in an advertisement does not meet the description requirement, however, because the mark must be isolated from other sounds and contextual elements.[259] As our empirical study illustrates, these technical requirements often create stumbling blocks for sound mark applicants, especially those who are unfamiliar with the process.

The specimen and description requirements have been a source of confusion even for applicants represented by trademark counsel. In *Kawasaki Motors Corp. U.S.A. v. H-D Michigan Inc.*,[260] Harley-Davidson tried to register the sound of the exhaust from its motorcycles.[261] It faced nine opposition proceedings from competitors that challenged the application on a number of grounds, and it ultimately abandoned its effort after a six-year battle.[262] One opposition by Kawasaki alleged that Harley-

standard characters, a description may be included and must be included if required by the trademark examining attorney.").

255. *See* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 807.01–.08 (detailing the drawing requirements).

256. *Id.* § 904.01 ("One specimen for each class is required in an application for registration . . . .").

257. 37 C.F.R. § 2.52(e) (2024); *see* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 807.09 (outlining the detailed description requirement for sound mark applicants).

258. *See* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 807.09 (identifying the lack of a drawing requirement for sound mark applications and discussing the ways in which the detailed description requirement may be met).

259. *See id.* ("The [audio file] reproduction should contain only the mark itself; it is not meant to be a specimen.").

260. 43 U.S.P.Q.2d (BL) 1521 (T.T.A.B. 1997).

261. *Id.* at 1523 (describing the mark as "produced by V-Twin, common crankpin motorcycle engines when the goods are in use").

262. MCCARTHY, *supra* note 7, § 7:104 ("In the 1990's [sic] a good deal of publicity was generated by the attempt of motorcycle manufacturer Harley-Davidson to register as a trademark the allegedly distinctive sound made by its engines. After battling oppositions from other motorcycle manufacturers for

Davidson's application impermissibly pursued registration of more than one mark because two of its specimens were not identical to the description Harley-Davidson had provided.[263] When the TTAB compared each sound recording to the description of the mark within the application, it found that "each recording [could] fairly be characterized as an aural presentation of the literal description, just as varying presentations of a word in different typefaces and typesizes all may be said to illustrate that word as . . . [presented] in plain typed form on the drawing of the mark."[264] Ultimately, the TTAB determined that even though the specimens were different, both accurately depicted the written description.[265] To help less-sophisticated applicants navigate this process, it would be helpful if the USPTO provided examples clarifying how sound mark applicants can satisfy the specimen and description requirements.

2. Sounds Emanating from Products

As noted earlier, trademarks must be distinctive. Like descriptive words, two forms of trade dress—single colors and product design—require proof of acquired distinctiveness.[266] This requirement has been extended to sounds that emanate from a product "in the normal course of operation."[267] In 2009, the TTAB denied registration to an applicant who sought trademark protection for a loud intermittent sound emitted by its personal security alarms.[268] Citing *Qualitex* and *Samara Brothers*, the TTAB stated:

---

nearly six years, Harley-Davidson gave up and abandoned its application."); Nick Pisarsky, Note, *PoTAYto–PoTAHto–Let's Call the Whole Thing Off: Trademark Protection of Product Sounds*, 40 CONN. L. REV. 797, 806–08 (2008) (describing the factual history leading to the oppositions).

263. *Kawasaki*, 43 U.S.P.Q.2d at 1523–24 ("We are urged to find that the specimens of record in the involved application also present two discrete marks because [they] cannot be perceived at the same time and therefore must be separate marks.").

264. *Id.* at 1524; *see* Pisarsky, *supra* note 262, at 828 & nn.193–94 (describing the possible differences in engine sounds on account of a variety of circumstances).

265. *Kawasaki*, 43 U.S.P.Q.2d at 1524.

266. *See supra* notes 218–27 and accompanying text.

267. MCCARTHY, *supra* note 7, § 7:104.

268. *In re* Vertex Grp. LLC, 89 U.S.P.Q.2d (BL) 1694, 1695 (T.T.A.B. 2009) (claiming trademark protection for "descending frequency sound pulse (from 2.3kHz to approximately 1.5kHz) that follows an exponential, RC charging

> When a sound is proposed for registration as a mark on the Principal Register, for goods that make the sound in their normal course of operation, registration is available only on a showing of acquired distinctiveness . . . . Examples of such goods would include products such as alarm clocks, appliances that include audible alarms or signals, telephones, and the alarm products of applicant.[269]

Although the TTAB did not cite *Seabrook* or explicitly use its four-factor test, it applied similar reasoning, stating that the pulsing alarm sound was "commonplace" because it did not differ considerably from the sounds emitted from other kinds of alarms, and because "consumers [were not] predisposed to equate such sounds with the sources of the products that emit them."[270]

Similarly, in *Nextel Communications, Inc. v. Motorola, Inc.*,[271] Nextel opposed Motorola's application to register a chirping sound played by its phones.[272] Because "cellular telephones, including those . . . that emit the chirp, fall into the category of goods that make sound in their normal course of operation," the TTAB held that the mark could not be inherently distinctive and denied registration because Motorola had not proven that the sound had acquired distinctiveness.[273]

In an attempt to evade this rule, the applicant in *In re Powermat Inc.*[274] claimed that its sound mark was unique in its

---

curve, wherein said descending frequency sound pulse occurs four to five times per second, and that over a one second period of time, there is alternating sound pulses and silence with each occurring approximately 50% of the time during a one second period of time").

269. *Id.* at 1700; *see also* Bumpus, *supra* note 229, at 259–60 (arguing that *Vertex Group* was incorrectly decided because the TTAB had adopted a per se rule that sounds emanating from products cannot be inherently distinctive).

270. *In re Vertex Grp. LLC*, 89 U.S.P.Q.2d at 1702; *see* Julia Anne Matheson & Anna S. Balichina, *If It Quacks Like a Duck . . . It Just Might Be a Trademark*, 2 LANDSLIDE 42, 44 (2010) (situating *Vertex Group* in the line of cases that distinguish between sounds that are "commonplace" and those that are not).

271. Nextel Commc'ns, Inc. v. Motorola, Inc., 91 U.S.P.Q.2d (BL) 1393, 1395 (T.T.A.B.) (seeking registration in connection with a cellular phone for "an electronic chirp consisting of a tone at 1800 Hz played at a cadence of 24 milliseconds ON, 24 ms OFF, 24 ms ON, 24 ms OFF, 48 ms ON").

272. *Id.* at 1395–96 (describing the opposition to the registration).

273. *Id.* at 1400; *see* Bumpus, *supra* note 229, at 260–61 (discussing the application of the *Vertex Group* rule in *Nextel Communications*).

274. *In re* Powermat Inc., 105 U.S.P.Q.2d (BL) 1789, 1790 (T.T.A.B. 2013) (seeking registration for two sound marks for "battery chargers," one consisting of "five short electronic chirps, lasting less than half a second, with each chi[r]p increasing slightly in pitch from the previous chirp" (alteration in original)).

field and was composed for use as a mark, and thus it should be deemed inherently distinctive.[275] The TTAB disagreed, holding that Powermat's "arguments and evidence [did] not remove its sounds from the ambit of [the TTAB's] holdings in *Nextel* and *Vertex*."[276] Touting the uniqueness of its sound in advertising was not enough to render it inherently distinctive. Without evidence of acquired distinctiveness in the minds of consumers, the USPTO once again refused to register a sound mark that came directly from a product.[277]

Sounds emanating from products may be denied registration on the basis of functionality, if they are "essential to the use or purpose of applicant's products."[278] The protracted opposition to Harley-Davidson's motorcycle exhaust sounds was partly based on functionality grounds, but no definitive ruling resolved this issue.[279] While distinctiveness and functionality may both serve as barriers to trademark protection, the latter is a stronger basis of denial since it can never be overcome with evidence of secondary meaning.[280]

As set forth in our empirical analysis that follows, sounds are rarely found to be functional. They are more likely to be refused for failing to function as a mark or because they lack acquired distinctiveness.[281] In 2013, the TTAB considered the

---

275. *Id.* at 1791, 1793.

276. *Id.* at 1793.

277. *Id.* (finding the sound was "not inherently distinctive and therefore fails to function as a mark"); *see* Anna L. King & Luke S. Curran, *The Hidden Persuader: Sound Marks as Sonic Indicators of Source*, 10 LANDSLIDE 40, 43 (2017) (discussing the decision, and arguing that it was "not surprising[]" given the precedents in *Vertex Group* and *Nextel Communications*).

278. *In re* Vertex Group LLC, 89 U.S.P.Q.2d (BL) 1694, 1703 (T.T.A.B. 2009) (affirming refusal on both lack of distinctiveness and functionality grounds); MCCARTHY, *supra* note 7, § 7:104 (identifying occasional use of doctrine); *see* King & Curran, *supra* note 277, at 43 (discussing three TTAB decisions in which functionality was cited as a reason for refusal).

279. MCCARTHY, *supra* note 7, § 7:104; Bumpus, *supra* note 229, at 257 ("The TTAB did not resolve the functionality question but stated that the issue deserved consideration at trial, because granting trademark protection to Harley-Davidson would foreclose all other motorcycle manufacturers from making their engines in the same manner.").

280. *See* MCCARTHY, *supra* note 7, § 7:63 ("For 'functional' items, no amount of evidence of secondary meaning or actual confusion will create a right to exclude.").

281. *See infra* Figure XV (displaying the frequencies of grounds for refusal identified in office actions of failed sound mark applications).

sound of three clicks made by an applicant's glasses when "[t]he metal objects are struck in order to provide resistance to the hinges on the eyewear so that the temples 'lock' into the open or closed position."[282] Rather than adopting a per se rule that such sounds are functional, the TTAB carefully analyzed the facts and concluded that sound was not functional.[283] Nevertheless, the mark was placed on the Supplemental Register because it lacked secondary meaning.[284]

Although the Lanham Act states that no mark shall be denied registration based on its nature, the USPTO and evolving doctrine have grown cautious about protecting marks that—by their nature—may serve other functions than signaling source. Therefore, although sound marks may be inherently distinctive, the USPTO carefully reviews each application to consider whether sounds are functional, emanate from a product in the normal course of operation (and therefore require secondary meaning), or are not being used as a mark. However, the pitfalls in registering these marks are often procedural, not substantive.[285]

Many applicants face obstacles in retrofitting rules created for text to sound marks. First, to succeed in prosecuting trademark applications, sound mark applicants must understand how to satisfy the detailed description and specimen requirements, which were developed in the context of text and visual marks. Second, longer sound marks or musical compositions may face failure-to-function challenges and be channeled towards copyright protection. Third, figuring out the distinctiveness puzzle can trip up some sound mark applicants. Unlike single colors and product design, many sound marks may take either path to distinctiveness and therefore should be analyzed to discern if they may be inherently distinctive. Applying either *Abercrombie* or *Seabrook* may lead an applicant to believe that adopting a unique sound in its market context may be sufficient to establish the sound mark as inherently distinctive. However, if the sound

282. *In re* Sutro Prod. Dev., Inc., No. 77418246, 2013 WL 4397009, at *1 (T.T.A.B. Aug. 1, 2013) (non-precedential).

283. *Id.* at *4–8 (functionality discussion); *see* ALTMAN & POLLACK, *supra* note 219, § 18:81 n.7 (discussing the import of the *Sutro* decision).

284. *See In re Sutro Prod. Dev., Inc.*, 2013 WL 4397009, at *9 ("The refusal to register is reversed. The application will proceed to registration on the Supplemental Register.").

285. *See infra* Figure XV and accompanying text.

emanates from the product itself, it may be treated like product design, unprotectable without proof of secondary meaning. Fourth, like other symbols that may be part of a product's design or configuration, sounds that emanate from a product may also be required to overcome a functionality hurdle. Because sounds may be overlooked as a form of trade dress that will be scrutinized for functionality, an unwary applicant might not expect to confront a functionality challenge before obtaining registration.

III. EMPIRICAL STUDY OF APPLICATIONS TO REGISTER SOUND MARKS WITH THE USPTO

Apart from a handful of TTAB and federal court opinions, little is known about the federal registration of sound marks. The following empirical analysis of sound mark prosecution before the USPTO aims to fill these knowledge gaps. First, we explain our methodology and coding strategy. Next, we illustrate trends in sound mark applications filed between 1981 and 2021, as compared to the universe of all trademark applications and those for other unconventional marks. We then focus on success rates and other features particular to sound mark applications.

A. METHODOLOGY

To quantify the prevalence of sound mark applications, analyze their success rates, and identify possible barriers to registration, we conducted a longitudinal empirical study of all trademark applications filed with the USPTO over the last four decades. Our methodology is consistent with other published empirical legal studies of trademark filings and success rates.[286]

The USPTO compiles trademark data into research datasets, which can be downloaded from its publicly available website.[287] In the USPTO data, each application's serial number serves as a unique identifier. The dataset also includes variables from fields entered by each applicant in completing the application, such as the applicant's name, filing date, first use in

286. *See, e.g.*, 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) (examining application and registration rates to quantify trademark depletion and congestion); Beebe, *supra* note 236 (presenting the publication and registration rates for various categories of applications).

