
DO EXPERTS MATTER? A STUDY OF THE EFFECT OF MUSICOLOGIST TESTIMONY IN MUSIC CASES

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This Article presents the results of a behavioral experiment we conducted to identify what effect, if any, expert musicologist testimony has on jurors in a simulated music copyright lawsuit. Forensic musicologists are considered essential to deciding whether one song infringes the copyright of another song. But this conventional wisdom has never been tested or validated. Contrary to this accepted view, our study found that expert musicologists have little to no effect on jurors when presented as a battle of experts of the parties. However, a court-appointed expert had a significant effect on subjects who lacked training or knowledge in music. These findings call into serious question the current approach to expert testimony in music lawsuits. We consider several alternatives as possible reforms, including greater use of court-appointed experts, the courts' exercise of a greater gatekeeping role in the dissection of the works at issue, or even the radical idea of excluding musicologist testimony at trial altogether.

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*You are just as qualified as any expert to make a judgment
and have a feeling or a response to any work of art.*¹
- Bill Viola

I. INTRODUCTION

Determining whether two songs are similar sounds simple. Riffing off Justice Stewart’s famous line,² we will know it when we hear it.³ Just play the two songs and let people decide if the songs are substantially similar. How difficult can it really be?

Recent music cases indicate otherwise, however.⁴ Indeed, the examination of similarities between two songs has become exceedingly complex—and expensive—involving duelling expert testimony of forensic musicologists dissecting every element of the songs, including the overall organization of the two songs, examined measure-for-measure.⁵ Following the controversial jury verdict finding that Pharrell Williams and Robin Thicke’s smash hit “Blurred Lines” infringed the copyright to Marvin Gaye’s “Got To Give It Up,”⁶ forensic musicologists have gained in both importance and notoriety.⁷ According to Judith Finell, the lead musicologist for Gaye’s heirs who prevailed in the “Blurred Lines” case, forensic musicology is “fairly scientific and takes many years of music theory training.”⁸ Also, “[i]t helps if you have certain music abilities to perceive similarities or differences [between songs].”⁹ Yet, paradoxically, parties prefer

1. *Bill Viola Quotes*, AZ QUOTES, https://www.azquotes.com/author/28625-Bill_Viola (last visited Jan. 11, 2022) [<https://perma.cc/KF58-T3KP>].

2. See *Jacobellis v. Ohio*, 378 U.S. 184, 191 (1964) (Stewart, J., concurring).

3. The Court of Justice of the European Union (CJEU) adopted a similar approach in *Pelham GmbH v. Hütter*, 2010 E.C.R. C-476/17 (July 29, 2010). In a case of music sampling involving a part of sound recording copied into another song, the CJEU held that “where a user, in exercising the freedom of the arts, takes a sound sample from a phonogram in order to use it, *in a modified form unrecognisable to the ear*, in a new work, it must be held that such use does not constitute ‘reproduction’ within the meaning of Article 2(c) of Directive 2001/29.” *Id.* ¶ 31.

4. See, e.g., *Williams v. Gaye*, 895 F.3d 1106, 1117 (9th Cir. 2018).

5. See *id.*

6. *Id.*

7. See KATHERINE LEO, FORENSIC MUSICOLOGY AND THE BLURRED LINES OF FEDERAL COPYRIGHT HISTORY 2 (2021) (“Cast into the adversarial judicial system, musical experts must negotiate precarious ethics surrounding the ostensibly impartial evidence they produce, which will be exposed to the subjectivities of partial attorneys and factfinder interpretations.”); Andy Hermann, *Beyond ‘Blurred Lines’: How Forensic Musicology Is Altering Pop’s Future*, ROLLING STONE (April 4, 2018, 5:13 PM), <https://www.rollingstone.com/pro/features/beyond-blurred-lines-how-forensic-musicology-is-altering-pops-future-204986/> [<https://perma.cc/VK6Z-Z5X6>]; see also Michael Der Manuelian, Note, *The Role of the Expert Witness in Music Copyright Infringement Cases*, 57 FORDHAM L. REV. 127, 127 (1988) (discussing the role of experts in music cases).

