WAKE FOREST JOURNAL OF BUSINESS
& INTELLECTUAL PROPERTY LAW

VOLUME 21 SUMMER 2021 NUMBER 4

WITH EYES TO SEE AND EARS TO BEER: NAVIGATING MULTISENSORY INTELLECTUAL PROPERTY RIGHTS IN THE CRAFT BEER INDUSTRY

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I. INTRODUCTION

Music is a fascinating artform. It is known for inspiring film, visual art, and fashion, and can also be infused with dance to create new musical genres. Yet, while it can surely bring delight to one's ear, what about one's tongue? After all, the great William Shakespeare once said, "[i]f music be the food of love, play on."[1] This begs the question, can music play a more integral role in culinary taste?

Scientific discovery over the last few decades seems to affirmatively answer this question.[2] Specifically, recent research has shown that sound can change the taste of certain foods through a multisensory phenomenon known as "sonic seasoning."[3] Sonic seasoning is the concept that sound may have a cross-modal effect on one's perception of taste.[4] The interaction between two or more senses, or sensory modalities, can add significant value to a person's dining or consuming experience.[5] Factors such as the way music is composed to the way tonalities, dynamics, and studio techniques are emphasized and recorded may all impact how food tastes when music is played.[6]

For innovative food and beverage manufacturers, multisensory experiences—such as sonic seasoning—provide an exciting avenue to increase profits and market share. Notably, contemporary research has demonstrated that music can even change the taste of beer.[7] Since this discovery, beverage manufacturers and musicians have jumped on the multisensory experience bandwagon to create unique products that will grow their brands.[8] For example, English brewery North Brewing Co. combined brewing, audio, design, and photography to create *Üte*, an IPA that is meant to "invoke the spirit of the outdoors."[9]

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[1] WILLIAM SHAKESPEARE, TWELFTH NIGHT act 1, sc. 1.

[2] Ian Dickinson, *Sonic Seasoning: How Music Changes the Taste of Your Beer,* PASTE MAGAZINE (Jan. 27, 2017 2:09 PM), https://www.pastemagazine.com/drink/craft-beer-/how-music-changes-the-taste-of-your-beer/.

[3] *See id.*

[4] Dickinson, *supra* note 2.

[5] Ronald Khoo, *Sonic Seasoning*, VINO JOY NEWS (May 5, 2020), https://vino-joy.com/2020/05/15/sonic-seasoning/.

[6] *Id.*

[7] *Id.*

[8] *Id.*; Mathew Sedacca, *"Sonic Seasoning" is the Growing Scientific Field That Uses Sound to Make Food Taste Better*, QUARTZ (Dec. 24, 2016), https://qz.com/871605/sonic-season-changing-taste-with-sound/; Simran Sethi, *Loud Sounds Can Make Your Drink Seem Stronger*, SMITHSONIAN MAG. (Sept. 29, 2016), https://www.smithsonianmag.com/science-nature/booze-bars-how-sound-influences-perceived-strength-and-sweetness-your-drink-180960637/.

[9] *Introducing Ute*, NORTH BREWING (Aug. 19, 2019), https://www.northbrewing.com/news/introducing-ute/; James Davidson, *Ute, an Experiential Beer Release*, CAÑA MAG. (Aug. 29, 2019), https://www.canamagazine.com/2019/08/ute-an-experiential-beer-release/.

From an intellectual property standpoint, however, determining the rights and protections of these creative elements presents a unique challenge for scholars and practitioners.[10] Elements of this puzzle include copyright, trademark, and trade secret law. For example, music has been copyright-protectable since the early twentieth century,[11] and sounds can implicate both copyright and trademark law.[12] Additionally, the infusion of a copyrightable work like music into a recipe falls into trade secret territory.[13] Finally, while colors can receive trademark protection,[14] an ongoing debate exists about whether tastes and flavors can receive the same protections.[15]

This article responds to the legal puzzle presented by the multisensory experience and intellectual property protection. First, Part II of this article will discuss music's relationship with the senses and expand on the concept of sonic seasoning. Part III will then provide a brief overview of the craft beer industry, along with examples of sonic seasoning and other multisensory experiences brands have implemented with their products. Part IV will explain how sonic seasoning in the beer industry may implicate various intellectual property protections, such as copyright, trademark, and trade secret law. Finally, Part V will consider additional parties who may benefit from intellectual property litigation involving sonically-seasoned products.

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[10] *See* Christopher J. Buccafusco, *Making Sense of Intellectual Property Law*, 97 CORNELL L. REV. 501 (2012); Amara Lopez, *Digitizing Scent and Flavor: A Copyright Perspective*, 26 MICH. TECH. L. REV. 347 (2020); Glenda Labadie-Jackson, *Through the Looking Hole of the Multi-Sensory Trademark Rainbow: Trademark Protection of Color Per Se Across Jurisdictions: The United States, Spain, and the European Union*, 7 RICH. J. GLOBAL L. & BUS. 91, 109 (2008); Charles Cronin, *Lost and Found: Intellectual Property of the Fragrance Industry; From Trade Secret to Trade Dress*, 5 N.Y.U. J. INTELL. PROP. & ENT. L. 251, 289–94, 299–302 (2015).

[11] *See generally Federal Copyright Protection for Pre-1972 Sound Recordings*, U.S. COPYRIGHT OFF. (Dec. 2011), https://www.copyright.gov/docs/sound/pre-72-report.pdf.

[12] *See generally* JOHN SZYMANKIEWICZ, BEER LAW: WHAT BREWERS NEED TO KNOW 128–44 (2017); Robert Cattanach & Gabrielle Wirth, *Top Ten Pitfalls in Brewery and Winery Acquisitions*, *in* WINE AND BEER LAW: LEADING LAWYERS ON NAVIGATING THE THREE-TIER SYSTEM AND OTHER REGULATIONS ON ALCOHOLIC BEVERAGES 69, 72–73 (Thompson Reuters/Aspatore 2016).

[13] Sarah Segal, *Keeping it in the Kitchen: An Analysis of Intellectual Property Protection Through Trade Secrets in the Restaurant Industry*, 37 CARDOZO L. REV. 1523, 1535-37 (2016); Stephen M. Dorvee, *Protecting Trade Secrets Through Copyright*, 1981 DUKE L.J. 981 (1981); Steven N. Dupont, *The Copyright and Trade Secret Protection of Communication Software: Placing a Lock on Interoperability*, 13 J. MARSHALL J. COMPUTER & INFO. L. 17 (1994); Ellii Cho, *Copyright or Trade Dress? Toward IP Protection of Multisensory Effect Designs for Immersive Virtual Environments*, 33 CARDOZO ARTS & ENT. L.J. 801 (2016).

[14] Labadie-Jackson, *supra* note 10, at 91.

[15] *Id.* at 109.

II. SENSORY PHENOMENA AND SCIENTIFIC BREAKTHROUGHS

Early research and experimentation of multisensory experiences began during a period of music history when musicians and composers wanted to deviate from the past and create different styles of music.[16] These composers sought to incorporate different meanings, utilize unconventional composition and instrumentation, and experiment with different textures in their musical works.[17] Some composers did this with serialism and twelve-tonality,[18] while others reached a similar result through chance music and electronic music.[19]

A. Sound and Smell

One of the first documented instances of linking music with a sense other than hearing occurred in the nineteenth century when chemist and perfumer Dr. Septimus Piesse associated scents with musical notes on a scale.[20] To Piesse, creating a balanced fragrance required a mixture of low, mid, and high notes,[21] resembling a sort of polyphony similar to a musical composition.[22] To illustrate this "degree of volatility," Piesse constructed an *olfactory pyramid* made up of three different fragrance classifications: (1) head notes, (2) heart notes, and (3) base notes.[23]

Head notes comprise high notes on a scale.[24] This is the most volatile category because the head notes are undetectable after fifteen minutes.[25] They consist of quickly evaporating molecules that are the first to be perceived and the first to fade.[26] The fragrance family for this

[16] *Id.*

[17] *Id.*

[18] *Id.*

[19] *Id.* For instance, John Cage composed the *Bacchanale* in 1938 for the "prepared piano," which is a mechanical transformation of a piano into a single-player percussion ensemble.

[20] *The Music of Perfumes*, IDEA TOSCANA (Feb. 3, 2017), https://www.primafioritura.it/pf_en/Blog/the-music-of-perfumes.html; *The Olfactory Pyramid*, OFFICINA DELLE ESSENZE (Oct. 28, 2020), https://www.officinadelleessenze.com/en/olfactory-pyramid [hereinafter TOSCANA].

[21] TOSCANA, *supra* note 20.

[22] Polyphony is a style of musical composition employing two or more simultaneous but relatively independent melodic lines. Fragrances (and food and drink), act similarly in that their make-up has texture; they are comprised of two or more simultaneous elements. Polyphony, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/polyphony (last visited Aug. 19, 2021); Mark DeVoto, *Polyphony*, ENCYC. BRITANNICA (Sep. 8, 2017), https://www.britannica.com/art/polyphony-music.

[23] TOSCANA, *supra* note 20.

[24] *Id.*

[25] *Id.*

[26] *Id.*

note is characterized by fresh and intense fragrances, like citrus and aromatic scents.[27]

Heart notes represent the middle notes on a scale.[28] This category is the most important to consider when purchasing perfume because the notes may be perceived after a few minutes but may also persist up to four hours after application.[29] Heart notes include notes that create a "trail of the perfume,"[30] and fragrances that fall under this category include floral, aldehyde, herbaceous, fruity, and marine.[31]

Finally, *base notes* represent low notes.[32] Base notes are persistent olfactory notes that evaporate very slowly.[33] This category begins to appear thirty minutes after application but can linger for over twenty-four hours.[34] While the heart notes are responsible for the purchase of perfume,[35] base notes tend generate scent loyalty.[36] Base notes are divided into: amber, musky, chypre, oriental, woody, powdery, fougère, leather, spicy, and gourmand.[37]

Piesse's theories intrigued scientists during the twentieth century,[38] and in June of 1922, *Science and Invention* magazine featured an instrument design for the olfactory organ, or "smell organ," illustrated by Frank R. Paul.[39] With the announcement of the olfactory organ's design, the magazine hoped to introduce a new kind of concert where musicians might "play" smells rather than sounds.[40] This whimsical ambition shows that Piesse's studies on fragrances not only illuminated the multisensory aspects of perfume,[41] but also sparked curiosity toward the cross-modal relationships between the senses and other objects.[42]

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[27] *Id.*
[28] TOSCANA, *supra* note 20.
[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] *Id.*
[33] TOSCANA, *supra* note 20.
[34] *Id.*
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] Tibi Puiu, *Music for the Nose: An Olfactory Organ*, ZME SCI. (Jan. 29, 2021), https://www.zmescience.com/other/music-for-the-nose-an-olfactory-organ/.
[39] *Id.*
[40] Matt Novak, *The Olfactory Organ*, PAC. STANDARD, https://psmag.com/environment/smell-organ-50062 (last updated June 14, 2017).
[41] Puiu, *supra* note 38.
[42] *See generally* Cronin, *supra* note 10, at 288–302.