287. *Research Datasets*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/ip-policy/economic-research/research-datasets [https://perma.cc/2JTC-S3Y9].

commerce date, filing bases, classes of goods and services for which registration is sought, mark type, and mark description.[288] The data also show whether the application proceeded to publication and registration on the Principal or Supplemental Registers, and whether the registration was renewed.[289]

Although the USPTO has done an excellent job compiling research datasets, the quality of its data is limited by the accuracy of information provided in each application. Therefore, some data scrubbing was required to optimize accuracy. For example, the application form includes a field in which an applicant can indicate the name of the attorney, if any, who assisted with the filing. Although this field should contain a person's name, it sometimes contains information other than names, such as numbers or other non-alphabetic characters.[290] These records were recoded as pro se filings, rather than attorney-assisted filings, in order to reflect their true nature.[291] Similarly, 3,931 application records contain status codes indicating that they were incorrectly coded or inadvertently created; those records were removed from the dataset.[292]

After scrubbing the data for similar errors and recoding it, we selected our timeframe. The USPTO trademark dataset

288. *See USPTO Trademark Case Files 2020 Variable Tables*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/sites/default/files/documents/2020-tm-case-files-variable-tables.pdf [https://perma.cc/5YCL-3G35] (listing the variables that may be downloaded from different files and how the tables are related to each other).

289. *Id.* Whereas marks must be published for opposition prior to placement on the Principal Register, marks will proceed directly to registration on the Supplemental Register. *See* 37 C.F.R. § 2.82 (2024).

290. *See* Gerhardt & Lee, *supra* note 240, at 880; *see also* Gerhardt & McClanahan, *supra* note 253, at 594–95 (describing a method of recoding data to denote pro se vs. lawyer-assisted prosecutions and to ensure accurate matching).

291. *See* Gerhardt & McClanahan, *supra* note 253, at 594 (explaining procedure). Occasionally an unrepresented applicant might obtain counsel after the application has been filed. When that happens, the attorney field will include the name of the attorney who assisted in prosecuting the application. *Id.*

292. For example, status code "622" indicates that the application had a "misassigned serial number." *Trademark Applications Daily*, U.S. PAT. & TRADEMARK OFF. 48 (2005), https://www.uspto.gov/sites/default/files/products/applications-documentation.pdf [https://perma.cc/BM4K-QH3B]. For more information on the variables in the dataset, including the status codes, see generally Stuart Graham et al., *The USPTO Trademark Case Files Dataset: Descriptions, Lessons, and Insights*, U.S. PAT. & TRADEMARK OFF. (Jan. 31, 2013), https://ssrn.com/abstract=2188621 [https://perma.cc/3TYL-97XD].

purports to contain all available data since the registry was first created in 1870.[293] Although the USPTO dataset includes registered marks dating back that far, the data on unsuccessful applications are sparse prior to 1981.[294] This disparity strongly suggests that before 1981, the USPTO did not regularly keep records of applications for marks that did not register.[295] For this reason, empirical studies of USPTO trademark applications generally limit their analysis to recent years.[296] We do, as well. Accordingly, we examined four decades of applications filed between January 1, 1981, and December 31, 2021. In total, the dataset used for this study contains reliable information on 9,866,064 trademark applications.

For some of the data we report, this default timeframe was shortened. Information on attorney representation is often missing prior to 1983.[297] Therefore, we analyzed attorney representation only for applications filed after 1982. Second, when analyzing success rates, we used December 31, 2019, rather than December 31, 2021, as the end date, and we excluded applications that had not reached a final disposition (i.e., registration or failure). There are several reasons for this limitation. Trademark prosecution generally is not completed for more than a year after the application is filed—and the wait times for USPTO examination are increasing.[298] Sometimes, the prosecution

293. *Research Datasets*, *supra* note 287.

294. For example, the registration rate for trademark applications filed from 1970 to 1979 was 97.8%. By contrast, the registration rate for applications filed from 1981 to 1988 (the year before intent-to-use applications were introduced) was 73.9%.

295. *See* Beebe, *supra* note 236, at 760 (discussing limitations in the data and restricting the analysis to more recent filings).

296. *See, e.g.*, Beebe & Fromer, *supra* note 286, at 950 (limiting study to applications filed since 1985); Gerhardt & Lee, *supra* note 240, at 878–89 (limiting study to applications filed since 1981).

297. For example, the percentage of applications filed by counsel in 1983 was 86.7%. By contrast, the percentage was only 64.9% in 1982.

298. Belinda Scrimenti & Britt Anderson, *USPTO Continues Efforts to Battle Fraud and Improve Trademark Register Integrity*, INT'L TRADEMARK ASS'N (July 13, 2022), https://www.inta.org/perspectives/industry-updates/uspto-continues-efforts-to-battle-fraud-and-improve-trademark-register-integrity [https://perma.cc/H2JD-5VSJ] (linking longer wait times, which might exceed seven or eight months, to a "historic rise in the number of applications"). *See generally Trademark Processing Wait Times*, U.S. PAT. & TRADEMARK OFF. (Dec. 2023), https://www.uspto.gov/dashboard/trademarks/application-timeline

process can last for years, if applicants file multiple extensions of time or need to provide additional information to satisfy USPTO requirements.[299] Furthermore, applications based on intent to use may publish, but they cannot register until the applicant files a statement of use; applicants have at least six months (extendable up to two years) after publication to file that statement.[300] If the time period for the study had not been shortened, the success rates would appear lower for the most recently filed applications and for intent-to-use applications in particular.

Next, we identified applications claiming sound marks. Trademark applications are coded according to a "mark drawing code" that divides applications into four categories: (1) text marks; (2) design marks; (3) marks that contain both text and design; and (4) marks that the USPTO refers to as "nonvisual," meaning they cannot fully be represented by a drawing.[301] We use the term "nonvisual" in reference to this fourth category, even though some of the marks can be represented by a drawing and a few have visual components. For example, sound marks consisting of a series of musical notes may be drawn in the form of a music score.[302] The nonvisual category also includes a few trade dress applications containing visual imagery like columns of light or moving images.[303]

.html [https://perma.cc/8LHH-5TQW] (providing information on current wait times).

299. *See Trademark Process*, *supra* note 238.

300. 15 U.S.C. § 1051(d).

301. *See* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 807.18 (setting out the mark drawing codes). In fact, there are different codes for text marks containing stylized letters (code 5) and those that contain text along with other nontextual designs (code 3). *See id.* Nevertheless, we categorized both as "text and design" for this study since they contain additional distinctive elements beyond the words themselves. There were 24 applications that did not contain a mark drawing code; we excluded those applications from this portion of the analysis.

302. *Id.* § 807.09 ("If the mark comprises music or words set to music, the applicant should generally submit the musical score sheet music to supplement or clarify the description of the mark.").

303. *See, e.g.*, U.S. Trademark Application Serial No. 75/627,000 (filed Jan. 25, 1999) (seeking to register "a pre-programmed rotating sequence of a plurality of high intensity columns of light projected into the sky to locate a source at the base thereof"); U.S. Trademark Application Serial No. 74/696,606 (filed Sep. 30, 1995) (seeking to register "the overall, unique visual presentation to the consumer of a combination of several elements, which together form the total look and design of an unusual trade dress device, namely numerous frames of . . . film").

The nonvisual category is relatively small, consisting of only 874 trademark applications filed between 1981 and 2021. Each of these applications had to be individually reviewed and classified based on the description submitted by the applicant. In addition to sound mark applications, the nonvisual category includes scent, flavor, and texture marks, among other types of marks.[304] It does not include color marks, however, since those can be represented by a drawing and are categorized by the USPTO as a type of design.[305] But because applications for only a single color comprise less than 0.1% of all applications (and are often described as "unconventional"),[306] we also analyze them for comparison. In a prior empirical study, we developed a system for identifying and coding marks consisting of only a single color.[307] We implemented that classification system for this study as well and included it in the analysis that follows.

Of the 874 nonvisual applications, 773 were for sound marks. We isolated this set for additional examination. In addition to the standard variables discussed above, we examined each application and associated filings in the USPTO's Trademark Status & Document Retrieval system (TSDR) to glean detailed information about the mark and its prosecution.[308] By reading the description of the mark and listening to the sound file (when available), we coded each application for the source of the sound and its length. We used this additional information to determine what types of sound mark applications were more successful.

Finally, all sound mark applications that did not proceed to principal or supplemental registration (296) were examined further to identify the barriers to publication or registration. When an application was abandoned after receiving a final or non-final

304. *See, e.g.*, U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 1202.13 (explaining the requirements for registration of marks for scent or flavor).

305. *See Trademark Design Search Code Manual, Category 29: Miscellaneous Designs*, U.S. PAT. & TRADEMARK OFF., https://tmdesigncodes.uspto.gov/category/29 [https://perma.cc/2E9X-QUTS] (providing the design codes associated with colors, which are included under "miscellaneous" designs).

306. *See infra* Figure II (showing that applications for single color marks comprise 0.015% of all trademark applications).

307. *See* Gerhardt & Lee, *supra* note 15, at 2528–30 (detailing the classification system).

308. *Trademark Status & Document Retrieval (TSDR)*, U.S. PAT. & TRADEMARK OFF., https://tsdr.uspto.gov [https://perma.cc/5REN-E949] (online portal).

office action, we retrieved a copy of the office action, if available, and coded the reason(s) for objection cited by the trademark examiner.[309] In total, there were 157 unsuccessful applications that included a copy of the office action that preceded abandonment.

In presenting the results of this study, we are mindful of several limitations. First, all research on trademark applications is restricted to the set of symbols for which businesses have sought federal registration. Therefore, our results should not be used to draw inferences on the protectability of all sounds that businesses use in connection with their goods and services. As will be explored in the analysis that follows, there may be a variety of reasons why a business has not sought federal registration. It might plan to use the mark temporarily and not see a need for long-term protection. It may not realize that such protection is available or desirable, or it may choose to focus on other areas of IP protection, including registration of word or design marks. We recognize that any of these variables might impact prosecution data, as they might for any study of federal registration.

Second, the number of sound mark applications filed over the last four decades is low. Although we can speak with certainty about the universe of sound mark applications during the time we analyzed,[310] we acknowledge that the trends we identified may change. Nevertheless, we believe that these results fill a critical gap in the understanding of the federal trademark registration of sounds and provide insights for scholars and practitioners alike.

B. SOUND MARK DATA

In 1950, NBC's three chimes, the evenly spaced notes G-E-C, became the first sound mark registered with the USPTO.[311]

309. *Cf.* Beebe & Fromer, *supra* note 286, at 973–74 (describing their process of downloading office actions, which are available online beginning in 2003).

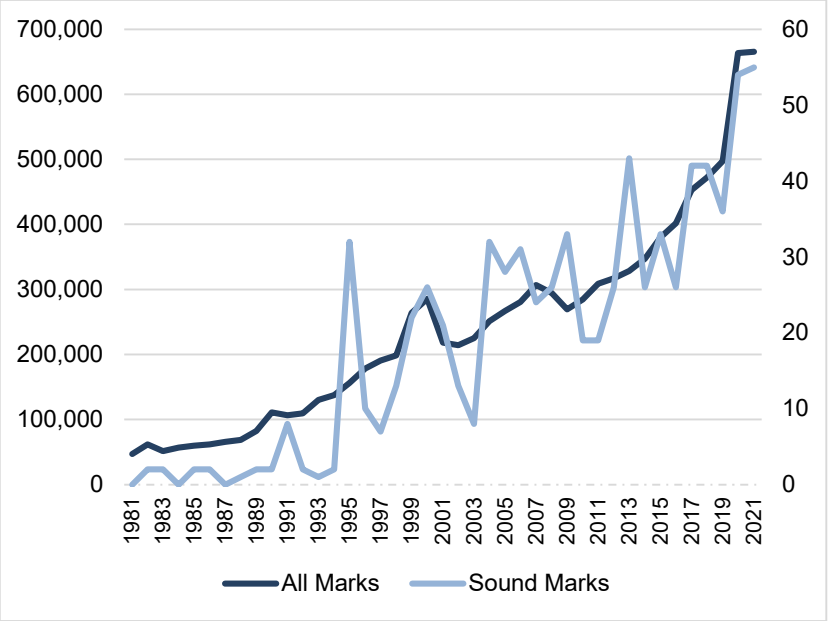
310. For this reason, traditional measures of statistical significance will not be used because such measures calculate the likelihood that the differences present in a sample are present in the population.

311. The mark comprises a sequence of chime-like musical notes which in the key of C sound the notes G, E, C, the "G" being the one just below middle C, the "E" the one just above middle C, and the "C" being middle C, thereby to identify the applicant's broadcasting service, Registration No. 523,616.

Until 1981, only 8 other sound marks were registered.[312] Since the USPTO does not contain sufficient information on unsuccessful applications filed prior to 1981, we limited our analysis to applications filed after that time.

Figure I sets forth the annual number of sound mark applications filed between January 1, 1981, and December 31, 2021, and it compares that trend to the total universe of trademark applications. Because sound mark applications comprise such a tiny percentage of all trademark applications (<0.01%), we illustrated the trends over time using two y-axes: the axis for the universe of all applications is on the left, and the axis for the subset of sound mark applications is on the right.