8. Hermann, *supra* note 7.

9. *Id.*

jurors who are “blank slates” with no prior music training, who presumably are more pliable to expert testimony.¹⁰ This preference presents a puzzle of sorts: the decisions in some music cases might be rendered by people who are the least equipped to decide the controversy.

Court decisions have only added to the complexity—and to the paramount importance of expert musicologist testimony in deciding copyright music disputes.¹¹ In *Skidmore as Trustee v. Led Zeppelin*, the en banc Ninth Circuit emphasized the critical importance of the process of dissection and filtering out similarities that involve merely unprotectable elements in conducting what the Ninth Circuit calls “extrinsic” analysis of infringement: “Crucially, because only substantial similarity in protectable expression may constitute actionable copying that results in infringement liability, ‘it is essential to distinguish between the protected and unprotected material in a plaintiff’s work.’”¹² In footnote thirteen, the court further explained that, in dissecting two works, one must examine whether the defendant’s alleged copying involves copyrightable elements or merely “public domain or otherwise unprotectable elements.”¹³ In the latter circumstance, and assuming some aspect of the work is copyrightable, such as the selection and arrangement of elements, the court must apply a test of “virtual identity” instead of the usual test of substantial similarity for infringement.¹⁴

This dissection process—identifying similar elements in two songs and distinguishing between copyrightable and uncopyrightable elements—is considered essential to the determination of infringement.¹⁵ And the law has long assumed that experts are important to this process in music cases.¹⁶ In comparing the two works in question, forensic musicologists dissect putative similarities between the two works—*e.g.*, similar notes, musical phrases, harmonies, hooks, beats, and more—and typically opine on whether the similarities are based on copyrightable elements or not.¹⁷ Presumably, the forensic musicologists’ dissection of two songs adds new insights about the two songs that the lay audience would not be able to recognize on their own by simply listening to the two songs.

Yet, the precise effect that experts have in music cases has not been tested empirically, much less identified. Notwithstanding their presumed importance, there are good reasons to question whether musicologists even matter in copyright cases.

10. See *infra* note 131 and accompanying text.

11. See, *e.g.*, *Skidmore v. Led Zeppelin*, 952 F.3d 1051, 1064 (9th Cir. 2020).

12. *Id.*

13. *Id.* at 1076 n.13.

14. *Id.*

15. *Id.* at 1071.

16. See, *e.g.*, *Arnstein v. Shilkret*, No. 8152 (S.D.N.Y. 1933).

17. *Id.*

First, as is typical in most cases with experts, music cases have a “battle of the experts” with forensic musicologists for the opposing sides rendering conflicting opinions, often point by point.¹⁸ In the controversial “Blurred Lines” case, Sandy Wilbur, the musicologist for Williams and Thicke, dissected the elements in the two songs and “disagreed sharply” on virtually every point of the Gayes’ expert.¹⁹ A battle of the experts may make it exceedingly hard for jurors or the court to determine which expert is right—the experts’ testimonies may, in effect, cancel each other out, as other scholars have recognized in examining other cases involving the use of experts.²⁰ This possibility is heightened due to the courts’ failure to provide much guidance on all the possible bases that a musical element is not copyrightable—a key aspect of the dissection inquiry.²¹ Accordingly, experts have considerable discretion in deciding whether to characterize a musical element as just a “basic,” “stock,” “common,” or otherwise unprotected element in the so-called “prior art” of past songs.²² Although a copyright does not require novelty or a new work to qualify for protection,²³ music copyright has developed in a peculiar way—treating musical elements in the prior art as potentially unprotected because the elements have become common, basic, or stock, such as to a particular music style.²⁴ Given the latitude in deciding what constitutes an unprotected element in music, expert opinions in a music dispute will inevitably diverge on that question. Against this backdrop, how is a jury to determine whether a musical element is unprotected when the expert musicologists themselves disagree?

Another confounding factor is the prior knowledge of the trier of fact, whether jurors or judges. In a prior experimental study, we found that the

18. *Williams v. Gaye*, 895 F.3d 1106, 1117 (9th Cir. 2019).