The "smell organ" as illustrated by Frank R. Paul in *Science and Invention* (June 1922).[43]

BASS CLEFF	TREBLE CLEFF
C, patchouli	C, rose
D, vanilla	D, violet
E, clove bark	E, cassia
F, benzoin	F, tuberose
G, frangipane	G, orange flower
A, storax	A, new mown hay
B, clove	B, aurome
C, sandalwood	C, camphor
D, clematis	D, almond
E, rattan	E, Portugal
F, castoreum	F, jonquil
G, pergulaire	G, syringa
A, balsam of Peru	A, tonka bean
B, carnations and pinks	B, mint
C, geranium	C, jasmine
D, heliotrope	D, bergamot
E, iris	E, citron
F, musk	F, ambergris
G, pois de senteur	G, magnolia
A, balsam of tolu	A, lavender
B, cinnamon	B, peppermint
C, rose	C, pineapple
	D, citronel
	E, vervain
	F, civet

Key for which fragrances correspond to certain notes on the "smell organ" (1922).[44]

B. Sound and Taste

Soon, the concept of the olfactory organ was expanded to the sense

[43] Frank R. Paul, Illustration of a smell organ *in* Matt Novak, *The Olfactory Organ*, PAC. STANDARD (Jun. 14, 2017) https://psmag.com/environment/smell-organ-50062.

[44] *Id.* Photograph of key for fragrances that correspond to notes of the smell organ.

of taste. For example, French writer Boris Vian featured an invention called the "pianocktail" in his novel *L'ecume des Jours*.[45] The fictional pianocktail is a piano that mixes drinks based on the combination of keys played.[46] Each key corresponds to a different spirit or liquor, and the "mood" of the song played on the instrument dictates the cocktail's composition.[47] In this way, a listener can imbibe music in addition to hearing it—essentially, an entire concerto can be internalized.[48] Decades later, musician Géraldine Schenkel brought this invention to life by using propellers, bike chains, and pieces of an old gramophone.[49]

[45] Florica Vlad, *Pianocktail*, WORDPRESS (Oct. 14, 2008), https://florica.wordpress.com/2008/10/14/pianocktail/; Gastropod, *Gastropod: Sonic Seasoning*, EDIBLE GEO. (July 14, 2015), https://www.ediblegeography.com/gastropod-sonic-seasoning/.

[46] *Id.*

[47] *Id.*

[48] *Id.* In *L'ecume des Jours*, the "pianocktail" is described as:

> [F]or each note there's a corresponding drink – either a wine, spirit, liqueur or fruit juice. The loud pedal puts in egg flip and the soft pedal adds ice. For soda you play a cadenza in F sharp. The quantities depend on how long a note is held – you get the sixteenth of a measure for a hemidemisemiquaver; a whole measure for a black note; and four measures for a semibreve. When you play a slow tune, then tone comes into control to prevent the amounts growing too large and the drink getting too big for a cocktail – but the alcoholic content remains unchanged. And, depending on the length of the tune, you can, if you like, vary the measures used, reducing them, say, to a hundredth in order to get a drink taking advantage of all the harmonics, by means of an adjustment on the side.

Id.

[49] *Id.*

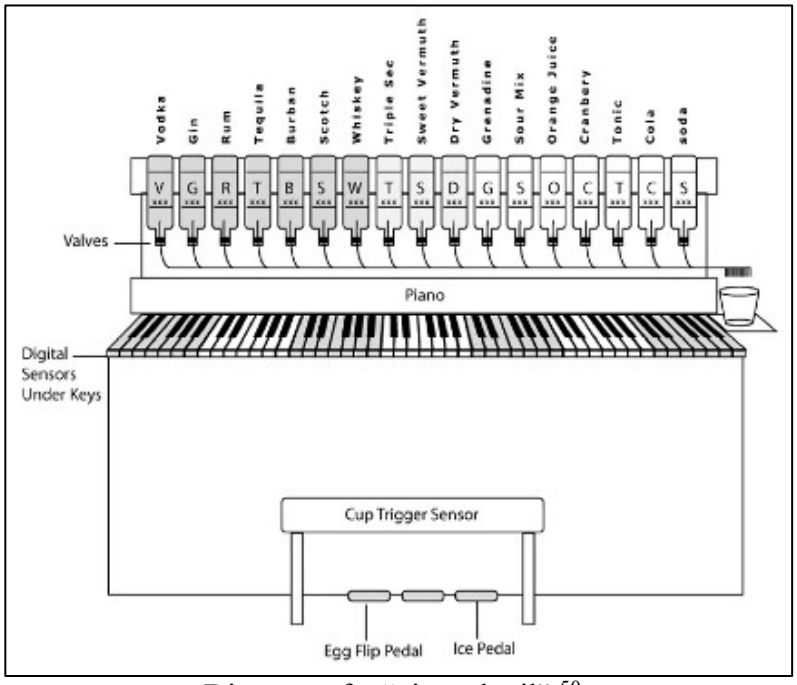

Diagram of a "pianocktail".[50]

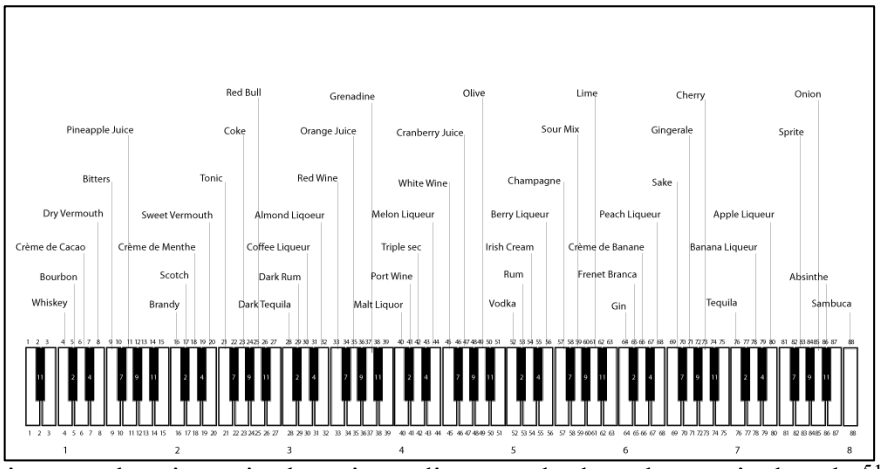

Diagram showing mixology ingredients ranked on the musical scale.[51]

The first person to perform research on the cross-modal connection between sound and taste was Danish scientist Kristian Holt-Hansen in 1968.[52] Perhaps inspired by the olfactory organ, the pianocktail, and the changing yet experimental musical atmosphere, Holt-Hansen used a

[50] Illustration of a pianocktail, *in The Pianocktail*, BLUBEE, http://blubee.com/pianocktail.html (last visited Aug. 20, 2021).

[51] Illustration of mixology ingredients ranked on the musical scale, *in id.*

[52] Dickinson, *supra* note 2.

tone-generator and two test beverages, Carlsberg lager and Elephant beer, to demonstrate that people consistently matched lower-pitched tones (510-520 Hz) to the lager, and slightly higher notes (640-670 Hz) to the more vinous Elephant beer.[53] Holt-Hansen found that when he played the tones that "matched" the beer a person was drinking, the beer consistently received higher taste ratings.[54] Despite such interesting findings, Holt-Hansen's research did not receive much traction.[55]

Many years later, in an era where the craft beer and coffee scene rose to heightened fame and sound engineers became more available,[56] scientists began conducting experiments to further explore the connection between taste and sound.[57] It was around this time that a specific subset of research known as "gastrophysics" emerged.[58] Gastrophysics is an interdisciplinary science that employs physics and chemistry principles to gain a fundamental understanding of gastronomy[59] and cooking.[60] The study of gastrophysics aims to uncover how sensory input relates to the material composition and properties of food—and, later—to its absorption into the human body.[61]

Modern gastrophysics research has produced interesting results. For instance, a 2008 study showed an association between a high-level of volume from environmental factors and an increase in alcohol consumption.[62] In 2011, another scientist discovered that different styles of music accentuate different characteristics of wine.[63] However,

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[53] *Id.*; Emily Bland, *Sonic Seasoning: The Impact of Sound on our Experience of Taste*, LINKEDIN (Sept. 27, 2019), https://www.linkedin.com/pulse/sonic-seasoning-impact-sound-our-experience-taste-emilybland/?fbclid=IwAR23SDJ7M3TJGeoMNhLdgrCE0d0KAvCzoy5uBuHGZoy7Gu0LLTR72P4BD6s.

[54] Dickinson, *supra* note 2.

[55] Bland, *supra* note 53.

[56] Dickinson, *supra* note 2; Gastropod, *Sonic Seasoning*, DESIGN OBSERVER (Jan. 25, 2016), https://designobserver.com/feature/sonic-seasoning/39164.

[57] *Id.*

[58] Gastropod, *supra* note 56.

[59] Gastronomy has been defined as the study of food and culture, with a particular focus on gourmet cuisine. *See* Becky Miller, *Food Studies: Gastronomy*, U.C. BERKELEY LIB., https://guides.lib.berkeley.edu/food/gastronomy (last updated July 29, 2021 12:13 PM).

[60] *Gastophysics*, WIKIPEDIA, https://en.wikipedia.org/wiki/Gastrophysics (last visited Feb. 5, 2021); James Loyd, *The Strange Science of Gastrophysics*, SCI. FOCUS (July 3, 2019, 2:05 PM), https://www.sciencefocus.com/the-human-body/the-strange-science-of-gastrophysics/.

[61] *Id.*

[62] Nicolas Guéguen et al., *Sound Level of Environmental Music and Drinking Behavior: A Field Experiment with Beer Drinkers*, WILEY ONLINE LIB. (Sept. 17, 2008), https://onlinelibrary.wiley.com/doi/full/10.1111/j.1530-0277.2008.00764.x.

[63] Simon Fearn, *Top 5 Multi-Sensory Drinks Experiences*, DRINKS BUS. (Jan. 10, 2018), https://www.thedrinksbusiness.com/2018/01/top-5-multi-sensory-

some of the most remarkable studies on the connection between sound and taste come from scientists Charles Spence and Felipe Reinoso Carvalho, whose research explores the influence of color on a consumer's beer-drinking experience;[64] the effects of sour soundtracks on a listener's salivary levels;[65] and the search for cross-modal connections between classical music and fine wine,[66] among others.[67]

Table 1 Summary of crossmodal correspondences between basic tastes and sonic elements demonstrated to date

Author(s)	Auditory property	Sweet	Sour	Salty	Bitter
Bronner, 2012	Sharpness/spectral balance	low	high		
	Roughness	low	high		
	Ambitus	small	large		
	Articulation	legato	staccato		
	Rhythm	even	syncopated		
	Melodic intervals	small	large		
	Melodic consonance	consonant	dissonant		
	Tempo	slow	fast		
Crisinel & Spence, 2009	Pitch		high		low
Crisinel & Spence, 2010a	Pitch	high	high	average	low
	Instrument type	piano	brass	brass	brass
Crisinel & Spence, 2010b	Pitch	high	high	ns	ns
Crisinel & Spence, 2012	Pitch	higher			lower
	Instrument type	piano			ns
Knöferle & Spence, 2012	Pitch	high	average	average	low
	Roughness	low	high	average	high
	Sharpness/spectral balance	ns	high	ns	low
	Discontinuity	low	high	high	high
	Attack	ns	ns	ns	ns
	Speed	ns	fast	ns	slow
Mesz et al., 2011	Pitch	average	high	low	low
	Articulation	legato	average	staccato	legato
	Loudness	soft	average	average	average
	Chord consonance	consonant	dissonant	average	average
	Melody consonance	consonant	dissonant	average	average
Ngo et al., 2011[2]	Consonants	soft			hard
	Vowel backness	back			front
Simner et al., 2010	Vowel height	higher	lower	lower	lower
	Vowel backness[3]	back	front	front	front
	Discontinuity	lower	higher	ns	higher
	Spectral balance	lower	higher	ns	ns

[1] One might argue that the observed difference in instrument choice in fact reflects differences in the acoustic parameters of these instrument sounds—namely, the spectral centroid (higher for brass) and the onset time (shorter for piano).