Figure I: Trademark Applications Over Time



At the outset, it is important to note that the universe of federal applications to register sound marks is quite small, relative to all marks and considering the ubiquity of sound in

312. *See also* ALTMAN & POLLACK, *supra* note 219, § 18:81 ("[T]he earliest listed [sound mark registration in the TTAB's 1978 decision in *In re General Electric Broadcasting Company, Inc.*] was the ringing of the Liberty Bell (Reg. No. 548,458, issued September 18, 1951).").

advertising and its power to stick in human memory, as described in Part I. Future qualitative studies might reveal why sound mark applications are so rarely prosecuted, but for now there are several possible explanations. First, companies might not realize that such marks are protectable or that they can be registered.[313] Second, companies might realize that such marks are protectable but do not believe that the benefits of registration justify the time and expense of prosecuting an application for registration.[314] Although federal registration might contribute to a deterrent effect,[315] the magnitude of that effect might be smaller than expected, given the difficulties involved in searching for these sounds using the USPTO's online search system.[316] Regardless, the number of sound mark applications may be miniscule compared to the number of sounds used to identify the source of goods or services.

Both the total universe and the subcategory of sound mark applications show similar upward trends, although the trajectory for sound mark applications is more uneven given the low numbers involved. Before 1995, sound mark applications were exceedingly rare. No more than 2 were submitted in any year except for 1991, when 8 were filed. During this time, the number of sound mark applications stayed relatively flat, while the total number of applications nearly tripled.[317] In 1995, things began

313. *See, e.g.*, John S. Miranda, *Behind the Jingles: Legal Strategies to Protect Sound Trademarks*, ALT LEGAL BLOG (Nov. 1, 2021), https://www.altlegal.com/blog/behind-the-jingles-legal-strategies-to-protect-sound-trademarks [https://perma.cc/D4RT-433C] (providing information on sound marks and suggesting that companies do not always recognize their protectability).

314. *See* Kenneth L. Port, *On Nontraditional Trademarks*, 38 N. KY. L. REV. 1, 48 (2011) (arguing that it is "not worth it" to register sounds and other unconventional marks).

315. *See* Rebecca Tushnet, *Registering Disagreement: Registration in Modern American Trademark Law*, 130 HARV. L. REV. 867, 877 (2017) ("While large producers regularly do investigate multiple possible marks, the small producers who would in theory benefit most from concentrating information in a registry seem less likely to go through the search process.").

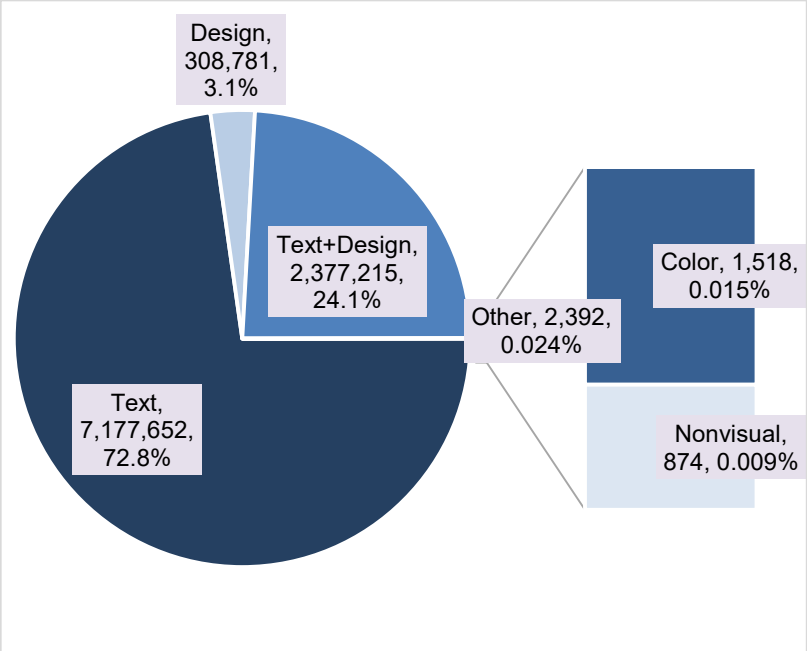
316. Although the USPTO's trademark database has considerable search capabilities, it is optimized for searching words and designs. *See Search Our Trademark Database*, *supra* note 237.

317. There were 47,050 total applications in 1981 and 137,607 in 1994 (an increase of 192%). Throughout our presentation of the results, we will use percentages to describe the magnitude of difference between two rates. For example, if A has a 30% rate and B has a 20% rate, then A's rate is 50% larger than B's rate, even though it is only 10 percentage points larger.

to change. Thirty-two sound mark applications were filed that year, beginning an upward trend that generally followed the total-application trajectory. During 2021, there were 55 sound mark applications filed—the highest annual number to date. If these trends continue, the annual numbers of sound mark applications will continue to increase.

Figure II depicts the distribution of trademark applications by content type. To create these categories, we began with the USPTO mark drawing codes and then further separated marks claiming only a single color from the broader set of marks claiming a design.[318] These results reinforce the idea that unconventional trademarks have been grouped together due to their low incidence rates.

Figure II: Content of Marks Submitted for Registration

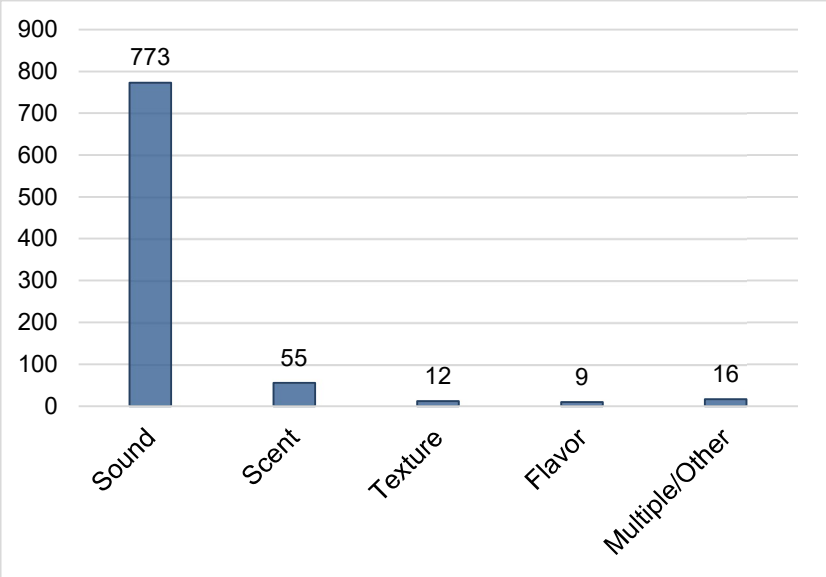


318. *See supra* notes 305–07 and accompanying text. Whereas marks in the "Design" and "Text+Design" categories may or may not claim color as a design element, marks in the "Color" category consist solely of a single color without any text or other design element.

Applications claiming only text are by far the most prevalent, comprising 73% of all applications. The next largest group are applications for text and design marks (24%). Another 3% of applications sought protection for marks claiming design but not text. That leaves only 0.024% of trademark applications that claim only a single color or nonvisual elements, which have been separately broken out in Figure II. During the decades we studied, 1,518 applications claimed a single color alone, making it the most common category of unconventional trademark applications.

Figure III provides the distribution of symbols claimed in the 874 applications for nonvisual marks.[319]

Figure III: Nonvisual Marks



As Figure III illustrates, sound mark applications (773; 89%) greatly exceeded the number of applications for other nonvisual marks (92 total; 11%). The next largest category consisted

319. Of the 874 trademark applications having a mark drawing code of 6 (nonvisual mark), 9 (10.3%) did not contain a mark description or other information specifically indicating the type of mark. Accordingly, these applications were excluded from Figure III and other analyses of the types of nonvisual marks.

of 55 scent applications, followed by 12 for texture, 9 for flavor, and 16 others that combined these elements or contained other elements that cannot be fully depicted by a drawing, such as light or motion. Because the individual categories other than sound were so small, we considered them collectively in the rest of our analysis, recognizing that the prevalence of scent mark applications in this subset (60%) affects the extent to which it is fully representative of the various types of marks contained in the group.

Figure IV begins to address the issue of protectability, depicting the success rates for applications according to the content of the mark. Publication is the best indication of success in prosecution because it represents the moment when the USPTO has completed its review and approved the mark for inclusion.[320] This marker reflects success for the marks filed on the most popular bases: use and intent to use. Marks filed based on an intent to use that publish often do not register because applicants may decide not to use them in commerce. Due to the high volume of applications reflecting such business decisions (and to a much lesser extent oppositions), the registration rates overall are lower than publication rates.[321] Consequently, we considered publication to be the most significant marker of prosecution success.

As with Figure II, this figure separates single color marks from design marks and combines all applications from the nonvisual category together. It shows that applications based on text and/or design succeed at higher rates than those for unconventional symbols—although not in a uniform manner.

320. *See supra* notes 242–44 and accompanying text (describing the publication process).

321. *See* Gerhardt & McClanahan, *supra* note 253, at 622 (explaining that publication is the best indication of success since it represents the trademark examiner's review of the applied-for mark and does not include the confound of whether an applicant decides to abandon an intent-to-use application for business reasons).

Figure IV: Success Rates by Content of Mark

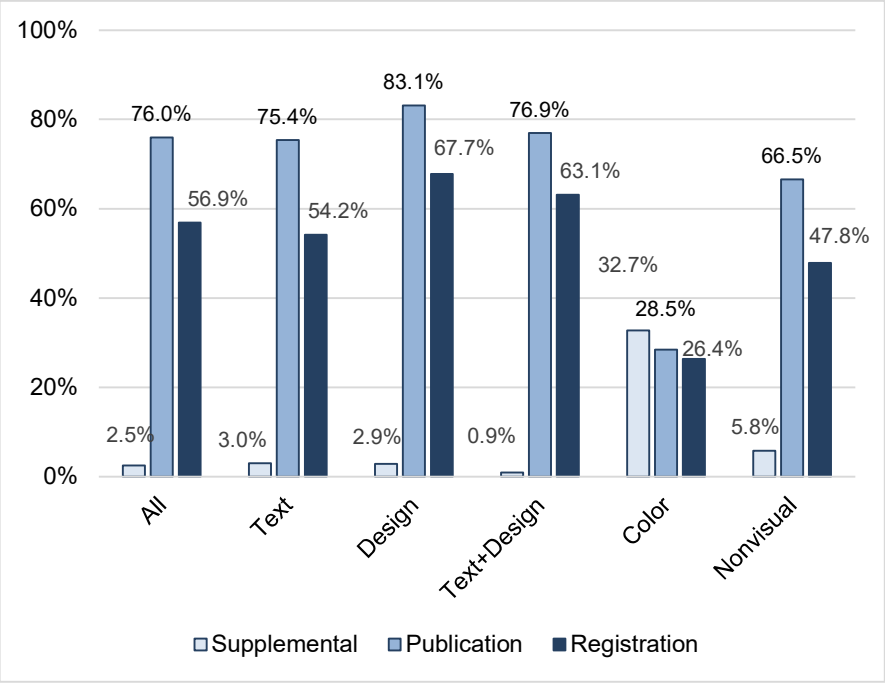


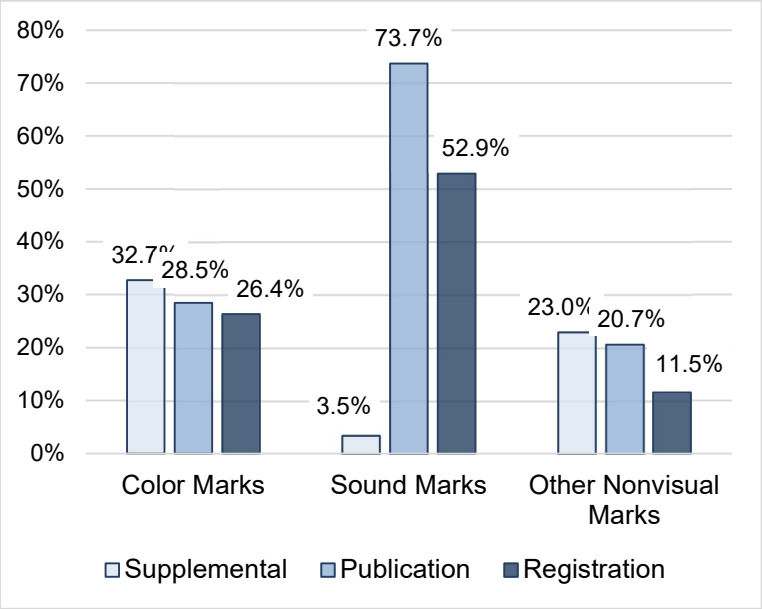
Figure IV reflects a wealth of information on success rates. While 76% of all trademark applications publish and 57% register, success rates vary substantially with the type of mark. Traditional text and design marks succeed at much higher rates than unconventional marks. Design mark applications publish and register at the highest rates (83% and 68%, respectively), followed by applications claiming text and design and those claiming only standard character text. Although nonvisual marks succeed less frequently than those for text or design marks, they are considerably more successful than applications claiming only a single color—which have a meager 28% publication rate and 26% registration rate.

The results in Figure IV also reveal an interesting story about the Supplemental Register. As discussed in Part II, the placement of a mark on the Supplemental Register is more of a consolation prize than a success because it indicates that the USPTO determined that the mark is not inherently distinctive and that the applicant has not shown secondary meaning.

Overall, approximately 3% of applied-for marks end up on the Supplemental Register. That percentage holds steady for design and/or text mark applications as well, but nearly one third (33%) of applications claiming only a single color are placed on the Supplemental Register—a rate that exceeds that of their placement on the Principal Register. By contrast, only 6% of applied-for marks in the nonvisual category end up on the Supplemental Register. Although this rate is twice that of traditional marks, it is dramatically lower than the rate for marks claiming a single color alone. Taken together, the placement rates for nonvisual marks on the two registers suggest that a substantial percentage of them were found to be inherently distinctive or that the applicants were able to provide evidence of secondary meaning.