19. *Id.*

20. See generally Scott E. Sunby, *The Jury as Critic: An Empirical Look at How Capital Juries Perceive Expert and Lay Testimony*, 83 VA. L. REV. 1109, 1138 n.74 (1997) (discussing “cancel out” effect by duelling experts in capital case); Christopher Robertson, *The Problem of Biased Experts, and Blinding as a Solution: A Response to Professor Gelbach*, 81 U. CHI. L. REV. DIALOGUE 61, 70 (2014) (“For practical purposes, a litigant may have to assume that the fact finders will take expert opinions at face value, such that a negative and positive opinion roughly cancel each other out, with unpredictable noise directing the outcome.”).

21. See C. Douglas Thomas, *Secret Prior Art—Get Your Priorities Straight!*, 9 HARV. J.L. & TECH. 147, 151 (1996).

22. The concept of prior art originates in patent law, which requires that an invention be new compared to the prior art, meaning the knowledge that existed before the filing of the patent application. See *id.* at 148. Judge Learned Hand was the first judge to borrow the patent concept and apply it to music dissection in a copyright case. See generally *Fred Fisher, Inc. v. Dillingham*, 298 F. 145, 150 (S.D.N.Y. 1924).

23. See *Feist Publ’g, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345–46 (1991) (“Originality does not signify novelty; a work may be original even though it closely resembles other works, so long as the similarity is fortuitous, not the result of copying.”).

24. See Joseph Fishman, *Originality’s Other Path*, 109 CAL. L. REV. 861, 864 (2021).

prior music knowledge or prior legal knowledge of subjects surveyed had a significant effect on findings of infringement in music cases.²⁵ Persons with such prior knowledge found infringement at higher rates in two simulated music cases, but, at the same time, found fair use at higher rates compared to those without such knowledge when the defense of fair use was raised.²⁶ We characterized this dynamic as a “knowledge effect,” which ultimately improved the decision making by the trier of fact.²⁷ Individuals with knowledge appeared to make findings of infringement or fair use with greater appreciation of the music and the legal rules.²⁸ Yet, as noted above, parties tend to avoid jurors who have such prior knowledge during the selection of the jury.²⁹ And legal scholars have expressed concerns with impanelling on a jury individuals with relevant background knowledge who might act as an “expert juror” without the formal qualification process for admitting expert testimony, although courts are unlikely to consider such background knowledge a sufficient basis to strike a prospective juror for cause (*e.g.*, bias).³⁰

Our prior experiment did not include expert testimony in the evidence presented to the subjects tested. This follow-up experiment does. In the current study, we examined whether expert testimony dissecting the two songs in a simulated case would differentially affect prospective jurors with and without such relevant knowledge. Given the knowledge effect, we suspected that an epistemic paradox with expert testimony would arise: the jurors without prior music knowledge, who would benefit the most from expert testimony to understand the dispute, would be least equipped to evaluate the substance of the expert testimony, whereas the jurors with prior knowledge, who would benefit the least from expert testimony, would be the best equipped to evaluate the substance of the testimony. Put simply: the jurors who would learn the most from the expert testimony might understand it the least—especially when presented as a battle of duelling experts—while the jurors who are best able to evaluate the expert testimony might rely on it the least. This paradox calls into serious question the use of experts in music cases.

It may seem quixotic to question the value of expert testimony in music cases today, given the perceived outsized importance of experts. Yet,

25. Edward Lee & Andrew Moshirnia, *Does Fair Use Matter? An Empirical Study of Music Cases*, 94 S. CAL. L. REV. 471, 532 (2021).

26. *Id.* at 543.

27. *Id.*

28. *Id.* at 532.