[2] In this study, basic tastes were not manipulated directly and independently, but only indirectly through chocolate with varying cocoa content.

[3] These effects were significant but failed to survive Bonferroni correction.

Summary of cross-modal correspondences between taste and sound discovered during 2009-12.[68]

drinks-experiences/3/.

[64] Felipe Reinoso Carvalho et al., *The Influence of Color on the Consumer's Experience of Beer*, 8 FRONTIERS IN PSYCH., Dec. 19, 2017, at 1, 7.

[65] Qian J. Wang et al., *Music to Make Your Mouth Water? Assessing the Potential Influence of Sour Music on Salivation*, 8 FRONTIERS IN PSYCH., Apr. 26, 2017.

[66] Charles Spence et al., *Looking for Crossmodal Correspondences Between Classical Music and Fine Wine*, 2 FLAVOUR J., 2013, at 1, 1.

[67] *Id.* at 2.

[68] Klemens Knoeferle & Charles Spence, *Crossmodal correspondences between sounds and tastes*, 19 PSYCHONOMIC BULL. & REV. 6, 7 (Oct. 6, 2012). Photograph of

1. Taste and Musical Influence

Perhaps Spence and Carvalho's greatest discovery is that the music a person listens to while drinking has a significant influence on the taste of the brew being consumed.[69] To reach this conclusion, Spence and Carvalho collaborated with the Brussels Beer Project and British indie-rock band *Editors* to create a porter-style beer that represented the musical flavor of the band's album *In Dream.*[70] The premise of the study was to conduct a taste-test for three different consumer groups, each with a different auditory setting.[71] First, a control group was asked to drink an unlabeled beer in silence. Then, a second group was asked to drink a *labeled* beer in silence. Finally, a third group was asked to drink a labeled beer while listening to a segment of *Editor*s' song, "Oceans of Light."[72]

The study found that the beer-tasting experience was rated as more enjoyable when it was accompanied by music than when it was conducted in silence.[73] In particular, consumers who were both familiar with the band and listened to the song while tasting the beer liked the beverage more than those who also knew the band but only saw the label while tasting it.[74] These results suggest that customized sound-tasting experiences can complement the development of novel beverage events.[75] However, Spence and Carvalho carefully pointed out that "music is usually bounded to personal preferences and, hence, different songs can presumably lead to different emotional reactions."[76] This reasoning was echoed by cognitive neuroscientist Alex Brandmeyer, who said:

> [I]t is not clear that these systematic relationships are neurobiological in nature . . . The idea that listening to a

a summary of cross-modal correspondences between taste and sound discovered during 2009–12.

[69] Felipe Reinoso Carvalho et al., *Music Influences Hedonic and Taste Ratings in Beer*, 7 FRONTIERS IN PSYCH., May 6, 2016, at 1, 1.

[70] Katherine Schreiber, *Music Enhances Beer's Flavors*, PSYCH. TODAY (Jul. 29, 2016), https://www.psychologytoday.com/us/blog/the-truth-about-exercise-addiction/201607/music-enhances-beers-flavor.

[71] *Id*. Interestingly, Brussels Beer Project infused the medium-bodied ale with Earl Grey tea to add citrus notes that would play against the malty, chocolate flavors of the ale. *See* Brittany Smith, *Best Music and Beer Pairings*, MEN'S J., https://www.mensjournal.com/food-drink/best-music-and-beer-pairings/ (last visited Feb. 8, 2021).

[72] Carvalho et al., *supra* note 64 at 3.

[73] *Id.*

[74] *Id.* at 1.

[75] *Id.*

[76] *Id.* at 8.

> specific type of music might enhance the taste of beer, in my mind, speaks to the emotive and cultural identity phenomena associated with general "mood enhancement" effects, where sensory experiences are enhanced when individuals are deeply engaged during a particular activity.[77]

As such, while the protocols of the Spence and Carvalho study are far more credible than the earlier work of Holt-Hansen,[78] questions remain about potential associations between sound and taste.[79]

2. Taste and Pitch

Later, Carvalho conducted another experiment to assess the correlation between specific auditory pitches and taste attributes—similar to Holt-Hansen's earlier work.[80] The study consisted of two experiments where participants were given a series of beers to taste and, using an adjustable pitch tone generator, were then asked to find a pitch that best matched the brew before them. [81] In other words, the experiment was akin to taking a hearing test while at a pub.

In both experiments, researchers first measured a participant's ability to choose a pitch for three Belgian bitter beers with considerable differences in alcohol strength.[82] Then, having obtained a similar pitch range for each of the three beers, a different set of participants were asked to assign a pitch to beers with very different taste attributes.[83] The participants made significantly different pitch choices in beers with different taste attributes, and primarily rated the bitter beers on the lower end of the pitch range.[84] By contrast, a sweeter beer was systematically matched to a higher pitch than their more bitter counterparts.[85]

Carvalho's research demonstrated that consumers associate bitterness with lower pitch tones, while pairing sweetness with a higher

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[77] Brian Spencer, *Can You Taste the Music? Breweries and Bands Collaborate on Beers Inspired by Song*, BEER ADV. (Feb. 2017), https://www.beeradvocate.com/articles/15183/can-you-taste-the-music-breweries-and-bands-collaborate-on-beers-inspired-by-song/?fbclid=IwAR3uRCJdcYYEdINIKib9-gzHXmLy85wNQ6wLS4txoQWxitoOd3Wh0x19JxY.

[78] Dickinson, *supra* note 2.

[79] *Id.*

[80] Felipe Reinoso Carvalho et. al., *Tune That Beer! Listening for the Pitch of Beer*, BEVERAGES (Nov. 17, 2016).

[81] *Id.* at 1–3.

[82] *Id.* at 6–9.

[83] *Id.*

[84] *Id.*

[85] *Id.*

pitch range.[86] Additionally, the general taste and flavor differences between the most bitter and sweetest beers were the easiest to define for naïve participants.[87] Despite these initial conclusions, Carvalho hedged these results by stating that further studies were needed to "uncover the basis on which such beer-pitch matches are made, and the perceptual effects of matching/non-matching tones on the drinking experience[.]"[88] Moreover, Carvalho also suggested that future research should also assess whether orienting the participant's attention toward the attribute being manipulated—e.g., variations in alcohol strength versus differences in different taste attributes—could affect the type of multisensory matching utilized in the initial research studies.[89]

Nevertheless, Carvalho's research suggests that using sound as a sensory enhancement in multisensory tasting experiences can offer new ways to assess the design and consumption of food and beverages.[90] While scientists continue to research sensory phenomena,[91] current and future findings on the topic may redefine how humans interact with their senses and may introduce a host of new multisensory experiences driven by modern technology.[92]

3. Sound and Color

While the body of contemporary research exploring taste and sound continues to emerge, multisensory phenomena involving sound and color is a well-researched topic. *Chromesthesia* is a type of multisensory experience where an individual involuntarily associates sounds with certain colors.[93] People with this condition often match high pitch sounds with brighter or lighter colors and low pitch sounds

[86] *Id.*
[87] *Id.*
[88] *Id.*
[89] Carvalho, *supra* note 69, at 9.
[90] *Id.*
[91] Felipe Reinoso Carvalho et. al., *Not Just Another Pint! The Role of Emotion Induced by Music on the Consumer's Tasting Experience*, 32 MULTISENSORY RES. 1, 1 (2019); Felipe Reinoso Carvalho et. al., *Blending Emotions and Cross-Modality in Sonic Seasoning: Towards Greater Applicability in the Design of Multisensory Food Experiences*, 9 FOODS 1, 1 (2020); Felipe Reinoso Carvalho et. al., *Dark vs. Light Drinks: The Influence of Visual Appearance on the Consumer's Experience of Beer*, 74 FOOD QUALITY & PREFERENCE 1, 1 (2019).
[92] *See, e.g.*, Dickinson, *supra* note 2, Cho *supra* note 13, at 803. For example, this type of knowledge may have tremendous value in the context of virtual reality, where humans may be able to rethink the way they interact with their senses.
[93] *Chromesthesia*, SYNETHESIA TEST, https://synesthesia-test.com/chromesthesia#:~:text=Chromesthesia%20is%20a%20neurological%20condition%20and%20a%20type,the%20people%20have%20this%20condition%20which%20is%20idiosyncratic (last visited Feb. 9, 2021).

with darker tones.[94] Factors like level of concentration, sleep habits, fever, fatigue, caffeine, alcohol, emotions, or hallucinogens can contribute to the experience.[95] Moreover, it is likely differences in brain structure play a significant role.[96] Sonic seasoning and chromesthesia are similar in that they are both sensory phenomena that relay a response to music and sound.[97] It would seem that as the correlation between color and taste becomes more prevalent, intellectual property rights will be further implicated.

III. MULTISENSORY EXPERIMENTATION IN THE CRAFT BEER INDUSTRY

A. Sonic Seasoning and the Craft Beer Industry

Since the emergence of gastrophysics and the concept of sonic seasoning first took hold, several breweries around the globe have jumped on the cross-modal bandwagon. For instance, brands like England's North Brewing Company, Delaware's Dogfish Head Brewery, and Santa Barbara's Telegraph Brewing Company have each created beer and music collaborations by offering beverages that come with either a vinyl EP or a playlist QR code.[98]

Other craft breweries have gone further to incorporate sonic seasoning into their products. For instance, in 2015 the Santa Barbara Beer Garden created "ShakeSBeer," an event where guests watch performances of Shakespearian works while drinking beers made to complement the scenes.[99] At the commercial level, Bud Light released a limited-edition, music infused beer called the "Gloria Brew," in which the beer's regular ingredients were "infused" with the sound of the St. Louis Blue's unofficial victory anthem, Laura Branigan's "Gloria."[100] The product was released in 2019 to commemorate the hockey team's first Stanley Cup championship.[101]

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[94] *Id.*

[95] *Id.*

[96] *Id.*

[97] *Id.*; Carvalho, *supra* note 80.