To discover how sound marks compare to this general backdrop, we compared sound mark applications to those for other unconventional marks. Figure V depicts the success rates for applications claiming a single color alone compared to sound and other nonvisual marks. This figure vividly shows that sound mark applications have dramatically higher success rates than the other unconventional categories.

Figure V: Success Rates for Unconventional Marks



The publication and registration rates for sound mark applications, 74% and 53% respectively, approached the success rates for text and design mark applications depicted in Figure IV. Indeed, they succeeded at a rate more akin to standard character and design marks than those of any other unconventional categories. By contrast, the publication (21%) and registration (11%) rates for other nonvisual marks were dismal, falling well short of the success rates for all others.

Figure V also shows the proportions of applications relegated to the Supplemental Register, telling the opposite story. Only 4% of sound mark applications ended up on this less desirable registry. By contrast, much higher percentages of single color (33%) and other nonvisual (23%) mark applications were placed on the Supplemental Register.

Perhaps the most interesting result lies in the higher supplemental registration rate for single color mark applications than that for the other nonvisual marks. It suggests that a greater proportion of applications for single color marks may be registerable if they later achieve secondary meaning. We hypothesize that this may be because applicants seeking to register

other nonvisual marks more often encounter technical or other substantive barriers to trademark registration.[322]

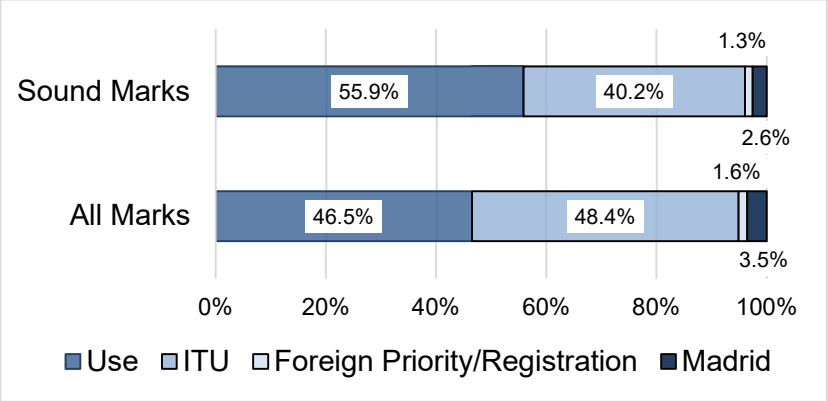
Taken together, these findings are surprising given the tendency of trademark professionals to lump all unconventional marks into a single category, obscuring the significant differences among them. While it may be true that unconventional mark applications collectively succeed less frequently before the USPTO, that general finding is attributable to the high number of applications claiming a single color alone.

With respect to sound, the data tell a different story. Sound mark applications reflect success rates that are far closer to text and design marks than other unconventional categories. Another surprising finding lies in the low supplemental registration rate for sound mark applications, suggesting that the distinctiveness requirement is less of a barrier for sounds than it is for other unconventional marks. Moreover, these results are consistent with the research presented in Part I explaining how deeply sound is processed by the human brain. Because sounds may be cross-culturally distinctive and especially memorable compared to other stimuli, they may more easily achieve secondary meaning. A related observation is that text marks containing words often are read, spoken, or recorded; therefore, the relative obscurity of marks consisting of sound alone does not mean that distinctive sounds are not generally present in the trademark ecosystem.

Although sound mark success rates are similar to the success rates for the total universe of applications, the similarities end there. With respect to filing bases, sound mark applications diverge from the norm. Figure VI depicts inverse trends for the incidence rates of applications claiming use and intent to use. The data for this figure has been limited to the universe of applications with a single filing basis, which accounted for over 96% of all applications.

322. *Cf.* MCCARTHY, *supra* note 7, § 7:107 (stating that many taste/flavor marks are functional because they make the product more appetizing to eat). *See generally* Thomas A. Gallagher, Commentary, *Nontraditional Trademarks: Taste/Flavor*, 105 TRADEMARK REP. 806, 809 (2015) (concluding that, because of the functionality bar, there is "near impossibility of obtaining a trademark registration (or acquiring trademark rights) for a taste or flavor").

Figure VI: Application Filing Basis



Most sound mark applications (56%) were based on prior use, whereas intent to use (ITU) was the most popular filing basis among all applications (48%). At the same time, the disparity between the percentages of use and intent-to-use filings was larger for sound mark applications than it was for all applications. There also were relatively fewer sound mark applications that were based on registrations or pending applications from other countries, but the disparities were not large.[323]

Several explanations may account for the differences. Some may not think of sounds as protectable marks or perhaps as not protectable absent a showing of secondary meaning.[324] Others may know that sound marks can be protected but do not prioritize the sound in instances where they can get broader protection through federal registration of a word mark.

To see if the data can help shed light on these explanations, we compared first-use and filing dates for applications based on use. By measuring the average interval between these two dates, we could get a general sense of how long applicants waited before

323. Among these applications, the greatest number came from European Union member countries (34) and South Korea (6). One possible reason for the low number of filings is that in some countries the protectability of sound marks is uncertain or disallowed. *See, e.g.*, Mitchell Adams & Amanda Scardamaglia, *Non-Traditional Trademarks: An Empirical Study*, *in* THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES, *supra* note 18, at 37, 40 (noting that, prior to amendments to their Trademark Act allowing all "non-traditional marks," Japan did not permit protection of sounds).

324. *See* Miranda, *supra* note 313.

seeking federal trademark registration. While the median waiting period was 10 months for all applications, it was 41 months—more than three years—for sound mark applications. Applicants clearly use a different approach when seeking to register sound marks. Perhaps these applicants wait to see if the sound has a durable appeal to their consumers, while still protecting their products and services with other text, design, or house marks.

To begin to explore this possibility, we examined the extent to which companies held dual registrations for sounds and the words or phrases contained therein. Of the 105 sound marks on the Principal Register that contained human words or phrases, more than half (56; 53%) did not have analogous registrations for the words or phrases themselves. Upon reading these words or phrases, we realized that it often would have been difficult for a company to satisfy the distinctiveness requirement, absent the additional context of how the words were vocalized or other elements of the sound mark. For example, it may have been challenging for Expedia.com to register the word ".com" without Expedia, but it successfully registered a chorus of voices singing ".com."[325] Several sound mark registrations also had included disclaimers of words apart from the sound mark.[326] With respect to many of these sounds, companies likely would not have been able to assert trademark rights in only the words or phrases themselves.

Qualitative research could provide further insight into the differences we observed. We hypothesize that some businesses may seek protection for a sound mark only after it begins to function that way. A sound may be used in an advertisement to set a mood or bolster the values associated with a product or service. Positive consumer feedback may lead to strong recognition and, if it does, the business may decide to continue using the sound as a mark. Alternatively, a sound may catch the imagination of the consuming public and become source-identifying—even if the

325. The mark consists of the words "dot com" sung by multiple voices, with each of the two words "dot" and "com" sung in harmony in the notes "G", "B", "D" and "G," Registration No. 3,619,919.

326. *See, e.g.*, The mark is a sound. The mark consists of sound mark comprising the wording "aguacates de Mexico" sung to a melody consisting of the following musical notes: G3, G3, G3, A3, G3, and the harmonized notes E4, G4; D4, F4; C4, E4., Registration No. 5,415,729 (indicating that "[n]o claim is made to the exclusive right to use ["Avocados from Mexico"] apart from the mark as shown").

word or phrase itself would not. Homer Simpson's "D'oh!" is an example of a sound mark that was registered after consumers unexpectedly popularized the sound.[327] Given the challenges of protecting unconventional marks generally and the popular belief that acquired distinctiveness must be shown for all such marks, some applicants may choose to avoid the time and expense of gathering evidence of secondary meaning or to wait until they have used the mark for several years. But notably, the publication rate for intent-to-use sound mark applications greatly exceeded that of use-based applications (83% vs. 68%), suggesting that a considerable number of applied-for sound marks are inherently distinctive.

Given the relatively high success rates for sound mark applications, and their relative obscurity compared to other types of marks, we expected that many sound mark applications would be prosecuted by attorneys. In prior research, we found that applications prosecuted by lawyers succeeded more often, especially if the lawyers had substantial experience prosecuting trademark applications.[328] We tested whether that finding holds for sound mark applications and hypothesized that the disparities would be even larger, given the additional technical and substantive hurdles for prosecuting sound marks.

To lay the groundwork for this analysis, we compared the total numbers of attorney and pro se applications to determine whether there were meaningful differences for sound mark applications in comparison with the total universe of applications. We found that there were. While 75% of all trademark applications filed since 1983 were prosecuted with attorney assistance, the percentage was 88% for sound mark applications—an attorney assistance rate 18% (and 13 percentage points) higher.

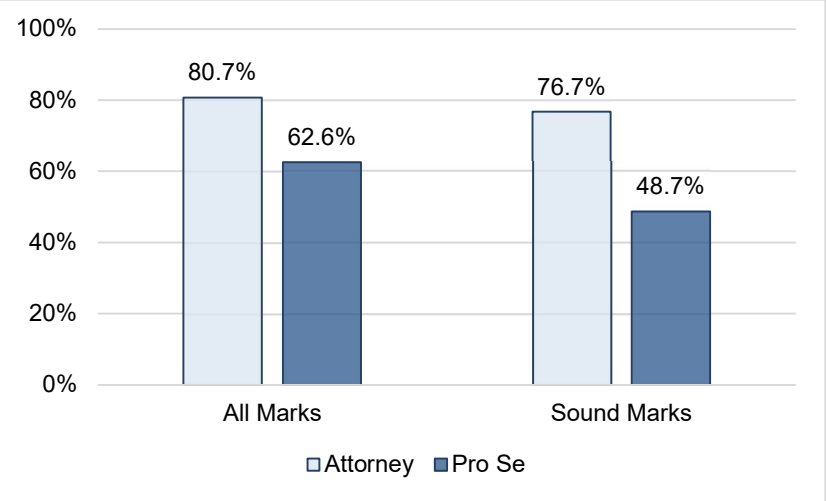
With that baseline established, Figure VII shows the percentage of applications that published, with and without the presence of counsel, first for all marks and then for sound marks. Although attorney assistance is universally associated with higher publication rates, the disparity was even greater for sound marks.

---

327. *Cf.* Don Kaplan, *'D'oh!' Rises: It's in the Dictionary*, N.Y. POST (June 15, 2001), https://nypost.com/2001/06/15/doh-rises-its-in-the-dictionary [https://perma.cc/K7BV-Y4QS] (noting its inclusion in the *Oxford English Dictionary* because of its popularity).

328. Gerhardt & McClanahan, *supra* note 253, at 606–08.

Figure VII: Publication Rates and Attorney Representation



Having an attorney assist with the prosecution of a trademark application was associated with a 28% higher publication rate (63% vs. 81%) overall. But for sound mark applications in particular, the presence of an attorney was associated with a 57% higher publication rate (49% vs. 77%). Among applications prosecuted by lawyers, the publication rates were relatively similar for sound marks (77%) and all marks (81%). Although we cannot definitively state the reasons for these findings, we suspect that sound mark applicants may be confronting technical or formal objections in office actions that might be tripping up pro se applicants. Attorneys are well-equipped to respond to these types of challenges and may be less likely to abandon a trademark application when confronted with an office action.[329] Below, we provide information culled from office actions that supports this theory.[330]

Next, we examined sound mark registration longevity. Given how well humans remember sound, we hypothesized that

329. *See id.* at 617–18 (positing the reasons for greater success rates among applications prosecuted with attorney assistance, paramount among them the ability to respond effectively to office actions that cite technical or procedural defects). Due to our limited data and the descriptive nature of our analysis, we do not make any causal claims regarding the relationship between attorney prosecution and sound mark application success rates.