29. See *infra* note 131 and accompanying text.

30. See, *e.g.*, Paul F. Kirgis, *The Problem of the Expert Juror*, 75 TEMP. L. REV. 493, 525–27 (2002).

recently, a leading copyright authority, William Patry, said he would outright bar experts in music disputes as unhelpful to the jury and judge.³¹ Instead, Patry proposed having the musicians whose works were involved testify and perform the works for the jury.³² Patry's provocative suggestion is worthy of consideration, as are the insights of Judge Learned Hand over a century ago. In a widely cited *Harvard Law Review* article, Judge Hand critiqued the ways in which a court could best use expert knowledge beyond simply a battle of experts.³³ At least for music cases, we question whether the current battle of experts is even helpful to the jury or court. As the Ninth Circuit suggested in *Skidmore*, judges could take a more involved role in the dissection analysis, including sifting through any duelling expert testimony offered by the parties. Indeed, Judge Hand himself provided an exemplar in resolving whether an ostinato in "Dardanella" was unprotected because of a common musical element contained in prior songs by Wagner, Schumann, Kummer, and Bernard.³⁴ And, in a copyright case involving dramatic works, Judge Hand provided a good reminder about the importance of determining the scope of expert testimony: he questioned whether the duelling expert testimony about the "intricacies of dramatic craftsmanship" provided anything more than argument or "confusion."³⁵ In Judge Hand's view, a "firmer, if more naive, ground" for comparing the two works is the trier of fact's "considered impressions upon its own perusal."³⁶ Under the current federal rules of evidence, a court is permitted to allow expert testimony only if "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."³⁷ This rule gives the trial court the authority—indeed, the obligation—to determine if, and how, the proffered expert testimony will help the jury.³⁸

31. See Whose Song Is It Anyway, *Whose Song Is It Anyway? Hayleigh Boshier & Jules O'Riordan Interview with Bill Patry from Google*, YOUTUBE (Feb. 7, 2021), <https://youtu.be/WnnBFjVEcjs?t=324> [<https://perma.cc/D7YW-AV8M>] ("In music that's true I would ban experts. I think they are they're a blight on our system. So you've got two experts right you have . . . either lay judge who doesn't understand any more than a jury does about music. One of those experts that uses a color theory and so you have color-coded boxes and people are juries or judges are comparing colors. They're not comparing music. It's a farce and the 'Blurred Lines' case to me, that's where the problem occurred . . . the misuse of experts.").

32. *Id.*

33. Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 54 (1901); see also Hon. Denise Cote, *Making Experts Count*, 58 J. COPYRIGHT SOC'Y U.S.A. 223, 240 (2011) (recommending that experts be used "sparingly in copyright cases").

34. See *Fred Fisher, Inc., v. Dillingham*, 298 F. 145, 147–49 (1924).

35. *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 123 (2d Cir. 1930).

36. *Id.*

37. FED. R. EVID. 702(a) (emphasis added).

38. See *id.*

This Article presents the first experimental study on the effect experts have on mock jurors in music copyright disputes. We expected that experts could have greater effect on jurors who lacked prior music knowledge but hypothesized that this *expert effect* would be vitiated by a *cancelling out effect* created by a battle of experts. As an alternative to the battle of duelling experts, we also tested the effect of a court-appointed expert on jurors. We hypothesized that a court-appointed expert would have a stronger expert effect on jurors than duelling experts presented by the parties.

To test our hypotheses, we conducted an online experiment involving two simulated music cases (with low and high similarity between the songs, respectively) tested under three scenarios: (1) no expert testimony; (2) a battle of two experts offered by the parties; and (3) the addition of an independent, court-appointed expert to a battle of experts. Our study largely confirmed our hypotheses, albeit with some differences between the two cases and between jurors with and without music knowledge. For jurors lacking such knowledge, duelling experts had no significant effect, but a court-appointed expert had a significant effect. This *court-appointed expert effect* requires further study, but it suggests a promising alternative to the battle of experts that could lower the likelihood of the cancelling out of duelling expert testimony. The findings for subjects with prior knowledge in music were more complex. For these subjects, the duelling experts scenario did have a significant effect in the case of high similarity, but not in the case of low similarity. Moreover, the court-appointed expert had no significant effect on subjects with music knowledge, unlike the reaction of subjects who lacked such knowledge. These findings suggest that duelling experts do not cancel each other out for jurors with music knowledge; instead, these jurors are able to evaluate the substance of the expert testimony in all forms.

Our findings suggest the current way in which music disputes are resolved with a battle of experts is suboptimal, amounting to a potential waste of precious time and resources. Given the high cost of forensic musicologists' expert testimony and the marginal effect produced by such testimony in a battle of experts, it is worth revisiting the question Judge Hand posed: how best to use expert knowledge to help the trier of fact in music cases?³⁹ This question has import far beyond the realm of evidence. It implicates distributive and social justice concerns. There is a danger that the current manner in which music cases are litigated—with a battle of experts—disproportionately impacts musicians who lack resources, meaning less established or unknown musicians. Such unknown artists might not be able to

39. Learned Hand, *supra* note 33, at 40.

afford a reputable musicologist to vindicate themselves, whether as plaintiffs or defendants in a copyright lawsuit. And even established artists face an uncertain field where what is considered an unprotected musical element that is free for everyone to use will inevitably be contested in a battle of experts. Making music becomes a risky business.