[98] Jonathan Bastian, *New Multisensory Beers Pair with Music, Nature, 'Game of Thrones'*, KCRW (Jan. 22, 2020), https://www.kcrw.com/news/shows/kcrw-features/new-multisensory-beers-pair-with-music-nature-game-of-thrones; *Dogfish Head Releases Beer to Drink Music to '17*, CHILLED MAG., https://chilledmagazine.com/dogfish-head-releases-beer-drink-music-17 (last visited Feb. 10, 2021); Davidson, *supra* note 9.

[99] Bastian, *supra* note 98.

[100] Barry Levine, *Bud Light Revives '90s Ad Series and Brews Music-Infused Beer on Twitch*, MKTG. DIVE (June 18, 2019), https://www.marketingdive.com/news/bud-light-revives-90s-ad-series-and-brews-music-infused-beer-on-twitch/557057/.

[101] Barry Levine, *Bud Light Revives '90s Ad Series and Brews Music-Infused Beer*

Across the Atlantic, Copenhagen-based microbrewery Mikkeller, with the help of B&O Play and Danish music curator Le Gammeltoft from Heartbeats.dk, created a multisensory IPA by lowering a plastic sealed Beoplay A1 speaker into a fermenting tank and playing music from an iPod during the brew's two-week conditioning process.[102] A similar process was performed by New Zealand distiller Rogue Society in creating *Aeons*—the first "music infused gin."[103]

Though experimentation with sonic seasoning is relatively new to the craft beer industry, the aforementioned products exemplify some of the vast opportunity available to link taste and sound to enhance consumer experience.

IV. SONIC SEASONING AND POTENTIAL INTELLECTUAL PROPERTY PROTECTIONS

The primary incentive for intellectual property law is found in the U.S. Constitution, which empowers Congress to "promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[104] Applying intellectual property protections to multisensory experiences may present itself as an academic exercise, but participants in a saturated market, such as the craft beer industry, may also consider the benefits of intellectual property as a way to gain market advantage.[105] The infusion of music into beverages can raise

on Twitch, MKTG. DIVE (June 18, 2019), https://www.marketingdive.com/news/bud-light-revives-90s-ad-series-and-brews-music-infused-beer-on-twitch/557057/.

[102] Scott Wilkinson, *B&O Play Beobrew Music-Infused Beer*, AVS F. (May 25, 2017), https://www.avsforum.com/threads/b-o-play-beobrew-music-infused-beer.2853034/?fbclid=IwAR1dHlyfCKmyDr6pFflNA4ZECAXTdIc8dcL8H5bczM290tPGAtWxS4n6IZY.

[103] Johan Chang, *Music-Infused Gin, or Music-Infused Joke? Rogue Society Gin's Unique Distilling Method*, STOPPRESS (July 6, 2015), https://stoppress.co.nz/news/music-infused-gin-or-music-infused-joke-rogue-society-gins-unique-distilling-method/; *We Need to Listen to the Gin: The Rogue Society Creation That's Distilled to the Sound of Music*, IDEALOG (July 6, 2015), https://idealog.co.nz/venture/2015/07/we-need-listen-gin-rogue-society-creation-s-distilled-sound-music; Annie Hayes, *Distiller Creates 'World's First Music Infused Gin'*, THE SPIRITS BUS. (July 8, 2015), http://www.thespiritsbusiness.com/2015/07/distiller-creates-worlds-first-music-infused-gin/.

[104] *Id.*

[105] Even with the pandemic, the craft beer market is still highly competitive. Although 346 U.S. breweries have closed, the overall number of breweries continue to grow substantially, "reaching an all-time high of 8,764, 'including 1,854 microbreweries, 3,219 brewpubs, 3,471 taproom breweries, and 220 regional craft breweries' in 2020. The 716 total new brewery openings was a decrease of only 30% from 2019, which is rather stunning considering both the pandemic and the stagnation in the industry in recent years. It can be assumed that the vast majority of these new openings will have relatively low ceilings for potential growth, aimed at providing

copyright, trade secret, and trademark issues. While this article ultimately concludes that copyright and trade secret likely do not offer sufficient multisensory intellectual property rights, trade dress law may be a viable option for breweries, wineries, and distilleries interested in experimenting with cross-modal phenomena.

Beyond a company's concern with brand recognition, intellectual property protections for cross-modal experiences should also consider the best interests of consumers, musicians, and copyright holders. Furthermore, policymakers should consider that the science behind these cross-modal effects is still being researched.[106] While these cross-modal discoveries may significantly change the way people consume goods,[107] using scientific studies as evidence in infringement cases seems premature. For this reason, it is important that the method used to navigate intellectual property protection with multisensory goods also preserves the integrity of continuing scientific studies on sonic seasoning and gastrophysics.

A. Copyright Law

Copyright law protects original works of authorship fixed in a tangible medium.[108] Sound recordings, photography, and certain label designs can be protected by copyright.[109] Generally, copyright law allows studio artists and music producers to protect their works.[110] For a copyright owner to establish an infringement claim, they must prove: (1) ownership of a valid copyright in the work, (2) that the defendant copied the owner's work, and (3) that the defendant's copying

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beer to local communities. Jim Vorel, *Crippled by the Pandemic, the Craft Beer Market Shrunk 9% by Volume in 2020*, PASTE (Apr. 6, 2021, 11:26 AM), https://www.pastemagazine.com/drink/craft-beer/craft-beer-market-growth-2020-pandemic-sales-decline-brewers-association/; *Craft Beer Market Expected Huge Growth by 2027 Companies Featured: Anheuser-Busch InBev, Constellation Brands, Inc., Heineken N.V., Others*, GLOBE NEWSWIRE (June 23, 2020), https://www.globenewswire.com/fr/news-release/2020/06/23/2051802/0/en/Craft-Beer-Market-Expected-Huge-Growth-by-2027-Companies-Featured-Anheuser-Busch-InBev-Constellation-Brands-Inc-Heineken-N-V-others.html ("Craft beer market is expected to reach USD 35.3 Billion by 2027 growing at a growth rate of 12.3% in the forecast period 2020 to 2027."); *Cf.* Cho, *supra* note 13, at 803 ("[A]llowing inventors to operate under legal certainties that multisensory schemes are protected creates more incentives for industry and innovation.").

[106] Carvalho, *supra* note 80 at 9.

[107] *Id.*

[108] *See* 17 U.S.C. § 102(a).

[109] *Id.*

[110] *See, e.g.,* JESSICA LITMAN, DIGITAL COPYRIGHT 13 (U. Mich. L. School Scholarship Repository, 2006) (noting that copyright law allows artists to exclude others from copying their work).

constitutes an improper appropriation.[111] The ownership factor—perhaps the most difficult element to prove for multisensory goods and sonic seasoning—requires a plaintiff to prove the creation of a copyrightable work that complies with statutory requirements.[112] As described below, there are several reasons why copyright law will *not* help craft breweries protect their multisensory products.

1. Copyrightable Subject Matter

As a pictorial work, the label art on craft beer products may be considered for copyright protection.[113] While brewing companies may have an aesthetic similar to music production,[114] craft beer itself is likely ineligible for consideration under the Copyright Act.[115] Three reasons support this contention. First, by statute, copyright protection may be offered to "original works of authorship fixed in any tangible medium of expression."[116] Unfortunately, however, culinary or mixology creations are not covered by the Copyright Act as being a protectable work of art.[117] Second, since food and beverages are meant to be consumed, they are only fixed in a tangible medium of expression for a transitory period of time—thus failing a basic statutory requirement.[118] Finally, copyright law does not protect processes such as brewing methodologies.[119]

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[111] MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW 419 (LexisNexis, 5th ed., 2010).

[112] *Id.*

[113] Jeffrey D. Smyth et al., *IP Considerations for the Food and Beverage Industry Series: Intellectual Property Considerations for Companies in the Craft Beer Industry*, FINNEGAN (Oct. 11, 2018), https://www.finnegan.com/en/insights/articles/ip-considerations-for-the-food-and-beverage-industry-series-intellectual-property-considerations-for-companies-in-the-craft-beer-industry.html.

[114] *See* Mark Edward Blankenship Jr., *A Horse Walks into a Bar: Comparing Easterbrook's Criticized Cyberlaw Analogy to the Study of Alcoholic Beverage Law & Regulation*, 25 ILL. BUS. L.J. 41 (2020).

[115] Smyth et al., *supra* note 113.

[116] 17 U.S.C. § 102(a).

[117] *See* Natasha Reed, *Eat Your Art Out: Intellectual Property Protection for Food*, FOLEY HOAG LLP (June 21, 2016), https://www.trademarkandcopyrightlaw blog.com/2016/06/eat-your-art-out-intellectual-property-protection-for-food/.

[118] *Id.*

[119] *See, e.g.*,Vasquez v. Ybarra, 150 F. Supp. 2d 1157, 1168–69 (D. Kan. 2001); Lambing v. Godiva Chocolatier, No. 97-5697, 1998 WL 58050, at *1 (6th Cir. Feb. 6, 1998) (finding the appellant's recipes uncopyrightable for lack of requisite expressive element necessary for copyright protection); Publ'ns Int'l, Ltd. v. Meredith Corp., 88 F.3d 473, 481 (7th Cir. 1996); Meussdoerffer, *infra* note 147; *Cf.* Baker v. Selden, 101 U.S. 99 (1879) (holding that Selden's illustrations of his system of book-keeping were not copyrightable subject matter because copyright only protects expressions of ideas and not the idea itself).

There are, however, a few key attributes of multisensory beer experiences worth noting. First, alcohol has a longer shelf life than ordinary food products.[120] While this is not a particularly strong argument for copyright protection, alcohol—more than other food products—has a greater chance of meeting the transitory element for fixation in copyright law.[121]

Second, multisensory beer allows one to "create imagery" within the mind.[122] As cross-modal research continues to advance, one could argue that the relationship between craft beer and music is similar to that of the player piano and the piano roll.[123] As a result, the perception of a musical work can transfer the concept of "musical taste" into something quite literal.[124] In fact, a similar debate has been raised in regards to the digitization of flavor.[125]

On the other hand, the imagery produced by the cross-modal correspondences of a craft beverage might be insufficient to satisfy the fixation requirement. In *Williams Electronic, Inc. v. Artic International, Inc*., the Third Circuit held that an audiovisual copyright on a computer program that involves user interaction meets the requirement under the Section 101 of the Copyright Act—that the copyrighted material be

[120] Lisa Wartenberg, *Does Alcohol Expire? The Lowdown on Liqour, Beer, and Wine*, HEALTHLINE (Sept. 24, 2019), https://www.healthline.com/nutrition/does-alcohol-expire.

[121] To receive copyright protection a work must be an original works of authorship, fixed in a tangible medium for more than a transient period of time. *See* 17 U.S.C. § 102(a) (2020).

[122] Bastian, *supra* note 98.

[123] The piano roll was a perforated music storage medium used to operate a player piano, which would then perform the mechanical reproduction of a musical composition. The use of these devices like the piano roll led to the Copyright Act of 1909 and the first mechanical license. Vinyl technology was not around at this time, so this is the reason why "sound recordings" are considered separate from "music compositions." *See* Zvi S. Rosen, *Player Pianos and the Origins of Compulsory Licensing–Some Details of its Origins*, (MOSTLY) IP HIST. (Apr. 27, 2018), http://www.zvirosen.com/2018/04/27/player-pianos-and-the-origins-of-compulsory-licensing-some-details-of-its-origins/.