330. *See infra* Figure XV (indicating that the two most common objections in office actions are technical ones).

sound marks may have more longevity. We used USPTO data on trademark renewal as a proxy for longevity. Figure VIII depicts renewal rates for sound marks compared to all other registered marks. For this figure, we limited our analysis to marks registered between 1990 and 2010, to account for the current ten-year renewal period.[331]

Figure VIII: Registration Renewal Rates

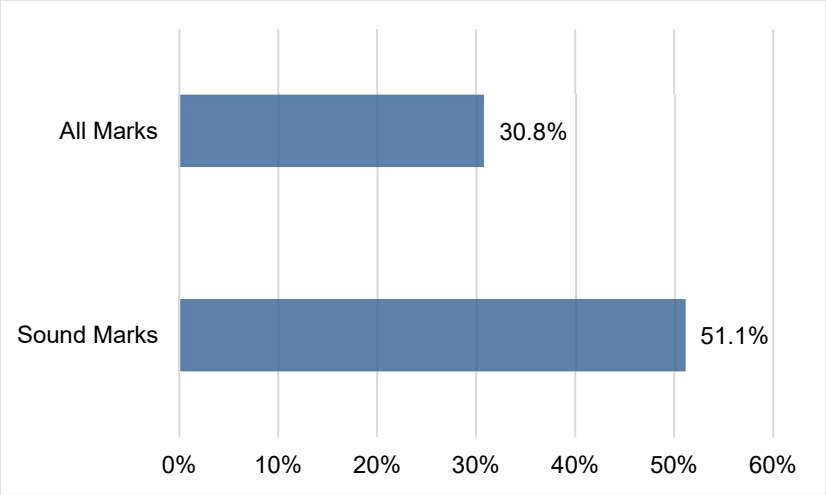


Figure VIII shows that 51% of the registered sound marks were renewed after ten years of registration, compared to only 31% of the total universe of registered marks—a 66% higher renewal rate. The reasons for this difference could be the subject of future research. Multiple additional variables—such as the characteristics of the trademark holders, the classes of goods or services associated with the registrations, and attorney representation or experience—may contribute to the difference. It is also possible that because sound marks are rarely registered, the applicants had a higher level of sophistication or commitment to

331. Prior to November 16, 1989, the initial registration period had been twenty years, which is why this analysis used 1990 as the start date. *See Trademark FAQs*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/learning-and-resources/trademark-faqs#type-browse-faqs_161969 [https://perma.cc/6SGB-FHWL] (identifying the change from twenty to ten years). Registrations through the end of 2010 calendar year were used on account of the six-month grace period for renewals. *See* 15 U.S.C. § 1059(a) (describing the grace period).

their marks. At a minimum, the data suggest that registered sound marks provide relatively enduring value to the owners who register them.

C. IN-DEPTH ANALYSIS OF SOUND MARKS

After conducting an overall analysis of sound mark applications and comparing them with the total universe of marks and other unconventional marks, we conducted an in-depth analysis of sound mark applications. As described in the methodology section, we read the descriptions provided for each sound mark application, listened to the sound files, and read the office actions for unsuccessful applications. When an application had both a description and a sound file, we confirmed that the two were consistent and coded the mark for sound duration and content. If an application contained only a description, we coded it according to content only, unless the description included information on the duration of the sound.

First, we explored whether applicants seek sound mark registrations in connection with an array of goods and services. Unlike color alone, for which there are registrations spread throughout many classes of goods and services,[332] sound mark applications were heavily concentrated in a handful of classes. Figure IX displays the top ten classes of goods and services in which sound mark applications are filed, together with their publication and registration rates. These ten classes were the only ones having an incidence rate of 3% or higher. When a single trademark application was filed for multiple classes of goods and services, we included it in each filing class in the figure.

332. Gerhardt & Lee, *supra* note 15, at 2545 fig.XVI (depicting the frequency of registrations for nineteen of the forty-five classes). Notably, only two classes had incidence rates that exceeded 10%. *See id.* (depicting "Machinery" and "Electric and Scientific Apparatus" as the only two categories out of forty-five with more than 10% of total registered color marks).

Figure IX: Top Ten Goods and Services Classes for Sound Mark Applications

Class	Goods/Services	Prevalence	Supplemental	Publication	Registration
C9	Scientific, Electrical, and Technological Apparatus and Instruments	26.0%	7.4%	71.2%	42.9%
C41	Education and Entertainment Services	25.5%	1.9%	71.0%	60.0%
C35	Advertising and Business Services	16.3%	0.9%	72.3%	57.1%
C38	Telecommunications Services	13.2%	0.0%	89.0%	62.6%
C36	Insurance and Financial Services	10.3%	1.5%	78.5%	67.7%
C42	Computer, Scientific, and Technical Services	9.4%	0.0%	83.3%	65.0%
C39	Transportation and Storage Services	4.7%	0.0%	77.4%	61.3%
C37	Building, Construction, and Repair Services	3.9%	0.0%	84.6%	80.8%
C28	Toys and Sporting Goods	3.9%	3.7%	63.0%	55.6%
C43	Hotel and Restaurant Services	3.2%	0.0%	81.8%	81.8%

Figure IX shows that most sound mark applications are filed for use in connection with services. Eight of the top ten classes are for services,[333] with strong representation in education and entertainment services (25% of all sound mark applications)—including the ubiquitous sounds at the beginning of every Netflix

333. Trademark classes C1–C34 cover goods, while classes C35–C45 cover services. *See Goods and Services*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks/basics/goods-and-services [https://perma.cc/4XKN-5LC8].

show,[334] ESPN *Sportscenter* program,[335] and episode of *Law and Order*.[336]

However, the most popular class of sound mark applications was not for services. It was for scientific and technological goods (26%), a class that includes not only computer software sounds (e.g., Microsoft[337]) but also sounds emitted from electronic devices, such as mobile phones (e.g., Nokia[338]). As noted in Part II, when an applicant applies to register a sound generated by the goods named in the application, the USPTO requires proof of secondary meaning.[339] When a device makes a sound as part of its normal operation, the sound may be considered part of the product's design. Therefore, it makes sense to treat the sound like visual product design trade dress and to require secondary meaning. For those who think of design as a visual element, the analogy may not be readily apparent. Therefore, the secondary meaning requirement may present unexpected barriers to publication, as Samsung experienced when it attempted to register

334. The mark consists of a sound mark comprising a musical composition featuring two sixteenth note timpani strikes on D2 and D3, simultaneously with which are played three dotted half notes on D2, D4, and D5, Registration No. 5,194,272.

335. The mark consists of the following six musical notes played in a fast tempo: "D, C Sharp, D, D, C Sharp, D," Registration No. 2,450,525.

336. The mark is described as consisting of two musical notes, a strike and a rapid rearticulation of a perfect fifth pitch interval, which in the key of C sounds the notes C and G, struck concurrently, Registration No. 3,137,680.

337. The mark consists of a sound mark comprising a music sequence in the key of D major in 4/4 time, playing the notes in the transcription shown in the drawing filed herewith. A first instrument portion of the sequence starts playing the bass registers. It begins with a low G for an eighth note and adds a D for an eighth and ties both notes to another quarter note. When the bass line gets to the first quarter note (after 1 beat of a rest) the treble clef comes in with a low B and G simultaneously for an eighth note and moves to a low D for another eighth note. Both treble and bass clefs move to a sustained half note an E for the treble clef and a chord with a low D, low A, F and A. A second instrument portion of the sequence has all rests in the bass clef. The treble clef starts with a 2 beat rest. The first eighth note is a high D and is tied to an eighth note of high G. The next note is a sustained half note in high A. The phrase increases in volume as it is played, Registration No. 2,880,267.

338. The mark is a sound. The mark is a sound comprising a C eighth note, E flat eight note, B flat eighth note, G quarter note, C eighth note and C quarter note, Registration No. 3,288,274.

339. *See supra* Part II.E.2 (explaining that secondary meaning is required for sound marks when the sound is made in the normal operation of the goods in question).

a chirping sound made by its mobile phones.[340] This obstacle might account for the lower publication and registration rates for this class, as it has the highest rate of placement on the Supplemental Register (7%) among the top ten classes.[341] The class having the lowest publication rate in this group—toys and sporting goods (63%)—also may include sounds emitted from products.[342] Taken together, these results suggest that although sound marks may be registered for goods or services, sound mark applications for services succeed more frequently, as they are less likely to encounter an unexpected secondary meaning requirement.

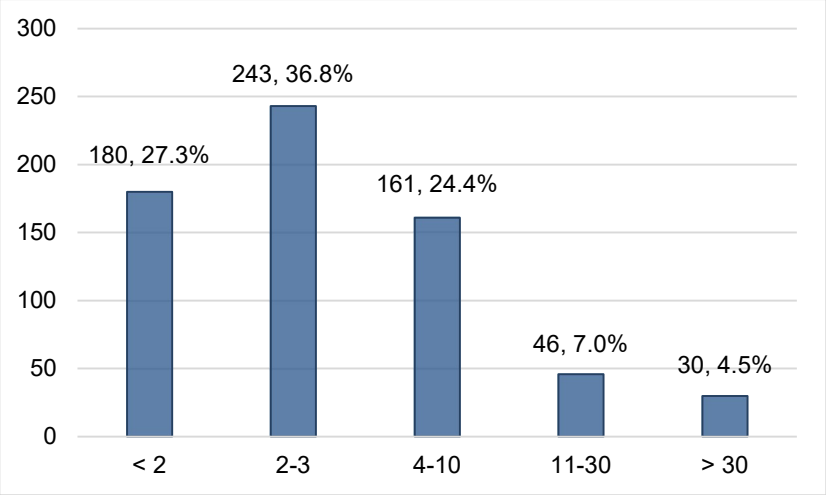
Next, we explored sound duration and its relationship to success in publication and registration. Figure X depicts the sound length in seconds for all sound mark applications, broken up into five groups: (1) less than two seconds; (2) two to three seconds; (3) four to ten seconds; (4) eleven to thirty seconds; and (5) over thirty seconds. Of the 660 sound mark applications that could be coded for duration, 652 had a sound file associated with the application, and an additional 8 could be coded for duration using the application's description.

340. *See* Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 86627214 (Dec. 8, 2015) ("Sound marks for goods that make the sound in their normal course of operation can be registered only on a showing of acquired distinctiveness under §2(f).").

341. Samsung's chirp eventually was placed on the Supplemental Register. The mark is a sound. The mark consists of four notes played in 4/4 time for 1 and 1/2 measures, specifically a G for 1 beat, a C for half a beat, a B for 1 beat and a G for 3 and a half beats, Registration No. 5,019,438.

342. *See, e.g.*, U.S. Trademark Application Serial No. 87/804,327 (filed Feb. 20, 2018) (seeking to register a sound that would emanate from toys).

Figure X: Sound Mark Applications Grouped by Duration



For those who think of sound marks as merely jingles, our duration data contains interesting surprises. Nearly two thirds (64%) of the sound mark applications in our data sought protection for sounds lasting three seconds or less. Applications for sounds of less than two seconds constitute 27% of the total number. Sounds in the range of two to three seconds were claimed in 37% of the applications. Many of these short sound marks consist of a single sound element, such as the Pillsbury Dough Boy's giggle.[343] Applications for sounds from four to ten seconds constitute 24% of the data. Sounds lasting eleven to thirty seconds accounted for 7% of applications, while only 5% of applications sought protection for sound marks spanning longer than thirty seconds.

Many of the sounds lasting eleven seconds or more were jingles. As discussed in Section I.F, INMI tunes are especially durable in human memory. Consumers hearing a chorus of children singing "I am stuck on BAND-AID brand 'cause BAND-AID's stuck on me"[344] might have developed a strong memory for

343. The mark consists of the sound of a childlike human giggle which represents the Pillsbury Doughboy giggle, Registration No. 2,692,077.

344. The mark is a sound. The mark consists of children singing "I AM STUCK ON BAND-AID BRAND 'CAUSE BAND-AID'S STUCK ON ME. I AM STUCK ON BAND-AID BRAND 'CAUSE BAND-AID'S STUCK ON ME" [. . .], Registration No. 3,775,362.

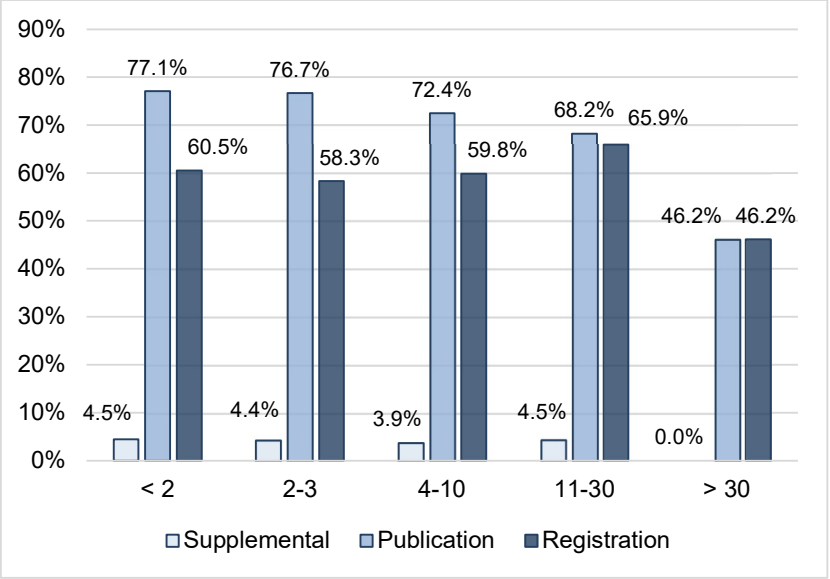
the brand that persists long after the company drops the jingle. More research is needed to understand how INMI tunes impact brand fame and why brand owners sometimes drop them after decades of repeated use. Even though a brand may readily come to mind when a consumer hears a classic jingle, the data indicate that they were not among the most popular applied-for marks. The reasons for this unexpected finding could be probed through additional analysis. Among the variables to consider are whether protection for songs is channeled towards copyright.[345] A company might not seek trademark registration for a jingle if it owns a copyright in the musical composition and considers the strong and lengthy protections of copyright law sufficient to protect its intellectual property interests. Shorter sound segments, by contrast, may be denied copyright protection, leading companies to rely on trademark rights to maintain commercial distinctiveness.[346]

Figure XI sets forth the publication and registration rates for sound mark applications by duration. It shows, perhaps surprisingly, that the duration of the claimed sound mark was roughly inversely proportional to its publication rate.

345. *See supra* Part II.A (discussing how both the USPTO and Copyright Office frequently channel longer auditory works into the realm of copyright).