Part II introduces the issue of expert testimony in copyright cases and summarizes past studies about the impact of experts in disputes outside of intellectual property cases. Part III outlines the study design and the online experiment we conducted to test the effect experts have on people who resolve music disputes. Part IV presents the results of our experiment. Our main findings are twofold. First, for persons lacking music knowledge, the potential expert effect in music cases is negated by a battle of two experts (a cancelling out effect), but a significant expert effect occurs when an independent, court-appointed expert is added (a court-appointed expert effect). Second, for persons with music knowledge, the dynamic is different. In some cases, duelling experts had a significant effect on persons with music knowledge, whereas adding a court-appointed expert did not. Persons with music knowledge appeared to be able to analyze the substance of all expert testimony and decide whether to rely on or reject it, without using secondary indicia, such as the status of the experts.

Collectively, our findings provide empirical support for the epistemic paradox created by the use of experts in litigation, as noted by other scholars. Overall, our study shows a complex dynamic of jurors in music cases that differs depending on whether the juror has prior training or knowledge in music. The helpfulness of expert testimony differs dramatically between those with such knowledge and those lacking it. Indeed, if the jury is composed only of people who lack knowledge in music, the current approach to admitting duelling experts to opine on the music at issue is the least effective mode we tested.

Part V discusses the ramifications of our findings for music disputes. Our study suggests that the current approach to resolving music infringement cases with a battle of experts is suboptimal, especially if the admission of expert testimony is predicated on the belief the expert testimony is adding new insights to jurors that affects their ultimate decision. We discuss possible improvements to the current battle of experts, including greater use of court-appointed experts, greater involvement of courts in the dissection analysis, and even the possibility of not allowing experts to testify in music cases altogether.

II. DO EXPERTS MATTER IN MUSIC INFRINGEMENT CASES?

When experts testify in a lawsuit, what effect, if any, do they have on jurors? Given the pervasiveness of expert testimony in civil litigation in the United States, that question is of profound importance.⁴⁰ Of course, the answer to that question may vary depending on the nature and complexity of the expert testimony. This study examines that question in the context of lawsuits involving expert testimony related to similarities between two songs. Part II explains the test of copyright infringement, as well as the issue(s) for which courts have permitted expert testimony, including in music cases. This Part also summarizes prior psychological experiments that have studied the effect experts have on jurors in other types of cases outside of music disputes.

A. *The Reliance on Experts in Copyright Infringement Cases*

Experts—typically forensic musicologists—play a prominent role in copyright cases involving a claim that one song infringes the copyright of another song.⁴¹ This Section explains the role that experts perform and the issue of “dissection” that experts are permitted to testify about in copyright infringement lawsuits.⁴²

1. *The Role of Experts in Dissecting Two Works*

From the inception of the modern test of copyright infringement, the role of experts has figured prominently.⁴³ The basic test of copyright infringement was set forth in the seminal case *Arnstein v. Porter*.⁴⁴ Writing for the Second Circuit, Judge Jerome Frank elaborated a two-step test: to prove infringement, the plaintiff must show “[1] that defendant copied from plaintiff’s copyrighted work and [2] that the copying (assuming it to be proved) went to far as to constitute improper appropriation.”⁴⁵

For the first step, a copyright owner who lacks direct evidence that the defendant had copied the plaintiff’s work can offer circumstantial evidence based on evidence that the defendant had *access* to the plaintiff’s work and that sufficient *similarities* exist between the plaintiff’s and the defendant’s works to create an inference that the defendant copied from the plaintiff’s work.⁴⁶ If the plaintiff offers sufficient evidence of copying in

40. See, e.g., *Whose Song is it Anyway?*, *supra* note 31.

41. See, e.g., *Williams v. Gaye*, 895 F.3d 1106, 1117 (9th Cir. 2019).

42. See *infra* note 68 and accompanying text.

43. See *Arnstein v. Porter*, 154 F.2d 464, 473 (2d Cir. 1946).

44. *Id.*

45. *Id.* at 468.