[124] Buccafussco, *supra* note 10, at 513–15 (describing how previous developments in copyright law provide a framework for protecting multisensory products); Lopez, *supra* note 10; *Cf* (analyzing the impact of providing copyright protection for scents and flavors). White-Smith Music Publ'g Co. v. Apollo Co., 209 U.S. 1 (1908) (holding that a copy is any work that is so similar to the original that anyone who saw it would get the same idea as the original).

[125] Much like music has been digitized and placed on internet platforms, researcher Amara Lopez suggests that tastes have the potential to be digitized as well. Digitization of tastes would transform them into a commodity and allow "flavors to be copied exactly and to exist permanently without degradation." However, Lopez also concludes that offering copyright protection to digitized tastes is unwise because they do not fit into existing copyrightable categories. Lopez, *supra* note 10 at 349, 376.

fixed.[126] In *Williams Electronic*, the plaintiff claimed three copyrights with regards to the *Defender* videogame: (1) the computer program, which was stored in read-only memory (ROM) computer chips; (2) the game's attract-mode feature, which displayed on the console screen when the game was not in use; and (3) the game's play-mode audiovisual effects, which included how a player interacted with the game.[127] The defendant argued that the play-mode was not fixed because each player who played the game played a different game—since each player interacted with the game itself, each game was slightly different from the one that came before.[128] However, the court disagreed, and instead reasoned that although each user may interact with the game in a different way, the game's software's production of symbols, light, and visual and audio outputs were sufficiently repetitive and predictable to nonetheless count as fixation.[129]

Separately, in *Kelley v. Chicago Park District,* the Seventh Circuit held that Plaintiff could not acquire a copyright for his garden.[130] Given that gardens are susceptible to changes in nature—including growth, wilting, degradation, and death—the court viewed the garden as insufficiently repetitive and predictable for it to be a fixed work of art.[131]

Here, a craft beverage's cross-modal effects on a consumer might not be permanent or stable to be reproduced by others. Consumers might differ from one another in terms of palette, musical preference, and sensory abilities. Furthermore, not only can beer become stale, but a beverage's multisensory characteristics make it highly responsive to changes in nature and the environment around the consumer. Thus, it seems unlikely that sonic seasoning would lead to sufficiently repetitive and predictable interactions amongst consumers in order for a beverage to qualify as a fixed work of art for copyright protection.

2. Functionality

Even if a work qualifies as copyrightable, the Copyright Act places a bar on protecting any functional aspects of the work.[132] In copyright law, these are often referred to as useful articles—defined as objects that have an "intrinsic utilitarian function."[133] While the Copyright Act does

[126] 685 F.2d 870, 874 (1982).
[127] *Id.*
[128] *Id.*
[129] *Id.*
[130] 635 F.3d 290, 304-06 (7th Cir. 2011).
[131] *Id.*
[132] TraFix Devices, Inc. v. Marketing Displays, Inc., 532 U.S. 23 (2001).
[133] 17 U.S.C. § 101.

not define utilitarian function,[134] it does explicitly exclude works that "merely . . . portray the appearance of the article or . . . convey information."[135] Generally, when there are artistic aspects embedded in a "useful article," courts employ a separability test,[136] which applies to things such as statues,[137] bicycle racks,[138] and even fashion.[139]

In his research, Professor Christopher J. Buccafussco emphasizes that multisensory intellectual property can run into issues of functionality because the sensations a work produces can create some ambiguity in characterizing whether a work is utilitarian or not.[140] While the olfactory organ model has paved the way for how one views sonic seasoning, multisensory creations, and the power music can have on these, it does not eliminate the fact that such ingredients that make up the scale model are considered mere representations in terms of potency and flavor strength.[141] The mixology musical scale referenced above is itself utilitarian in that it represents a sort of "Richter scale" in terms of potency and flavor strength. This is the only kind of information it conveys. Moreover, these ingredients analogously serve as "building blocks" of creation, just like a musical chord or phrase. With that said, it would seem difficult to conceptually separate these blends of ingredients as musical textures of a sound recording or a musical composition, yet alone an entire musical work.[142]

But if such a connection between the notes on a scale and culinary ingredients is discovered, could recipes qualify for copyright protection? The Seventh Circuit seemed to raise this possibility in *Publications International, Ltd., v. Meredith Corp*.[143] In *Meredith*, the court held that while expression of the sense of taste is functional—and, thus, not copyrightable—the inclusion of literal or visual expression in

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[134] *See generally id.*

[135] *See* 1 PAUL GOLDSTEIN, COPYRIGHT: PRINCIPLES, LAW AND PRACTICE § 2.5.3.1(a) (1989) (observing that "Section 101's use of the adjective 'intrinsic' to modify the term 'utilitarian function' presumably excludes such marginally useful works" as a person using a sculpture as a paperweight).

[136] *See id.*

[137] *See generally* Mazer v. Stein, 347 U.S. 201 (1954).

[138] *See generally* Brandir Int'l, Inc. v. Cascade Pac. Lumber Co., 834 F.2d 1142 (2d Cir. 1987).

[139] *See generally* Star Athletica, L.L.C. v. Varsity Brands, Inc., 137 S. Ct. 1002 (2017).

[140] Buccafussco, *supra* note 10, at 505–07; *see also* Lopez, *supra* note 10, at 348–50, 359, 373–74.

[141] *Compare* Lopez, *supra* note 10, at 348, 375 *with* Part I.

[142] *Cf.* Nastia Voynovskaya, *Copyrighting the 'Building Blocks' of Music? Why the Katy Perry Case Alarms Producers*, KQED (Aug. 6, 2019), https://www.kqed.org/arts/13863015/perry-dark-horse-flame-joyful-noise-copyright-infringement-precedent.

[143] Pub. Int'l, Lt. v. Meredith Corp., 88 F.3d 473.

a recipe qualifies for protection under the Copyright Act.[144] However, when considering a product like North Brewing Company's *Üte*, for example, one would have to be able to conceptually separate the functional aspects of the taste and then make a connection between the artistic components of that taste and the literary or visual means of expression that are included.[145]

3. The Idea–Expression Dichotomy

Perhaps one of the biggest obstacles for craft breweries in terms of copyright law is a legal doctrine known as the idea–expression dichotomy. The idea–expression dichotomy limits the scope of copyright protection by distinguishing an idea from its manifestation and provides a boundary between what belongs in the public domain and what is eligible for copyright protection.[146]

A 2019 case from the Middle District of Tennessee provides insight into the idea–expression dichotomy as applied to the craft beer industry. In *Tailgate Beer, LLC v. Boulevard Brewing Co.*, the court held that two craft breweries' beer label designs that featured the bed of a pickup truck did not infringe one another under copyright law.[147] Not only did the court find that the label designs were not substantially similar,[148] but it also held that the idea–expression dichotomy defense applied.[149] The breweries' depictions of a truck bed were too generalized to receive copyright protection; in effect, the parties had attempted to copyright the idea of a truck bed rather than an expression of one.[150]

The idea–expression dichotomy likely limits the potential copyrightability of sonic seasoning and multisensory beer experiences. For example, even if a beer's express of certain flavors is unique, the idea–expression dichotomy doctrine would prevent the "idea" of taste from being taken out of the public domain.[151]

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[144] *See id.* at 481–824; Buccafussco, *supra* note 10, at 522. (assuming that a beverage was created either (a) with a particular musical work infused into it, or (b) in complementation of the musical work).

[145] *See generally* Pub. Int'l, Lt. v. Meredith Corp., 88 F.3d at 480–82.

[146] 17 U.S.C. § 102(b); *see* Feist Publications, Inc. v. Rural Telephone Service Co., Inc., 111 S.Ct. 1282, 1287, 121 P.U.R.4th 1, 345 (U.S.Kan.,1991) ("Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity.").

[147] Tailgate Beer, LLC v. Boulevard Brewing Co., No. 3:18-cv-00563, 2019 WL 5208186, at *1 (M.D. Tenn. Oct. 16, 2019).

[148] *Id.* at *7–8.

[149] *Id.* at *15.

[150] *Id*. at *6–8.

[151] Lopez, *supra* note 10, at 372. *See generally* Leon Calleja, *Why Copyright Law Lacks Taste and Scents*, 21 J. INTELL. PROP. L. 1 (2013).

B. Trade Secret Law

Trade secrets are information, such as formulas, patterns, compilations, programs, devices, methods, techniques, or processes that: "(a) derive independent economic value . . . from not being generally known to, and not being readily ascertainable by proper means by others who can obtain economic value from its disclosure or use, and (b) are the subject of efforts that are reasonable under the circumstances to maintain its secrecy."[152] While beer recipes and brewing processes may constitute trade secrets, it is unlikely that trade secret law will help craft breweries protect any multisensory elements of their products.

Beers are closely connected with the brewing process and the equipment used in the production.[153] The exact ingredients and proportions in a recipe, when produced by different brewing systems, can still make different beers.[154] The same can be said for distillers as well.[155] It has been argued that the "equipment shape, geometry, and parameters [can] lead to an almost unique product based on the way the equipment is used—not just on the initial mash recipe or the specific aging time or barrel."[156]

However, while a beer recipe or brewing process may be protectable,[157] it is unlikely that methods of sonic seasoning qualify as trade secrets. This is because the economic value of a trade secret lies in whether that information is generally known to others or readily ascertainable through proper means.[158] Most current methods of sonic seasoning, including products playlists, publicly available album art, and methods of "music infusion" can be easily analyzed and recreated without proprietary trade secret knowledge.[159]

Furthermore, trade secret protection has long been viewed as an insufficient method of intellectual property protection for fragrances.[160]

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[152] *See* Uniform Trade Secrets Act § 1.4, 14 U.L.A. 537 (1985); Babak Zarin, *Knead to Know: Cracking Recipes and Trade Secret Law*, 8 ELON L. REV. 183, 191 (2016).

[153] Franz G. Meussdoerffer, *A Comprehensive History of Beer Brewing*, HANDBOOK OF BREWING: PROCESSES, TECHNOLOGY, MARKETS 1, 1 (H. M. Eßlinger ed., 2009).

[154] SZYMANKIEWICZ, *supra* note 12, at 130–32, 142–44.

[155] R. I. Aylott, *Vodka, Gin and Other Flavored Spirits*, FERMENTED BEVERAGE PROD. 289, 289 (Andrew Lea ed., John Piggot ed. 2003).

[156] SZYMANKIEWICZ, *supra* note 12, at 143.

[157] Zarin, *supra* note 152, at 196.

[158] Buffets, Inc. v. Klinke, 73 F.3d 965, 967 (9th Cir. 1996). Theft, for example, would be an *improper* mean of obtaining trade secret information.

[159] *See e.g.* Buffets, Inc. v. Klinke, 73 F.3d 965, 965–67 (9th Cir. 1996). *See generally* Zarin, *supra* note 152, at 196–202.

[160] Cronin, *supra* note 10, at 273.