346. *See supra* Part II.A (noting that shorter sound segments lack sufficient originality to qualify for copyright protection).

Figure XI: Success Rates for Sound Mark Applications by Duration



Sounds lasting fewer than two seconds published more than 77% of the time—an even higher rate than that for all trademark applications.[347] The publication rate held relatively steady for sounds lasting two to three seconds. But the publication rate dropped to 72% for sounds lasting four to ten seconds and declined to 68% for sounds in the eleven to thirty second range. Sounds lasting more than thirty seconds published at a dismal 46%, a rate that was 40% lower than for sounds lasting fewer than two seconds.

At first glance, these results might seem counterintuitive because one might expect that longer sounds would contain more information and, therefore, be more distinctive and memorable. However, longer sounds may be perceived as background rather than functioning as a mark.[348] Alternatively, applicants or

347. *See supra* Figure IV (indicating a 76.0% publication rate for all applications).

348. *See infra* notes 401–03 and accompanying text (noting applications in which the examiner objected on grounds that such sounds were not distinctive).

examiners might perceive longer sound sequences as more appropriate for copyright instead of trademark protection.[349]

Interestingly, the gap between the publication and registration rates narrowed as the length of the applied-for sound increased. This appears to be related to differences in filing bases among published marks of different durations. While 81% of published applications for sound marks lasting more than ten seconds were filed based on prior use, only 52% of published applications for sound marks of ten seconds or less were use-based. Additional research could uncover the reasons for these differences.

Next, we categorized sounds by reading the applicant's descriptions and listening to all available sound files. We coded each mark to reflect whether it came from a human voice singing,[350] speaking,[351] or making nonverbal sounds such as yelling.[352] Sounds produced by animals or nature were combined into a single category, which included the familiar cat's meow from Twentieth Century Fox[353] and the sounds of thunder and rain.[354] When human voices mimicked animals, such as the quacking of a duck, they were classified as human voices.[355]

While human and animal sounds were relatively easy to categorize, the same was not true of sounds produced by musical instruments and other objects. Given the debate surrounding the definition of music,[356] we did not determine whether a sound is

349. *See infra* notes 405–06 and accompanying text (noting applications where the examiner explicitly stated copyright law should apply rather than trademark law).

350. The mark consists of a quartet of male voices singing "Yummm," as a whole-note chord consisting of G2, D3, B3, and D4, Registration No. 3,720,771.

351. The mark consists of the spoken word "D'OH," Registration No. 3,411,881 (Homer Simpson's famous exclamation, registered by Twentieth Century Fox Film Corporation).

352. The mark is a sound. The mark consists of the sound of the famous Tarzan yell. The mark is a yell consisting of a series of approximately ten sounds, alternating between the chest and falsetto registers of the voice [. . .], Registration No. 4,462,890.

353. The mark consists of the sound of a cat's meow, Registration No. 2,158,156.

354. The mark consists of the sounds of thunder and rain, Registration No. 2,203,470.

355. *See, e.g.*, The mark comprises the sound of a human voice making quacking noises like a duck, Registration No. 2,308,503.

356. *See supra* Part I.A (discussing the lack of consensus among experts on the definition of "music").

"musical" or "non-musical" merely by our own subjective impressions of the tones produced. While sounds emanating from a piano may be considered musical and the cracking of a billiard ball may not be, musicians often use objects other than traditional musical instruments to add creative texture to their compositions. Richard Strauss used cowbells in Alpine Symphony,[357] Giuseppe Verdi used an anvil as a percussion instrument,[358] and, borrowing from the collage aesthetic of Cubism, Erik Satie incorporated the sounds of typewriters, sirens, and other everyday objects into the score of *Parade*.[359] In the twentieth century, the Beach Boys' *Pet Sounds* famously featured bicycle bells and Coke bottles.[360]

At the same time, musical instruments may also be used to produce mechanical noises. Given this variation, we categorized sounds from objects in two ways. First, we combined all such sounds into a single category of sounds made by objects (i.e., not humans, animals, or nature). Second, we divided sounds made by objects into two categories, separating sounds made by musical instruments (musical object) from those produced by other objects (non-musical object).

The musical object category is filled with variation. Some marks contained a sequence of a few pitches, such as NBC's three chimes[361] or ESPN's six-note mark that introduces its programming.[362] Others were recordings of known compositions.

---

357. Daniel J. Wakin, *A Walk up the Wild Side of the Alps*, N.Y. TIMES (Apr. 13, 2012), https://www.nytimes.com/2012/04/15/arts/music/strausss-alpine-symphony-played-twice-in-one-night.html [https://perma.cc/P83B-JRC6].

358. *Secret Sounds: Inside the Anvil Chorus*, L.A. OPERA (Aug. 11, 2021), https://www.laopera.org/discover/la-opera-content/secret-sounds-inside-the-anvil-chorus [https://perma.cc/M55D-AHYS] (explaining that the anvils for a performance were purchased from The Home Depot).

359. Susan Calkins, *Modernism in Music and Erik Satie's* Parade, 41 INT'L REV. AESTHETICS & SOCIO. MUSIC 3, 14–15 (2010).

360. William Goodman, *The Beach Boys' 'Pet Sounds' Turns 50: How Brian Wilson's Fragile Mental State Gave Us a Pop Masterpiece*, BILLBOARD (May 16, 2016), https://www.billboard.com/music/music-news/beach-boys-pet-sounds-anniversary-brian-wilson-7370576 [https://perma.cc/WLS2-WNHW] (discussing Brian Wilson's experimentation with unconventional objects).

361. The mark comprises a sequence of chime-like musical notes which in the key of C sound the notes G, E, C, the "G" being the one just below middle C, the "E" the one just above middle C, and the "C" being middle C, thereby to identify the applicant's broadcasting service, Registration No. 916,522.

362. The mark consists of the following six musical notes played in a fast tempo: "D, C sharp, D, D, C sharp, D," Registration No. 2,450,525.

Interlochen Center for the Arts registered a fourteen-bar musical excerpt from Howard Hanson's Romantic Symphony 2 for "[e]ntertainment and education, namely live, broadcast, and cable music concerts."[363] Sounds produced by non-musical objects included Zippo's mark consisting of the sound made by "a windproof lighter opening, igniting, and closing";[364] the exhaust produced by a Harley-Davidson motorcycle;[365] the ticking of a stopwatch registered by CBS for its *Sixty Minutes* television program;[366] and electrically produced sounds such as Cisco's sawtooth waveform mark.[367]

While most sounds were generated by a single type of source, some were generated by several sources and were classified accordingly. We classified the Chicken of the Sea jingle, consisting of a "male vocalist . . . accompanied by electric bass, rock drum kit, and electric guitar" as created by a human voice and musical object.[368] We coded the sound of Darth Vader breathing as both a human voice and non-musical object because it was generated by a person breathing through a scuba mask.[369]

Figures XII-A and XII-B depict the distribution of sources used to create sounds that are claimed in federal trademark applications. Figure XII-A combines all sounds produced by objects into a single category, and Figure XII-B divides the objects into musical and non-musical subsets.

---

363. The mark is a musical excerpt of fourteen bars from the second movement (andante con tenerezza) of Howard Hanson's Symphony 2, Op. 30 (Romantic), Registration No. 2,495,301.

364. The sound mark consists of the sounds of a windproof lighter opening, igniting, and closing, Registration No. 5,527,388.

365. U.S. Trademark Application Serial No. 74/485,223 (filed Feb. 1, 1994); *see also supra* notes 260–65 and accompanying text (discussing the opposition to Harley-Davidson's application for the trademark registration).

366. The mark is a sound. The mark consists of the ticking sound of a stopwatch, Registration No. 4,328,490.

367. The mark is a sound. The sound consists of a modified sawtooth waveform, which plays a G5 sixteenth note (approximately 784 Hz) followed quickly by a B5 sixteenth note. The melody is monophonic (without any harmony) and is approximately 98 milliseconds long, Registration No. 3,852,460.

368. The mark is a sound. The mark consists of a male vocalist singing "ASK ANY MERMAID YOU HAPPEN TO SEE, WHAT'S THE BEST TUNA?, CHICKEN OF THE SEA," accompanied by electric bass, rock drum kit, and electric guitar [. . .], Registration No. 4,446,624.

369. The mark consists of the sound of rhythmic mechanical human breathing created by breathing through a scuba tank regulator, Registration No. 3,618,322.

Figure XII-A: Sound Mark Application Sources

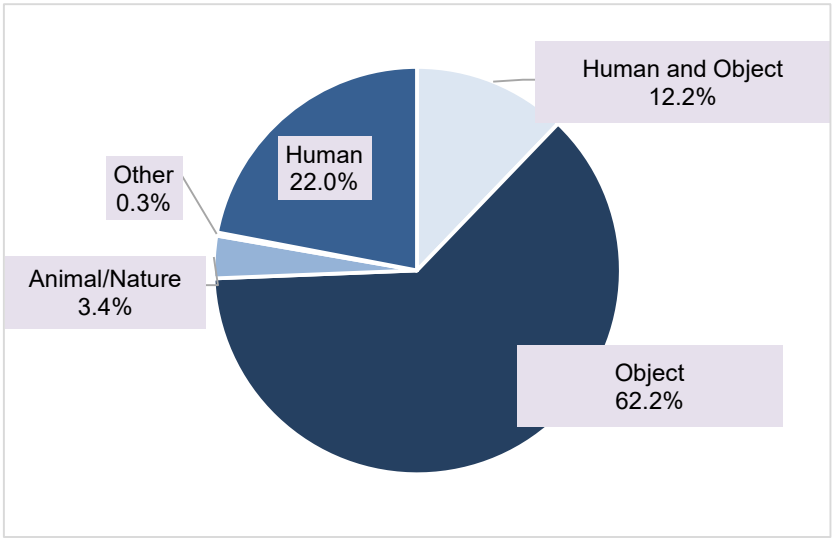
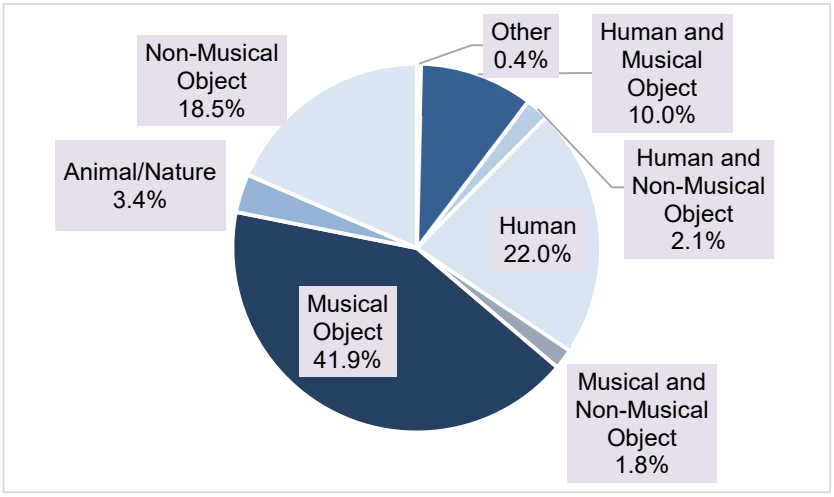


Figure XII-B: Sound Mark Application Sources

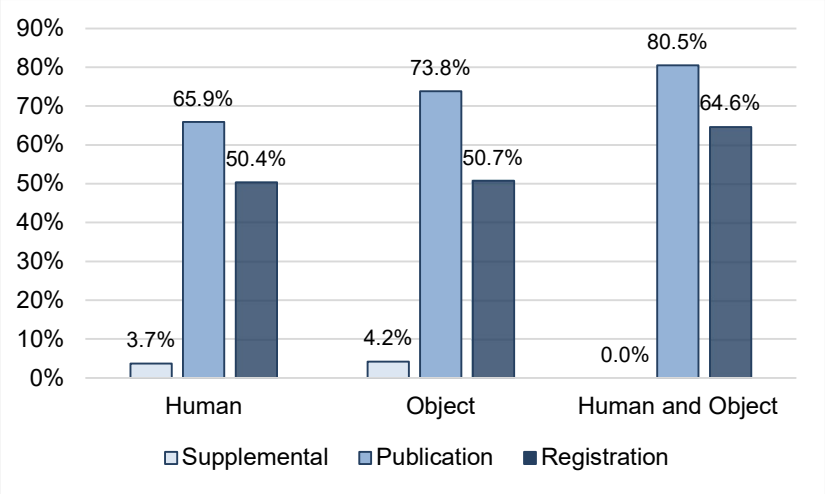


The largest category consisted of sounds produced by objects, which included over half of the applications (62%). More than twice as many applied-for sounds in that large category were made with musical objects (42% overall) rather than with

non-musical objects (18% overall).[370] Sounds made by human voices comprised 22% of applications. Only 10% claimed a combination of human voices and musical objects. Given the research, reported above, documenting the relatively strong evocative power of natural sounds,[371] we were surprised to see that only 3% of sound mark applications were for animal sounds or from other natural sources. If additional research continues to support the strength of these types of sounds, it will be interesting to track whether the findings impact the selection of future sound marks.

Figure XIII-A and Figure XIII-B depict the success rates for each source category. For these figures, we limited our analysis to categories containing at least 50 applications. The success rates showed noteworthy variation. In particular, the success rates for sounds produced by objects differ dramatically depending on whether they are produced by musical or non-musical objects.