46. *Id.*

step one, the jury or court as the trier of fact must decide, under step two, if the copying constituted misappropriation, meaning that the copying was substantial or too much from the view of a lay audience.⁴⁷ This ultimate issue is factual.⁴⁸ Although *Arnstein* involved a music infringement claim, its basic approach applies generally to nearly all copyright claims.⁴⁹

Expert testimony figures into the test of infringement in a somewhat esoteric way. In devising this two-step test of infringement, the *Arnstein* court ruled that experts can testify about the first step on the existence of similarities in “dissection” of the two works (to show copying), but not in the second step in determining misappropriation because the latter issue is based on the perspective of the lay audience.⁵⁰ The court’s reasoning does not necessarily follow, as critics have pointed out.⁵¹ For example, a jury might find it helpful to consider what experts say about the nature and extent of similarities as a part of the analysis of misappropriation even taken from a lay audience’s point of view.⁵² Moreover, once any expert testimony on similarities between two works is introduced to the jury, such as in step one, it would be hard for the jury to compartmentalize the expert testimony to avoid relying on it in ultimately determining substantial similarity or misappropriation.⁵³ This is especially likely, given that courts have indiscriminately used “substantial similarity” in describing different aspects of the two-step test of infringement.⁵⁴ Some courts have referred to similarities under both steps as “substantial similarities,” although there is a growing recognition of the need to describe the level of similarities required under step one as “probative similarities” instead of “substantial similarities.”⁵⁵ On the other hand, it is possible, as the *Arnstein* court appeared to fear, that allowing extensive expert testimony of musicologists might cause jurors to start using a higher standard than the lay audience and rely on technical music dissection that lay people would not be able to undertake themselves.⁵⁶

47. *Id.*

48. *Id.* (“[W]e have an issue of fact which a jury is peculiarly fitted to determine.”).

49. *See id.*

50. *Id.* at 468 (“On this issue, analysis (‘dissection’) is relevant, and the testimony of experts may be received to aid the trier of the facts If copying is established, then only does there arise the second issue, that of illicit copying (unlawful appropriation). On that issue . . . the test is the response of the ordinary lay hearer; accordingly, on that issue, ‘dissection’ and expert testimony are irrelevant.”).

51. *See Der Manuelian, supra* note 7, at 144–46 (criticizing the narrow use of experts for music cases and advocating for use of expert testimony for the issue of misappropriation or substantial similarity).

52. *Id.*

53. *Id.*

54. *Id.* at 136.

55. *See Johnson v. Gordon*, 409 F.3d 12, 18 (1st Cir. 2005) (discussing the various uses of substantial similarity).

56. *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946).

The different issues in the two-step *Arnstein* test open a range of discretion or evaluative judgment concerns.⁵⁷ Step one requires the least discretion or evaluation if the defendant admits to copying the plaintiff's work. Absent such direct evidence, step one affords some discretion for the jurors to decide if the defendant had "reasonable access" to the plaintiff's work and if there are some probative similarities between the two works.⁵⁸ In other words, the jurors must engage in some line-drawing on what constitutes "reasonable access" as well as a sufficient amount of similarity between the two works to raise an inference of copying.⁵⁹ Some jurors' views of what constitutes reasonable access or what is similar may differ from other jurors' views. Finally, the greatest discretion or evaluative judgment is provided in step two, misappropriation. How much copying is too much copying is a question that, at bottom, requires an evaluative judgment.

Before discussing the Ninth Circuit's alternative to the *Arnstein* test, it bears mentioning that Judge Frank, a legal realist, wrote *Law and the Modern Mind*, an influential book first published in 1930 that attempted to critique what Frank saw as the biases, uncertainties, and overall indeterminacy of fact-finding.⁶⁰ Drawing on psychology and German philosophy, Judge Frank viewed legal certainty as a myth, in part because of the need for fact-finding.⁶¹ As Charles Barzun aptly summarized Judge Frank's theory:

When judges or juries evaluated evidence, especially the credibility of witnesses, their judgments were frequently skewed by personal, idiosyncratic biases and prejudices. But such errors had deeper roots in the intrinsic features of the human mind. Drawing on the work of the German philosopher Hans Vaihinger, Frank emphasized that our thought could never be "in complete correspondence with factual reality." Rather, the way we conceptualize experience and hence perceive the world is colored by our own motives and emotions. For Frank, then, the myth to be overcome was not just a belief in legal certainty, but the belief that we can ever have certain knowledge of *anything*.⁶²

57. *Id.*

58. *Id.* at 469.