Considering that multisensory experiences center around the detection of fragrant scents while simultaneously engaging other senses, it is unlikely that trade secret law provides the most optimal path for legal protection of multisensory products.[161]

C. Trademark Law

When it comes to craft beer and mixology, trademark law is perhaps the most recognized sub-area of intellectual property law.[162] Recognizing the exclusive right to use marks that distinguish the goods and services of a manufacturer, merchant, or service provider from those of others,[163] trademark law serves two purposes: (1) to protect consumer confusion or deception about the source of a particular good or service in the marketplace, and (2) to protect the goodwill that merchants have developed in their trademarks.[164]

Initially, recognized marks seemed limited to brand names, logos, and slogans.[165] However, in the case of *Qualitex Co. v. Jacobson Products Co.*,[166] the court held that while functional aspects of an article are unprotectable, aesthetically functional aspects—such as color, sounds, musical phrases, product packaging, aromas, and nonfunctional design features—*are* protectable.[167] The caveat is that they must have secondary meaning,[168] which is acquired when "in the minds of the public, the primary significance of a product feature is to identify the source of the product rather than the product itself."[169]

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[161] *See generally* Cronin, *supra* note 10; Lopez, *supra* note 10, at 349–51 (emphasizing that both foods and perfumes can be reverse engineered in order to achieve a similar taste or scent). *But see* SZYMANKIEWICZ, *supra* note 12, at 130–32, 142–44.

[162] *See generally* Drew Thornley, *Litigation, Not Collaboration: The Changing Landscape of Trademark Disputes in The Craft-Beer Industry*, 21 MARQ. INTELL. PROP. L. REV. 187 (2017); Shivani Patel, *The IP of IPAs: A Look into Trademark Infringement in the Craft Beer Industry*, 26 J. INTELL. PROP. L. 249 (2020); Rebecca S. Winder, *Trademark Protection in the Craft Brewing Industry: A Beer by Any Other Name May be an Infringement*, 15 WAKE FOREST J. BUS. & INTELL. PROP. L. 147 (2014); Barton Beeber & Jeanne C. Fromer, *Are We Running Out of Trademarks? An Empirical Study of Trademark Depletion and Congestion*, 131 HARV. L. REV. 947 (2018). *See e.g.*, Brian L. Frye, *"It's Your Right ... !": A Legal History of the Bacardi Cocktail*, 27 U. MIAMI BUS. L. REV. 1, 1–3 (2018).

[163] *See* 15 U.S.C. § 1127.

[164] *See* MARY LAFRANCE, UNDERSTANDING TRADEMARK LAW 1 (Carolina Acad. Press, 3d ed., 2016).

[165] *See, e.g.*, Qualitex Co. v. Jacobson Prod. Co., 13 F.3d 1297 (9th Cir. 1994), rev'd, 514 U.S. 159 (1995).

[166] Qualitex Co. v. Jacobson Prod. Co., 514 U.S. 159 (1995).

[167] *Id.* at 161–62.

[168] *Id.* at 159.

[169] *Id.* at 163; Inwood Labs. v. Ives Labs., 456 U.S. 844, 851, n. 11 (1982).

1. Sound Marks

Sound marks identify and distinguish a product or service through audio rather than visual means.[170] They depend upon

> [A]ural perception of the listener which may be as fleeting as the sound itself unless, of course, the sound is so inherently different or distinctive that it attaches to the subliminal mind of the listener to be awakened when heard and to be associated with the source or event with which it is struck."[171]

Whenever a sound is familiar to most people, evidence must be provided that the trademark is, in fact, recognized as identifying the source of a particular product or service.[172] This can be shown by evidence of (1) the length and manner of its use, (2) the nature and extent of advertising and promotion, and (3) other efforts at creating a conscious connection in the public's mind between the designation and the service.[173] While sound marks have usually been short segments,[174] others can be full songs.[175] For example, the jazz classic "Sweet Georgia Brown" is widely recognized as the sound mark for the Harlem Globetrotters basketball team.[176] Or, consider composer Gioachino Rossini's "William Tell Overture," which has become a sound mark for the radio, television, and film productions of *The Lone Ranger* since the early 1900s.[177] However, the probability of success in claiming a full pre-existing song as a sound mark is rare.

Within the realm of multisensory products, a brewery could assert that the songs they incorporate into a playlist or vinyl EP for their multisensory beer experience are protectable *sound marks*. Unfortunately, as stated earlier, the craft beer industry is a highly

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[170] *Trademark Manual of Examining Procedure*, USPTO (Oct. 2018), https://tmep.uspto.gov/RDMS/TMEP/Apr2013#/Apr2013/TMEP-1200d1e718.html.

[171] In re Gen. Elec. Broad. Co., Inc., 199 U.S.P.Q. 560, 563 (T.T.A.B. 1978).

[172] Justin F. Mcnaughton et al., *EEEEEEEYOOOOOO!: Reflections on Protecting Pitbull's Famous Grito*, 9 N.Y.U. J. INTELL. PROP. & ENT. L. 179, 185 (2020); Melissa E. Roth, *Something Old, Something New, Something Borrowed, Something Blue: A New Tradition in Nontraditional Trademark Registrations*, 27 CARDOZO L. REV. 457, 459, n. 15 (2005).

[173] Ride the Ducks, LLC v. Duck Boat Tours, Inc., 75 U.S.P.Q.2d 1269, 1274–75 (E.D. Pa. 2005).

[174] *Trademark Manual of Examining Procedure*, *supra* note 170.

[175] *Id.*

[176] *Trademark Sound Mark Examples*, USPTO, https://www.uspto.gov/trademarks/soundmarks/trademark-sound-mark-examples (last visited Feb. 21, 2021).

[177] *Id.*

saturated one. Additionally, the trademark strength of a sound mark is dependent on its level of fame or recognizability by the public.[178]

2. Taste Marks

Taste marks are another alternative mark type that may protect sonic seasoning products. Before and after *Qualitex*, which held that a color could meet the Lanham Act's requirements for trademark registration if it has acquired secondary meaning in the market, the determination of flavor as a functional aspect of a product was limited to pharmaceutical goods that used chocolate, strawberry, or orange flavored coating to mask the harsh tastes of medicine.[179] However, this limited view of taste marks did not last for long. In one of the most significant post-*Qualitex* cases, *New York Pizzeria, Inc. v. Syal*, a federal court considered whether tastes and flavors were protected by trademark.[180] In *N.Y. Pizzeria, Inc*, the plaintiff—New York Pizzeria, Inc. ("NYPI") asserted that the defendants infringed upon their trademark flavor in their Italian dishes after an alleged computer breach.[181] NYPI argued that its "specially sourced branded ingredients and innovative preparation and preservation techniques contribute to the distinctive flavor" of its products.[182]

However, the court disagreed that flavor is distinctive enough for trademark protection.[183] In fact, Judge Gregg Costa held that, like colors, flavors are unlikely to ever be inherently distinctive because they do not "automatically" suggest a product's source.[184] Instead, to reach this threshold, a flavor must acquire secondary meaning.[185] Judge Costa also highlighted another issue with trademarking flavors: functional

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[178] Brian Farkas, *Trademarking a Sound*, NOLO, https://www.nolo.com/legal-encyclopedia/trademarking-a-sound.html (last visited Aug. 19, 2021).

[179] *See* William R. Warner & Co. v. Eli Lilly & Co., 265 U.S. 526, 529 (1924); In re N.V. Organon, 79 U.S.P.Q.2d (BNA) 1639, 1639 (T.T.A.B. 2006); *see also* Amanda E. Compton, *Acquiring a Flavor for Trademarks: There's No Common Taste in the World*, 8 NW. J. TECH. & INTELL. PROP. 340, 353-57 (2010); *see also Smell, Sound and Taste – Getting a Sense of Non-Traditional Marks*, WIPO (Feb. 2009), https://www.wipo.int/wipo_magazine/en/2009/01/article_0003.html.

[180] N.Y. Pizzeria, Inc. v. Syal, 56 F.Supp.3d 875, 877 (S.D. Tex. 2014).

[181] *Id.* at 877–78.

[182] *Id*. at 880. *See* Mark D. Anstoetter & Madeleine M. McDonough, *"Flavor Infringement" Claim by Rival's Italian Restaurant is "Half-Baked"*, SHOOK, HARDY & BACON LLP 7–8 (Oct. 24, 2014), https://s3.amazonaws.com/documents.lexology.com/19c1ac3e-92fe-4fa3-add1-0d952417187c.pdf?AWSAccessKeyId=AKIAVYILUYJ754JTDY6T&Expires=1623032250&Signature=iuLLY%2Fhd88eTY4wK%2BGavS9PTuuM%3D.

[183] *N.Y. Pizzeria, Inc.*, 56 F.Supp.3d at 881.

[184] *Id.*

[185] *Id.*

product features are not protectable.[186] Accordingly, if the hurdle for trademark protection is too high for medicine, then it should be even higher for food.[187] Judge Costa not only pointed out that people eat food to prevent hunger,[188] but he also emphasized that flavor is functional to a food product's quality, "especially restaurant food for which customers are paying a premium beyond what it would take to simply satisfy their basic hunger needs."[189] In effect, *N.Y. Pizzeria, Inc.* does not bode well for intellectual property protection of flavors within multisensory beer products.

Further, as one author commented, "[t]he trademark-able flavor angle would essentially be an end-around the fact that copyright [does not] apply to recipes. After all, if you can simply protect the end result of the recipe, what would be the difference?"[190] This is perhaps a simple argument to make in terms of pizza. Besides, making a pizza doughy (or crispy if thin crust), cheesy, slightly oily, and having zest from its marinara sauce are all functional aspects of a pizza. Protecting these aspects under trademark law would greatly hinder competition, perhaps making *depletion of flavor* more likely than *depletion of color* as described in *Qualitex*.[191] Still, there are several other aspects of taste marks which pose intriguing arguments about the proper relationship between intellectual property law and sonic seasoning.

a. Can Experiential Attributes Make Flavors Protectable Marks?