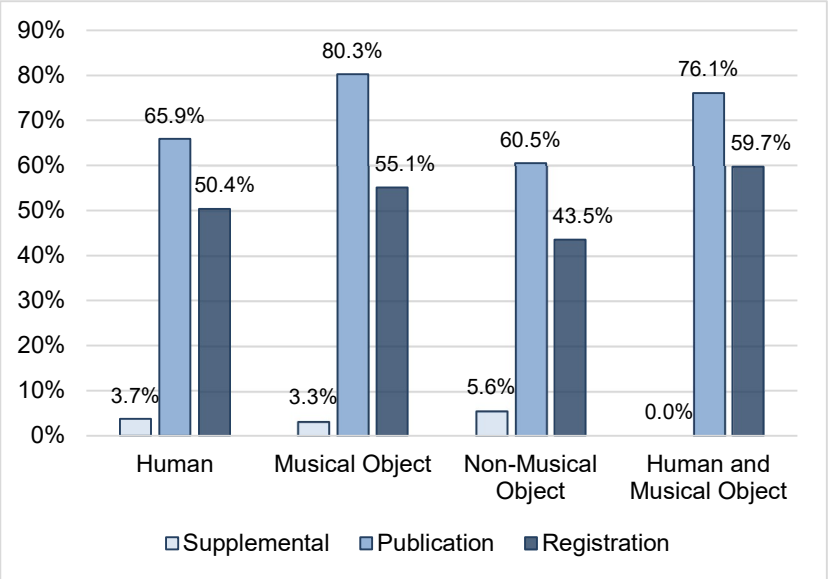
Figure XIII-A: Success Rates by Type of Source



370. Two percent of the applications were for sounds created by both musical and non-musical objects. Note that the slightly different percentages for the "Other" category in the two figures are due to the fact that in Figure XII-B, the "Other" category included one sound produced by human voices, musical objects, and non-musical objects; that same sound was included in the "Human and Object" category in Figure XII-A.

371. *See supra* notes 107–08 and accompanying text (noting that natural sounds "reportedly arouse a strong and broad emotional response").

Figure XIII-B: Success Rates by Type of Source



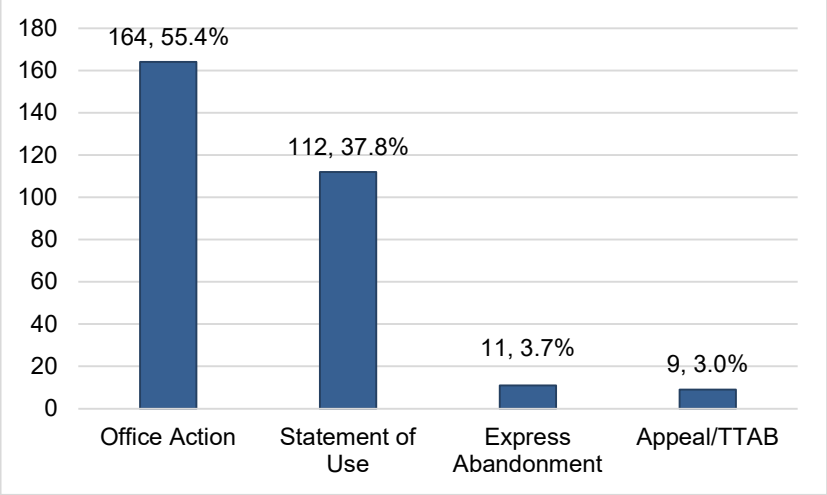
While 66% of sound mark applications with human voices published, 74% of sounds produced by objects of any type published. But when objects were subclassified into musical and non-musical objects, another stark difference emerged. While over 80% of sounds produced by musical objects published, the publication rate for those produced by non-musical objects (60%) was 25% lower. The low success rates for non-musical objects prompt questions about possible barriers to publication and registration, which we will explore below. Interestingly, the publication rate for human voices combined with musical objects was lower than the publication rate for musical objects alone—which was somewhat unexpected because a combination of multiple elements could contribute to a mark's distinctiveness.[372]

372. As Figures XIII-A and XIII-B indicate, the publication rate for human voice and object (80%) exceeded the publication rate for human voice and musical object (76%). This seeming anomaly was on account of a small number of human voice and non-musical object applications (14) that had an extraordinarily high publication rate (100%). Those applications were included within the human voice and object category in Figure XIII-A but were omitted as a separate category in Figure XIII-B given their low incidence.

D. BARRIERS TO PROTECTION OF SOUND MARKS

Given the variability in success rates linked to the duration and sound sources, we took a closer look to uncover the reasons why sound mark applications fail to publish or register. In the USPTO research dataset, failed or abandoned applications were coded as "dead," while those still pending or registered were "live." Additionally, each application had a "current status code" associated with it.[373] Using these variables, we isolated the dead applications and recorded the moment in the registration process when the application failed. Figure XIV shows the reasons why these 296 sound mark applications failed.

Figure XIV: Procedural Step Where Sound Mark Applications Failed



Over half of the failures (164; 55% of total) occurred because the applicants either did not respond or could not overcome an office action.[374] The second most common reason for an application's demise was that the applicant never filed a proper post-publication statement of use (112; 38%). In contrast with failures that stemmed from office actions that normally issued prior to publication, applications that were abandoned for failure to file

373. *See Trademark Applications Daily*, *supra* note 292, at 48–51 (listing the current status codes).

374. Of these 164 failed applications, 18 received a final refusal.

a statement of use overcame USPTO review. Accordingly, these abandonments likely stemmed from business decisions not to use the applied-for marks in commerce.[375] A relatively small number of applications were expressly abandoned or were unsuccessfully appealed.

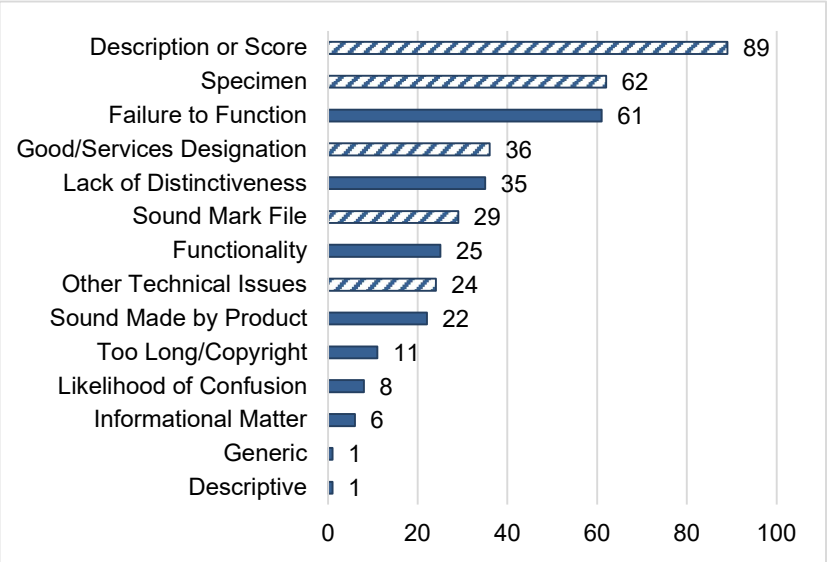
Because a relatively high percentage of sound mark applications failed to overcome office actions, we reviewed all associated office actions available (157) to determine the reasons for examiner objections. Figure XV sets forth the aggregate results. Technical objections are depicted with striped bars, and substantive objections are depicted with solid bars. Office actions often include multiple objections.[376] For that reason, a single application may contribute to multiple categories below.

Although one might theorize that unconventional marks are more likely to face substantive barriers, our study suggests that the most common stumbling blocks for sound mark applications are technical ones.

375. *See* Beebe, *supra* note 236, at 776–77 (noting that "ITU applicants appear to be engaged in a kind of speculative filing in that they may never actually use the applied-for mark in commerce," but that the applied-for marks themselves satisfied the other requirements to the examiner's satisfaction).

376. For this analysis, we excluded issues that were marked as "advisory" since they are merely suggestions of possible grounds for refusal in the future and are often framed in general terms. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 8606952 (Dec. 29, 2013) ("Applicant is advised that, upon consideration of an allegation of use, registration may be refused on the ground that the applied-for mark, as used on the specimen of record, fails to function as a trademark or service mark or may be functional.").

Figure XV: Basis of Office Actions for Failed Applications



Most failed sound mark applications (89; 57% of total) received an office action asserting that the description of the mark was inadequate. Generally, trademark applications must include a drawing of the mark, a description, and a specimen. For word or design marks, these requirements are relatively straightforward.[377] These basic requirements appear to present serious challenges for applicants seeking protection for sounds, though they may be able to overcome these challenges if they know to look in the USPTO's online Trademark Manual of Examining Procedure for help.[378] For standard character marks, the drawing requirement is fulfilled by typing the word into the drawing field.[379] To draw a design mark, an applicant must submit a technical drawing of the design.[380] For a sound mark, no "drawing" as such is required—but applicants almost invariably need to attach a digital sound file containing the mark to satisfy

377. *See supra* notes 254–56 and accompanying text (explaining the technical specimen requirement for word or design mark applications).

378. *See generally* U.S. PAT. & TRADEMARK OFF., *supra* note 212, §§ 807.09, 904.03(f) (describing the requirements for registration of sound marks).

379. *Id.* § 807.03.

380. *Id.* § 807.04.

the USPTO's "detailed description" requirement.[381] And not just any file will work. To satisfy the examiner, the mark must be perceived in isolation. Therefore, a sound mark file must include only the applied-for sound, independent of context.[382] An apt analogy may be found through the practice of claiming portions of design patents. Solid lines show elements of the claimed invention, while broken lines illustrate context but not elements claimed as inventions in the design patent.[383]

An applicant also must submit a written description of its mark. Again, for word and design marks, this task is accomplished relatively easily. For sound marks, the applicant may fulfill this requirement with a description that incorporates a musical score.[384] The examiner will issue an office action if the description or score does not match the actual sound.[385] Due to these unusual requirements, it is not surprising that inadequate sound recordings often proved to be a formidable barrier, tripping up applicants 18% of the time (29 of 157).

While the sound mark file must isolate the mark to meet the description requirement, the specimen must reflect how the mark is used in connection with the goods or services. Sound mark specimens must document use of the sound in selling or promoting the goods or services.[386] Without a clear understanding of the differences between meeting the description and specimen requirements, applicants may not realize that the same recording generally will not be accepted for both purposes. Indeed, 39% of these office actions (62 of 157) noted an issue with the specimen.[387]

For word and design marks, the specimen requirement may be satisfied by attaching a photograph. For example, an image

381. *Id.* § 807.09.

382. *See id.* (stating that the sound mark file "should contain only the mark itself").

383. *See* 37 C.F.R. § 1.152 (2024) (requiring the use of solid, black ink in design patent drawings and discussing the contextual use of broken lines).

384. U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 807.09.

385. *See, e.g.*, Office Action, Serial No. 77/423713 (June 9, 2009) (identifying mismatch between sound file and description).

386. *See* U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 904.03(f).

387. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 97260758 (May 23, 2022) ("Registration is refused because the specimen is merely a photocopy of or a depiction of the lyrics of the applied-for mark and does not show the applied-for mark as actually used in commerce . . . .").

showing the mark on a tag or packaging is sufficient. For services, a photograph of the mark displayed on a sign over the applicant's place of business is often adequate. For sound, submitting an isolated recording would be insufficient, as it would not show use of the mark in connection with promoting or selling goods or services. An applicant must submit something to show how the mark is heard in the normal course of using or advertising the goods or services.[388] For those submitting sound mark specimens, especially before digital video became easy to capture and copy, this requirement may have been difficult to meet using text or design as an analogy. Although the challenge may have been technologically difficult in the 1980s and 1990s, the conceptual difficulty still trips up many applicants.[389] This issue may also be a reason why applicants may benefit from having counsel assist in the prosecution of sound marks. These applications require extra attention to detail and a clear conceptual understanding of the purpose for each technical USPTO requirement.

Other research indicates that likelihood of confusion is the most common statutory bar cited in trademark office actions.[390] Only 8 sound mark applications (5% of total) prompted a likelihood of confusion objection. The rarity of sound marks does not fully explain this anomaly because when examining attorneys cite likelihood of confusion as a basis for refusing registration, they typically cite standard character word marks rather than other sound marks.[391] The greater likelihood of citing textual marks is not surprising for several reasons. First, the similarity of marks is considered along three dimensions: "sight, sound,

388. U.S. PAT. & TRADEMARK OFF., *supra* note 212, § 904.03(f).

389. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 88070261 (Jan. 3, 2022) (issuing a final office action identifying problems with required specimen).

390. *See* Beebe & Fromer, *supra* note 286, at 955 & n.34 (providing statistics showing that other statutory bars were cited as grounds for objection in less than 0.1% of applications). By contrast, during the years examined in that study, likelihood of confusion was cited as grounds for objection in 10–15% of applications that contained text. *See id.* at 1005 fig.16.

391. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 87563416 (Sept. 9, 2017) ("In the present case, the spoken words 'GET IT RIGHT' constitute the dominant feature of applicant's sound mark, which otherwise consists of a drum sound. This dominant feature is virtually identical to registrant's standard character mark GET IT RIGHT.").

and meaning."[392] Sound is often an important consideration in likelihood-of-confusion analysis because even if two words contain different letters and look different, if they sound alike, that similarity may create confusion in non-visual advertising such as radio or word of mouth recommendations.[393] Also, because there are vastly more word marks than sound marks on the Principal Register, there is a much greater chance that one of them would be cited.[394]

The most common substantive objection asserted against sound mark applications was that they failed to function as a trademark (61; 39% of total). Trademark examiners increasingly cite failure to function as a basis for refusing registration for all types of marks.[395] Nevertheless, these office actions based on failure-to-function objections almost invariably identified specific reasons for the refusal as well.[396]

When an application claims a sound made by the product being sold, trademark examiners generally require proof of secondary meaning and sometimes claim that the sounds are functional.[397] Indeed, 22 of the 157 office actions (14%) specifically

392. 4 MCCARTHY, *supra* note 7, § 23:21; *see also* Beebe, *supra* note 205, at 654 (discussing the three components to determine similarity between marks).

393. Beebe, *supra* note 205, at 654 (discussing application of concept, using the example of "NIKE, NIKON, NEIKAY, NIKKEI, NOKAY, NOKIA").

394. *See supra* Figure II and accompanying text (showing the distribution of trademark applications by content type). Moreover, a few office actions included objections that the vocalized words in the applied-for sound were generic, descriptive, or contained informational matter. *See supra* Figure XV.

395. *See generally* Alexandra J. Roberts, *Trademark Failure to Function*, 104 IOWA L. REV. 1977 (2019) (providing a comprehensive discussion of the failure-to-function doctrine and its importance in trademark registration and protectability). There were no office actions in our study citing failure-to-function as a basis for objection to proposed sound mark registrations prior to 2000; by contrast, there were 23 in the 2000s and 35 in the 2010s.

396. Of the 61 office actions containing a failure-to-function objection, all but one included a more specific substantive objection.

397. *See supra* note 278 and accompanying text. Of the 157 office actions in this study, 25 cited functionality as a substantive reason for objection—and many of these involved sounds emanating from products. Although one might assume that functionality objections invariably would be raised every time a sound emanates from a product, that might not happen if the sound did not bear a connection to the product's operation, such as a toy that emits repeating musical chords. *See, e.g.*, U.S. Trademark Application Serial No. 87/804,327 (filed Feb. 20, 2018) (seeking to register, in connection with toys, "repeating, alternating musical chords consisting of A major (A, C [sharp], and E) and F minor (F, A [flat], and C [flat])").

noted that the sound was emanating from a product, and a number of other office actions implicitly referred to the fact, as well.[398] In this way, examiners treat these marks like they would treat product design trade dress.[399] Providing proof of secondary meaning is more difficult before the USPTO than it often is in litigation because, while common law requires recognition of the symbol as a mark, the USPTO requires substantially exclusive use nationally.[400]

The office actions in which a trademark examiner objected on the ground that a sound was not distinctive (35; 22% of total) often involved applications in which the sound was part of the background of a commercial,[401] consisted of just a few notes,[402] or was part of longer sound composition.[403] When applicants

398. *See, e.g.*, Office Action, Serial No. 78/815828 (Aug. 18, 2006) (objecting to the sounds coming from the TiVo digital recorder as functional). Eventually, TiVo was able to overcome functionality objections and register these types of sounds. *See, e.g.*, The sound mark consists [sic] a sequence of two tones of increasing pitch, playing the musical note A-sharp, just above F, which is followed by a sequence of two tones in decreasing pitch, playing the musical note A-sharp followed by the musical note F, just below the A-sharp, Registration No. 2,993,862.

399. *Cf. supra* notes 225–27 and accompanying text (discussing the treatment of product design trade dress).

400. 15 U.S.C. § 1052(f) ("[N]othing [in this chapter] shall prevent the registration of a mark used by the applicant which has become distinctive of the applicant's goods in commerce. The Director may accept as prima facie evidence that the mark has become distinctive, as used on or in connection with the applicant's goods in commerce, proof of substantially exclusive and continuous use thereof as a mark by the applicant in commerce for the five years before the date on which the claim of distinctiveness is made.").

401. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 79171420 (Nov. 11, 2016) (objecting because the applied-for mark was "merely background music played underneath a speaker giving a presentation").

402. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 86011865 (Aug. 7, 2013) (citing failure-to-function as a trademark for "a sequence of five notes which are of such a nature that they would not be perceived by consumers as an indicator of the source of applicant's goods").

403. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 88061765 (Nov. 21, 2019) ("In this case, consumers would not recognize the applied-for sound as a source identifier for the musical production and performance services because the sound is integrated into the musical performance. Consequently, consumers would perceive the sound as part of the song, not as the source identifier for musical productions and performances.").

attempted to register a snippet of a longer song, the office action often noted that a consumer would not be inclined to recognize that snippet as source-identifying.[404] Because these contextual issues have not been the subject of many TTAB or judicial decisions, they may not yet be generally perceived as barriers to trademark protection for sound marks.

A few office actions (11; 7% of total) cited the length of the sound as a reason for refusing registration. These uniformly involved sounds of more than thirty seconds and were described as musical compositions rather than sounds that indicate source (e.g., a musical jingle).[405] Sometimes, the office action stated that copyright protection would be more appropriate.[406] Through these office actions, the USPTO performs a channeling function, limiting the ability of applicants to acquire federal trademark registration for sounds that would be more properly characterized as original musical compositions or sound recordings.

CONCLUSION

Sounds fill our world. They signal alerts; move us to sing, dance, and exercise; transmit information; and give us comfort, entertainment, and joy. Their omnipresence, like that of words, designs, and colors, does not diminish the possibility that sometimes sounds function as trademarks. Because sounds are processed in so many brain regions and lodge so well in human memory, they are especially memorable and ideally suited to serve as trademarks. Given how deeply sounds can establish themselves in human memory, they may be more effective and durable trademarks than colors, words, or designs.

---

404. *See, e.g.*, *id.*

405. *See, e.g.*, Office Action (Official Letter) About Applicant's Trademark Application, Serial No. 88281298 (May 9, 2019) ("In this case, consumers would not recognize the applied for sound as a source identifier for these goods because the sound consists of an entire musical composition, i.e., an entire track within a collection of musical tracks on an album.").

406. *See, e.g.*, *id.* ("Here, and as previously stated, the applied-for mark consists not of a few bars or seconds of music, but rather an entire composition of considerable length. Because of this length, a consumer would not hear the applied-for mark as a source identifier for applicant's identified goods, but rather simply as a musical composition in and of itself. 'Copyright law, not trademark law, is the primary vehicle for protecting the rights of a song's composer . . . in the musical composition. . . .'" (quoting EMI Catalogue P'ship v. Hill, Holliday, Connors, Cosmopulos Inc., 228 F.3d 56, 63 (2d Cir. 2000))).

Despite the ubiquity of sound and music in advertising, seeking federal trademark registration for sound marks is rare, occurring much less frequently than applications for single color marks. But when applicants do seek to register trademark rights in sound, their success rates are much higher than those for single colors and other nonvisual symbols. This high success rate occurs even though the USPTO registration process was created for text and design and therefore must be retrofitted by each applicant who seeks to apply for a sound mark. Once secured, renewal rates indicate that sound mark registrations have more longevity than other types of registrations, suggesting they have continuing value to their owners.

Given the high success rates for sound mark applications, one might wonder why there are so few of them. The data do not reveal the answer to this question, but we hypothesize that there may be several reasons: limited awareness that sounds may be trademarks, misunderstanding of federal registration requirements, or limited motivation to seek registration until confusion occurs. Pitbull had used his signature "EEEEEEEYOOOOOO" for nearly two decades before seeking federal registration.[407] He registered the sound only after learning that another artist released a song using a similar yell and his being asked about the presumed collaboration that never happened.[408] While it may have been one of the first trademark registrations of its kind, other musicians may adopt Pitbull's trademark strategy to protect their own digital signatures.

Social media influencers often use specific sound clips or musical hashtags to notify their fans that they have a new message to share.[409] In this way, they attract listeners' attention and forge a memorable bond between the sound and its source. Some view the use of hashtags as a marketing necessity for musicians

---

407. The mark is a sound. The mark consists of a man yelling "EEEEEEEYOOOOOO" in falsetto with "E" drawn out followed by a "U" sound, Registration No. 5,877,076.

408. *See* McNaughton et al., *supra* note 1, at 180–83 (discussing Pitbull's longstanding use of the "grito" and the events that prompted him to seek federal trademark registration).

409. Elyse Endres, *Why Music Hashtags on Instagram Are Essential*, KELLEE MAIZE, https://www.kelleemaize.com/post/why-music-hashtags-on-instagram-are-essential [https://perma.cc/EQ9F-KDUJ] (providing a how-to guide to using music hashtags for musicians).

and recommend using musical hashtags as digital signatures.[410] The idea of seeking trademark registration for these signatures may follow if the practice continues.

Our empirical analysis of sound mark applications also revealed some counterintuitive findings. Although longer and more complex sounds may have additional elements that could make them more distinctive, sounds of shorter duration are more likely to publish and register. Sounds lasting fewer than two seconds had the highest success rates. Sounds originating from musical objects alone had especially high success rates, even exceeding the rate for musical objects in combination with human voices.

Our analysis of the barriers that many sound marks confront in the application process showed that prosecuting sound mark applications presents a unique set of challenges with numerous stumbling blocks. Perhaps most surprisingly, the technical requirements appear to be tripping up a large percentage of applicants. This means that those prosecuting applications for sound marks must be especially attentive to how the USPTO applies technical requirements developed for word marks to nonvisual matter.

Among the total universe of trademark applications, prior research suggests that the most common statutory bar applicants confront is based on a likelihood of confusion with a mark already on the register.[411] Sound marks, which often contain words, must also overcome this challenge. Because relatively few sound marks are registered, new sound mark applications were not generally denied based on the likelihood that they would be confused with other sounds. Rather, if they contained words, they were examined for whether they were confusingly similar to word marks. Even so, confusing similarity was not a major obstacle for sound marks, as it is for word marks. Given the challenges of clutter on the Principal Register, this finding showed that sound, like color, provides an open opportunity for

410. *See, e.g.*, Maksim Komonov, *Best Hashtags for Musicians: A Musician's Guide to Selling Music Online*, ECWID (May 1, 2023), https://www.ecwid.com/blog/hashtags-for-musicians.html [https://perma.cc/N7NM-8K6S] (providing online platform for selling music through social media).

411. *Supra* note 390 and accompanying text.

entrepreneurial use and protection of sound as a source identifier, especially when the sound does not include words.[412]

Additional challenges arose when an applied-for sound was emitted by the object the mark was meant to symbolize. The USPTO treats these marks like product design trade dress, generally requiring the applicant to show the mark has acquired distinctiveness before it can be registered. But despite some popular belief to the contrary, sound marks used with products that do not emit the sound or with services may be inherently distinctive and registrable immediately upon use.

Another interesting finding was that "unconventional" or "nontraditional" trademarks do not constitute a category with similar distinctiveness requirements or success rates. Some marks thought to fall into this category, like single colors and product design trade dress, always require proof of acquired distinctiveness. Others, like sounds, are analyzed like the larger categories of trade dress or word marks and must be evaluated for whether they may be inherently distinctive. Sound marks also may be examined for being generic or descriptive, similar to word marks, or functional, as required for product design trade dress. Furthermore, sound mark application success rates and presence on the registry exhibit different patterns than those for other unconventional marks, such as those for single colors or other nonvisual symbols.

Prosecuting sound mark applications before the USPTO requires understanding how the technical requirements developed for visual marks apply to sounds. The presence of counsel is generally associated with higher success rates and, not surprisingly, given the additional challenges applicants face when seeking protection for sound, the assistance of counsel appears to be especially helpful for sound mark applications. Although we did not explore whether the relative success rate results from the presence of counsel to the exclusion of other variables, we hypothesize that hiring an experienced attorney may be especially beneficial for sound mark applications because the hurdles to federal registration often involve technical deficiencies.

412. *See* Gerhardt & Lee, *supra* note 15, at 2547 (concluding that, based on empirical study of color marks, "there are many color variations available for future branding entrepreneurs to use to create a meaningful and distinctive commercial impression").

The USPTO and trademark scholars could help by dispelling the notion that all so-called "nontraditional" or "unconventional" trademarks are analytically uniform categories. This idea may be perpetuated by the USPTO classification system, in which sound is relegated to a special mark drawing code, alongside other nonvisual marks that are significantly less likely to meet the requirements for trademark protection.

On its website, the USPTO features a sample of sound marks as novelty items.[413] Given that sound mark applications are increasing, applicants would benefit from clearer guidance on how to protect and register them. The USPTO could put resources specifically for sound marks on a single webpage so applicants can have quick access to practical tips such as when a secondary meaning affidavit should be filed and the nature of records and descriptions that would satisfy each of the various requirements. Although some information is scattered through the USPTO's FAQs and in the Trademark Manual of Examining Procedure, the provisions relating to sound mark applications could be aggregated into one place that is easier to find and provides straightforward explanations of how to meet the technical requirements. Clarifying the sound mark application process preemptively would benefit the USPTO by increasing efficiency in the examination process, which in turn could reduce application pendency times. It simultaneously would help everyone who has never filed a sound mark application but understands how powerfully sound may generate trademark meaning.

413. *See Trademark Sound Mark Examples*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/trademarks/soundmarks/trademark-sound-mark-examples [https://perma.cc/C5HA-LE9N] (compiling sound marks for "illustrative and educational purposes").