59. *Id.*

60. See JEROME FRANK, *LAW AND THE MODERN MIND* 7 (1930).

61. See *id.* at 11–12, 172.

62. Charles L. Barzun, *Jerome Frank, Lon Fuller, and a Romantic Pragmatism*, 29 *YALE J.L. & HUMAN.* 129, 134 (2017).

Judge Frank's attack on the notion that facts are certain or determinate provides a tantalizing backdrop to the *Arnstein* test of copyright infringement.⁶³ Nothing in the opinion hints at any of these problems with fact-finding that Judge Frank described in his provocative book.⁶⁴ Indeed, in his dissent in *Arnstein*, Judge Clark suggested—with extensive citations to Frank's book—that the majority opinion was forgetting the limitations of juries.⁶⁵ *Arnstein* reads as if the fact-finding for the test of infringement is straightforward and determinate—for example, that “the jury may properly infer that the similarities did not result from coincidence” if the plaintiff has presented sufficient evidence of access and similarities.⁶⁶ Conversely, it would not be proper to infer copying if the defendant had no access to the work.⁶⁷ Even though Judge Frank's theory espoused in *Law and the Modern Mind* does not appear to surface in the *Arnstein* test, the theory is worthy of consideration in evaluating the role of experts and jurors in the fact-finding process. For example, if fact-finding at trial is inherently indeterminate, we may view the trier of fact's determinations as something short of establishing actual “facts.”

The Ninth Circuit takes a different approach than *Arnstein*, but one that also results in permitting experts to testify about substantial similarity in the dissection of the two works, but not with respect to the ultimate issue of misappropriation.⁶⁸ Unlike under the *Arnstein* test, experts can testify regarding step two of the test of infringement, but under only the so-called “extrinsic test.”⁶⁹ Under the Ninth Circuit's approach, step one (*i.e.*, the defendant's copying of the plaintiff's work) is substantially the same as *Arnstein* test, but the Ninth Circuit divides step two (*i.e.*, misappropriation) into (i) an *extrinsic* test, which “compares the objective similarities of specific expressive elements in the two works” and (ii) an *intrinsic* test, examining “similarity of expression from the standpoint of the ordinary reasonable observer, with no expert assistance.”⁷⁰ Expert testimony can be offered

63. See Omar Quevedo, *The Arnstein Test (1945) Music Copyright Law*, FOUNDS. L. & SOC'Y (Aug. 11, 2021), <https://foundationsoflawandsociety.wordpress.com/2021/08/11/the-arnstein-test-music-copyright-law/> [https://perma.cc/KHA4-7MRV].

64. See generally *Arnstein v. Porter*, 154 F.2d 464 (2d Cir. 1946).

65. *Id.* at 479 (Clark, J., dissenting) (citing JEROME FRANK, *IF MEN WERE ANGELS* 80–101 (1942); FRANK, *supra* note 60, at 170–85, 302–09, 344–48).

66. *Arnstein*, 154 F.2d at 469.

67. *Id.*

68. See *Skidmore v. Led Zeppelin*, 952 F.3d 1052, 1064 (9th Cir. 2020) (en banc); Michael Der Manuelian, *The Role of the Expert Witness in Music Copyright Infringement Cases*, 57 *FORDHAM L. REV.* 127, 135 (1988).

69. See *Skidmore*, 952 F.3d at 1064.

70. See *id.*

for the extrinsic test, but not the intrinsic test.⁷¹ Under the extrinsic test, experts can testify about the substantial similarities between the two works in their dissection of the works.⁷²

Thus, under either circuit's approach, experts can testify in dissecting the similarities between two works in a copyright lawsuit.⁷³ Indeed, in some copyright cases, such as those involving musical works or computer programs, experts are essential.⁷⁴ In *Skidmore as Trustee v. Led Zeppelin*, the Ninth Circuit, sitting en banc, emphasized the critical importance of the extrinsic test: "Crucially, because only substantial similarity in protectable expression may constitute actionable copying that results in infringement liability, 'it is essential to distinguish between the protected and unprotected material in a plaintiff's work.'" ⁷⁵ And, as the court suggested in footnote thirteen, a relevant issue for dissection is whether the alleged copying involves copyrightable elements or merely "public domain or otherwise unprotectable elements."⁷⁶