Proving that a food or beverage is so multisensory in nature that a particular flavor aspect can lead a reasonable beverage consumer to truly determine that it came from a specific beer brand is a tough challenge. However, In light of the research conducted over the past decade, this might not be so far-fetched. After all, sound is quantifiable in the same way as color; they are both comprised of wavelengths that

[186] *Id.*
[187] *Id*. at 882.
[188] *Id.*
[189] *Id*.
[190] *See* Timothy Geigner, *Pizzeria Attempts to Trademark the Flavor of Pizza. Yes, Seriously*., TECH. DIRT (Oct. 30, 2014, 4:08 AM), https://www.techdirt.com /articles/20141022/14431028912/pizzeria-attempts-to-trademark-flavor-pizza-yes-seriously.shtml.
[191] Qualitex Co., 514 U.S. 159, 169 (1995) (holding that while functional aspects of an article are unprotectable, aesthetically functional aspects—such as color, sounds, musical phrases, product packaging, aromas, and nonfunctional design features—can be protected); Compton, *supra* note 179, at 354.

can be manipulated.[192] The flavor of craft beer, unlike pizza, seems to have a more aesthetic nature than a functional one. When people think of the necessity to consume fluids, it usually means drinking some form of water.[193] However, multiple counter arguments weigh heavily against the idea that flavors should not be protectable marks, regardless of how experiential the product is.

i. Hints of Flavor

Craft beer is more complex than pizza in both process and composition. Because of this complexity, the probability of flavor depletion seems less likely than that of pizza.[194] By allowing alcohol brands to trademark the tastes of their products, the law would also allow similar attempts from brands of soda, cakes, and even pizza. Not only would this blur the line between functionalism and aestheticism, it could lead to a flood of trademark disputes over what shades of a particular flavor a competitor may use.[195]

ii. Size of the Craft Beer Market

The size of the craft beer market also weighs in favor of allowing trademark protection for flavors incorporated into multisensory experiences. Imagine a situation where an individual is blindfolded and given seven glasses of various types of soda to drink. Without prior knowledge of which sodas the individual has been given, they are then asked to guess which is a Mr. Pibb (Coca-Cola), Dr. Pepper, Cheerwine, Dr. Perky (Food Lion), Dr. Thunder (Wal Mart), Dr. Better (Virgil's), and Dr. Zevia (Zevia) beverage. An easier task might be telling the difference between the big-name brands from the store brands and the lesser-known ones.[196] However, a harder task might be exactly what trademark law requires: asking the individual to identify the *source* of

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[192] *See* Joe Goldsmith, *An Investigation into the Relationship Between Sound and Color*, VCU, http://www.people.vcu.edu/~djbromle/color-theory/color01/Relationship-color-sound joe_goldsmith.html#:~:text=Both%20color%20and%20sound%20cover%20a%20range%20of,pulses%20in%20the%20sound%20and%20an%20unclear%20tone (last visited June 6, 2021).

[193] *Cf.* Buccafusco, *supra* note 10, at 547–48.

[194] *Compare* Labadie-Jackson, *supra* note 10, at 109 *with Beer Styles Study Guide*, CRAFT BEER, https://www.craftbeer.com/beer/beer-styles-guide (last visited Apr. 18, 2021).

[195] Labadie-Jackson, *supra* note 10, at 109. *See generally* John T. Cross, *Trademark Issues Relating to Digitalized Flavor*, 19 YALE J. L. & TECH. 339 (2017).

[196] *See, e.g.*, Soda Tasting, *Blind Tasting the Peppers (Dr. Pepper, Pibb Xtra, Dr. Thunder, Dr. Perky) (Soda Tasting #15)*, YOUTUBE (Oct. 24, 2012), https://www.youtube.com/watch?v=Bjm0SBLKLCg.

the product rather than the product itself.[197] Knowing that there are perhaps over twenty different store variations of "Doctor" sodas,[198] completion of this task would be incredibly difficult.[199]

If a similar experimental situation was set up with seven types of craft beer, a participant's ability to link the source of a product after drinking it might be almost impossible for several reasons. First, in the beverage industry, much of a beer's flavor distinction comes from the fact that a participant, by previously drinking the beer, has already been exposed to the its flavor.[200] Second, there are a cornucopia of beer manufacturers in the country—some of whom are well-established, while others are recent start-ups.[201] Each of these brands produce multiple kinds of beers.[202] Some are seasonal[203] and others are discontinued.[204] The enormous size of the craft beer industry makes it harder for a beverage's flavor to acquire secondary meaning for purposes of *trademark* protection. Aspects like taste and color acquire secondary meaning when customers have come to identify the flavor as indicative of the particular product they are consuming.[205] Thus, this is another factor that weighs against taste marks.

iii. Lack of Sufficient Research

Scientific data, product statistics, and consumer surveys play a crucial role in proving the strength of a mark in trademark infringement,[206] as well as the inherent distinction and secondary meaning of a mark.[207] Yet, the science of gastrophysics is relatively

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[197] Compton, *supra* note 179, at 342–43, 345.

[198] *Imposters, Wannabes, & Fakes*, LINGER LONGER, http://www.thelingerlonger.com/dr-pepper-imposters.html (last visited June 6, 2021).

[199] *See* Compton, *supra* note 179, at 356–57.

[200] *See* Carvahlo et. al., *supra* note 80, and accompanying text.

[201] *See National Beer Sales & Production Data*, BREWER'S ASS'N, https://www.brewersassociation.org/statistics-and-data/national-beer-stats/ (last visited June 20, 2021).

[202] *Id.*

[203] *See* Cat Wolinski, *We Asked 14 Brewers: What's the Best Seasonal Beer?*, VINEPAIR (Apr. 18, 2019), https://vinepair.com/articles/14-best-seasonal-beers/.

[204] *See* Jesse Farr, *Bring These Discontinued Beers Back From the Dead*, VINEPAIR (Jan. 23, 2017), https://vinepair.com/articles/bring-these-beers-back-from-the-dead/.

[205] *See Qualitex Co. v. Jacobson Products Co.*, 514 U.S. 159 (1995).

[206] TRADEMARK MANUAL OF EXAMINING PROCEDURE § 1212.06(d), *Survey Evidence, Market Research and Consumer Reaction Studies* (October 2018).

[207] Jeff Resnick, *Trade Dress Law: The Conflicts Between Product Design and Product Packaging*, 24 WHITTIER L. REV. 253, 287 (2002).

new and sonic seasoning research is ongoing.[208] As it stands, courts might find a consumer survey more reliable in analyzing a purchaser's engagement with a product or brand than unorthodox scientific experiments, which can raise evidentiary issues.[209] After all, in cases where the plaintiff alleges that the defendant's customers will be confused into thinking that the defendant's products come from the plaintiff, the correct survey population is the potential customers of the defendant. This might not be the same as the plaintiff's customers and might not necessarily be the same as past customers. Finally, the controls that are adopted in these surveys are analyzed scrupulously, and any unreliable or dubious method incorporated into them can make the survey unreliable and excluded at trial.[210]

3. Trade Dress

Another aspect of trademark law that can affect sonic seasoning is trade dress, which is the overall look and feel of a product.[211] Trade dress protection can extend to a product's size, shape, color, texture, graphics or even particular sales techniques, so long as those features are source identifying.[212] One of the first cases to confront the possibility of trade dress protection was *Kellogg Co. v. National Biscuit Co*. [213] In *Kellogg*, the Supreme Court held that, according to the evidence presented, a pillow shaped into the form of a shredded wheat biscuit was a functional component of a disputed product, and the plaintiff could not prevent a competitor from copying the biscuit's shape.[214] In the years since, trade dress has evolved to center around two product attributes: (1) product packaging and (2) product design.[215]

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[208] *See* Charles Spence, *Playing with the Senses Can Change How Food Tastes*, THE CONVERSATION (Apr. 4, 2017), https://theconversation.com/playing-with-the-senses-can-change-how-food-tastes-75468.

[209] Resnick, *supra* note 200, at 256, 278, 284, 287. *See, e.g.*, U. S. Polo Ass'n v. PRL USA Holdings, Inc., 800 F. Supp. 2d 515 (S.D.N.Y. 2011); Paddington Corp. v. Attiki Importers & Distribs., Inc., 996 F.2d 577 (2d Cir. 1993); Int'l IP Holdings, LLC v. Green Planet, Inc., 2016 U.S. Dist LEXIS 41778, *2-*3, *27, *29,*31-*33,*36 (E.D. Mich. 2016); Leelanau Wine Cellars, Ltd. v. Black & Red, Inc., 502 F.3d 504 (6th Cir. 2007).

[210] *See Clicks Billiards, Inc. v. Sixshooters, Inc.*, 251 F.3d 1252, 1262 (9th Cir. 2001) ("[S]urveys, while often subject to criticism and varying interpretations, are a routine and well-established feature of trademark practice. 'Surveys in trademark cases may be considered so long as they are conducted according to accepted principles.'") (internal citations omitted).

[211] *Id.* at 255.

[212] *Id.* at 255–56.

[213] *See* Kellogg Co. v. National Biscuit Co., 305 U.S. 111 (1938).

[214] *Id.* at 122.

[215] Wal-Mart Stores, Inc. v. Samara Brothers, Inc., 529 U.S. 205, 215 (2000).

Unlike product design, product packaging is capable of being inherently distinctive—meaning that it does not require a showing of secondary meaning in order to receive protection.[216] In evaluating the distinctiveness of a product's trade dress, courts may either use the *Abercrombie* test, the *Seabrook* test, or both. The *Abercrombie* test focuses on how connected the trade dress is to the good or service being sold, and how it directly describes some quality or characteristic of the good or service.[217] By contrast, the *Seabrook* test asks whether a good or service: (1) was a "common" basic shape or design, (2) was unique or unusual in a particular field, (3) 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, or (4) was capable of creating a commercial impression distinct from the accompanying words.[218]

With regard to sonic seasoning and multisensory craft beverages, trade dress so far seems to offer the most protection because it emphasizes the total concept and feel of a product.[219] After all, the incorporation of sonic-seasoning for a company's product can not only be a particular sales technique, but it also illustrates the use of color combinations, musical textures, and sometimes visual art to enhance the cross-modal experiences of the consumer. Because of its emphasis on the overall look and feel of a product, the musical and artistic aspects that are affiliated with the beverage will be taken into consideration when determining if intellectual property protections are available. Additionally, while trade dress is treated like other marks,[220] plenty of factors are available to help a brand develop inherent distinction or secondary meaning.[221] Finally, trade dress provides analysis that is likely to remain stable as technology continues to evolve.[222] Overall, this should make it easier for craft beer brands to achieve trademark protection through trade dress.[223]

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[216] *Id.* at 205.

[217] Abercrombie & Fitch Co. v. Hunting World, Inc., 537 F.2d 4, 9 (2d Cir. 1976).

[218] Nola Spice Designs, L.L.C. v. Haydel Enter., Inc., 783 F.3d 527, 541 (5th Cir. 2015).

[219] Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 775 (1992) (recognizing that trade dress might include the decoration, vibe, and "motif" of a Mexican restaurant).

[220] Shipyard Brewing Co., LLC v. Logboat Brewing Co., LLC, No. 2:17-cv-04079-NKL, 2018 U.S. Dist. LEXIS 105537, at *20–21 (W.D. Mo. 2018).

[221] *Id.*

[222] The "total concept and feel" of a product—even a musical work—is relatively broad.

[223] So far within the craft beer industry, trade dress provides significant flexibility for independent brewing companies that are creating different vibes for their products. *See id.*

V. MORE THAN THE MARKET: OTHER PARTIES TO CONSIDER

In addition to the black letter law, there are other pieces of this legal puzzle that must be addressed. Despite the potential opportunity for trade dress protection, brewers should be mindful of imposing any anticompetitive effects on future companies that may want to adopt a trade dress that is similar or identical to their own. On the other hand, in *Two Pesos v. Taco Cabana*—a seminal trade dress case—the Supreme Court also held that the interest in preventing harm to a company that first adopts a particular trade dress is of greater importance than downstream anticompetitive effects.[224]

Undoubtedly, this can greatly benefit craft beer manufacturers, but other parties may benefit from incorporating trade dress analyses into intellectual property litigation involving sonically-seasoned products as well. This matters because if such IP rights are strong, then it is likely that other parties will become increasingly involved. However, if they are perhaps not as promising, then these additional players may want to be put on notice, but not necessarily gear up for litigation.

1. Expert Witnesses and Evidentiary Testimony

a. Beneficiaries of Sonic Seasoning in Trade Dress Litigation

Carvalho and Spence's studies are significant improvements in understanding the correlation between sound and taste. Unfortunately, their studies may still be disregarded as mere "junk science."[225] Under Rule 702 of the Federal Rules of Evidence, a witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.[226]

Furthermore, the *Daubert* standard, which analyzes the viability of scientific studies being introduced into evidence,[227] could become a

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[224] *Two Pesos*, 505 U.S. at 763, 775 (1992).

[225] *See generally* Lyn M. Gaudet, *Development in Science and Technology Law, Brain Fingerprinting, Scientific Evidence, And Daubert: A Cautionary Lesson from India*, 51 JURIMETRICS J. 293 (2011); Chief Justice Thomas J. Moyer & Stephen P. Anway, *Biotechnology and the Bar: A Response to the Growing Divide Between Science and the Legal Environment*, 22 BERKELEY TECH. L.J. 671 (2007).

[226] FED. R. EVID. 702.

[227] Gaudet, *supra* note 225, at 294.

barrier for proving the inherent distinction and secondary meaning for trademark protection.[228] Ultimately, the judge is the gatekeeper and would decide whether to admit such testimony in an intellectual property infringement action.[229] By applying trade dress analyses, which focus on the total look and feel of a product, we can better preserve the integrity of gastrophysics and sonic seasoning until further research can prove the requisite legitimacy needed to expand into other avenues of intellectual property protection.

b. Juror Considerations in Infringement Disputes

Taking a trade dress approach toward sonically seasoned craft beer and other multisensory recipes would be easier for jurors to understand in the context of an infringement action. In contrast, for example, should the litigation take place in a copyright setting, the plaintiff must demonstrate that a multisensory beer can act as a copyright protected musical work or sound recording.[230] To determine infringement, a jury must be able to decide that one multisensory beer is—or is not—substantially similar to another multisensory beer.[231] Only then could a plaintiff be victorious.

However, a gap exists when considering the olfactory organ model for taste. Under this model, the works' *flavors* must be able to produce a sort of musical notation that is substantially similar in composition—and this is the "work" from which the jury decides infringement. From there, the *average juror* will be pressed to answer a variety of questions. Are there similar dark tonalities? Does the taste of one beer produce a substantially similar pattern of base notes, head notes, or heart notes as that of another beer? Unfortunately, this suffers the same skepticism that legal scholars have made about average jurors and copyright infringement cases pertaining to music.[232]

Another problem with utilizing the olfactory organ model in the context of multisensory beverages and litigation is that the notation

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[228] The *Daubert* standard analyzes the following factors to determine if scientific evidence is admissible: (1) if the technique been tested in actual field conditions (and not just in a laboratory); (2) if the technique been subject to peer review and publication; (3) the known or potential rate of error; (4) do standards exist for the control of the technique's operation; and (5) has the technique been generally accepted within the relevant scientific community. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 593-94 (1993). *See also* JAMES T. BERGER, Trademark Surveys (2016) (describing the relationship between *Daubert* and other key cases that establish judges as "gatekeepers" for trademark survey evidence as well as expert testimony).

[229] FED. R. EVID. 702.

[230] *See generally* 17 U.S.C. § 102 (providing categories of copyrightable works).

[231] *See* 4 NIMMER ON COPYRIGHT § 13.03 (2021).

[232] *See id.*

produced by a beer may lead to individual-dependent results,[233] especially if the flavor is dependent on the drinker's hedonic taste in music.[234] Additionally, it is possible that using different types of brewing equipment for the same beer recipe could lead to disparate "compositions" of the beers' flavors.[235] Even if a strong connection could be found between the variety of flavors a craft beer presents and the musical notes on a scale, the thought of calling a musicologist, a sound engineer, an expert brewer, *and* a gastrophysicist to testify seems extraneous and possibly exhausting for jury members to hear from.[236]

By contrast, trade dress analyses are slightly easier for the average juror to conceptualize. The survey's appropriate target audience, requisite controls, and market conditions can better aid the average juror's decision-making process. This is especially relevant, if the correct survey population is likely to have special knowledge or expertise not shared by the general public.

c. Musicians

Copyright law has already caused much trepidation for artists and musicians, especially within the past few years. For example, the *Blurred Lines* lawsuit has led artists to believe that copying an artist's "vibe" or musical style constitutes an infringement.[237] The lawsuit

[233] *See* Dickinson, *supra* note 2 and accompanying text.

[234] *Compare* Lopez, *supra* note 10, at 348, 375 (describing why difficulties with fitting food and beverages into the copyright regime weigh against providing copyright protection for sonic seasoning products), with *supra* Part I (introducing the intellectual property categories that could offer protection for sonic seasoning products); *Cf.* Compton, *supra* note 179, at 356–57 (illustrating how frequent consumer use can impact a user's distinction of products in the trademark context); Cho, *supra* note 13, at 830–31 (identifying elements of trade dress that present significant challenges to providing protection to sonic seasoning products).

[235] *See* SZYMANKIEWIC *supra* note 12, at 143.

[236] *See* Allen Madison & Paul Lombardi, *Blurred Justice*, 39 LOY. L.A. ENT. L. REV. 145, 165–67, 194–97 (2019); Olivia Lattanza, *The Blurred Protection for the Feel or Groove of a Song Under Copyright Law: Examining the Implications of Williams v. Gaye on Creativity in Music*, 35 TOURO L. REV. 723, 753–55 (2019); Amy X. Wang, *How Music Copyright Lawsuits Are Scaring Away New Hits*, ROLLING STONE (Jan. 9, 2020, 2:08 PM), https://www.rollingstone.com/pro/features/music-copyright-lawsuits-chilling-effect-935310/.

[237] *See* Lattanza, *supra* note 236, at 725–26, 754–55; Paul Schrodt, *The $5 Million 'Blurred Lines' Legal Fight Over the Song's 'Vibe' Could Permanently Change the Music Industry*, INSIDER (Dec. 15, 2015, 12:05 PM), https://www.businessinsider.com/blurred-lines-case-music-copyright-2015-12; Chris Barton, *'Blurred Lines' Verdict: In Jazz, the Vibe is Everything*, L.A. TIMES (Mar. 13, 2015), https://www.latimes.com/entertainment/music/posts/la-et-ms-covers-blurred-lines-jazz-improv-20150312-story.html; Ethan Hein, *Five of the Most Imitated Musical Grooves That Could Be Lawsuit Fodder in the Post-"Blurred Lines" World*,

against Katy Perry had at one time been described as "a dangerous precedent, encouraging self-censorship among composers and more lawsuits over basic similarities." Even if one could find a greater connection between the basic building blocks of music, the olfactory organ framework, and the food and drink that one tastes, it seems unlikely that musicians would want that sort of expansion of what can now be considered a copyrightable work. As a whole, copyright law does not seem to provide artists lucrative opportunities, despite some of the most avant garde technologies, such as non-fungible tokens (NFTs).[238]

Trade dress, by contrast, is predominantly vibe-oriented[239] and less likely to stifle the creativity implemented in multisensory beverages. This flexibility encourages collaboration within the craft beer industry, which like in music, can be essential in boosting sales.[240] In addition, the correlation between sound and taste can perhaps lead to more innovative opportunities for artists as technology advances, just as it has in years past.[241]

VI. CONCLUSION

The field of gastrophysics is a novel and useful science, and the application of sonic seasoning to food and beverages reveals a hidden correlation between culinary recipes and musical works. Since the incredible discoveries from scientists like Charles Spence and Felipe Reinoso Carvalho—who were perhaps influenced by Septimus Piesse's olfactory organ—many beer brands have begun to infuse music and

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QUARTZ (Apr. 7, 2015), https://qz.com/375239/five-of-the-most-imitated-musical-grooves-that-could-be-lawsuit-fodder-in-the-post-blurred-lines-world/.

[238] *See* Malen Blackmon, *NFTs Are Taking Off in the Music Industry. What's an NFT?*, DALLAS OBSERVER (Apr. 28, 2021, 4:00 AM), https://www.dallasobserver.com/music/how-are-nfts-changing-the-music-industry-also-what-the-hell-is-an-nft-12012567; Michael D. Castillo, *Are NFTs The New Napster? This Time The Music Industry Isn't Taking Chances*, FORBES (Aug. 13, 2021, 6:30 AM), https://www.forbes.com/sites/michaeldelcastillo/2021/08/13/are-nfts-the-new-napster-this-time-the-music-industry-isnt-taking-chances/?sh=21323b7f5a90; Dave Davis, *NFTs and Copyright: An Uncomfortable Conjunction?*, COPYRIGHT CLEARANCE CTR. (May 19, 2021), http://www.copyright.com/blog/nfts-and-copyright-an-uncomfortable-conjunction/; ADoseofBuckley, *What Are NFTs? Ask Lindsay Lohan & Kings of Leon! - A Dose of Buckley*, YOUTUBE (May 1, 2021), https://www.youtube.com/watch?v=XrkHF4VvQ1c.

[239] *See Two Pesos,* 505 U.S. at 775 (recognizing that trade dress might include the decoration, vibe, and "motif" of a Mexican restaurant).

[240] *See* Cat Wolinski, *Beer Collaborations Are Cool, Creative, and Sell a Lot of Beer*, VINEPAIR (Apr. 19, 2018), https://vinepair.com/articles/collaboration-nation/.

[241] *See supra* Section II.

sound into their recipes.[242] Yet, while market participants are eager to get a leg up on the competition, these multisensory items can also cause tremendous confusion in intellectual property protection and infringement claims due to the functional characteristics within craft beer recipes and the numerous sensations they offer.

Neither copyright nor trade secret laws are the best paths for securing multisensory intellectual property rights for breweries, wineries, and distilleries who are interested in experimenting with cross-modal phenomena. There is a fair point to be made that the law should not disregard the possibility that certain tastes and flavors could be trademarked. Consumer trends can change and there are many variables that can make a flavor inherently distinctive without impeding competition. Perhaps it is possible that a multisensory craft beer experience could acquire tastes with secondary meaning. If so, then this could be a great improvement in trademark law for the highly competitive craft beer industry. Unfortunately, there is more scientific and marketing research that needs to be performed in order to confirm that taste could reach the threshold for trademark "taste mark" protection. Hopefully, our laws will reach this point in the not-too-distant future. Until then, trade dress analyses should suffice, due to its (a) potential ease in perception on the average juror, (b) the encouragement for collaboration, and (c) the flexibility and stability of the law as technology evolves over time.

[242] *See, e.g.*, Davidson, *supra* note 9; Levin, *supra* note 100; Wilkinson, *supra* note 102; Mick Wust, *Tasting Notes: Music For Your Mouth*, CRAFTYPINT https://craftypint.com/news/2192/tasting-notes-music-for-your-mouth (last visited Aug. 21, 2021).