Even though *Skidmore* affirmed the jury's finding of no infringement, the tenor of the case sounded much different from the controversial decision in *Williams v. Gaye*, which affirmed the jury's finding that Williams and Robin Thicke's song "Blurred Lines" infringed the copyright to the late Marvin Gaye's "Got To Give It Up."⁷⁷ In affirming the jury verdict in *Williams*, a divided Ninth Circuit upheld the jury instruction that noted the conflicting expert testimony presented by the parties regarding the dissection of the putative substantial similarity between the two works:

There has been testimony and evidence presented by both sides on this issue, including by expert witnesses, as to such matters as: (a) for "Got to Give It Up" and "Blurred Lines," the so-called "Signature Phrase," hook, "Theme X," bass melodies, keyboard parts, word painting, lyrics, [and] rap v. parlando The Gaye Parties do not have to show that each of these individual elements is substantially similar, but rather that there is enough similarity between a work of

71. See *Three Boys Music Corp. v. Bolton*, 212 F.3d 477, 485 (9th Cir. 2000), *overruled on other grounds*, *Skidmore v. Led Zeppelin*, 952 F.3d 1052, 1064 (9th Cir. 2020) (overruling the inverse ratio approach).

72. See, e.g., *Swirsky v. Carey*, 376 F.3d 841, 845 (9th Cir. 2004) ("'Analytical dissection' requires breaking the works 'down into their constituent elements, and comparing those elements for proof of copying as measured by 'substantial similarity.'"").

73. Mark Lemley canvasses the various, at times divergent approaches to expert testimony in copyright cases and contends that courts should permit expert testimony on the ultimate question of substantial similarity. See Mark Lemley, *Our Bizarre System for Proving Copyright Infringement*, 57 J. COPYRIGHT SOC'Y U.S.A. 719, 726 (2010).

74. See *id.* at 727, 737.

75. *Skidmore*, 952 F.3d at 1064.

76. *Id.* at 1076 n.13.

77. *Williams v. Gaye*, 895 F.3d 1106, 1115, 1118 (9th Cir. 2019).

the Gaye Parties and an allegedly infringing work of the Thicke Parties to comprise a substantial amount.⁷⁸

Williams and Thicke contended that the trial court improperly allowed the jury to consider musical elements that were not contained in Gaye's deposit copy of the musical work (*i.e.*, the sheet music or what was called the "lead sheet") filed in the Copyright Office; under the law that applied to the scope of Gaye's copyright, the 1909 Copyright Act, the deposit copy of "Got To Give It Up" determined its scope of copyright.⁷⁹ The argument of Williams and Thicke was plausible, given that Gaye's expert Judith Finell was permitted to testify about some elements—"Theme X" and the keyboard parts—that she admitted were not notated in the deposit copy, and another element, the descending bass line, that differed from the notation in the deposit copy.⁸⁰ Finell explained that Theme X was implied in the deposit copy and more generally that reading the sheet music requires interpretation.⁸¹

The Ninth Circuit rejected Williams and Thicke's argument, however.⁸² The court concluded that the "dispute boiled down to a question of whose [expert] testimony to believe."⁸³ Because "sheet music requires interpretation[,] [t]he question of whose interpretation of the deposit copy to credit was a question properly left for the jury to resolve."⁸⁴ The court emphasized that the Gayes' expert was subject to cross-examination and "was impeached with her deposition testimony, in which she admitted that the rhythm of the keyboard parts in the sound recording of 'Got To Give It Up' is not notated in the deposit copy."⁸⁵ The majority in *Williams v. Gaye* took a deferential approach in allowing the jury to decide which expert's interpretation of the sheet music of Gaye's song and analysis of similarities were persuasive.⁸⁶ The majority did not resolve the dispute between the experts, much less say which elements of Gaye's song were protected or not.⁸⁷ Judge Nguyen dissented and took a much different approach: the judge found insufficient similarities between the two songs based on her own exhaustive dissection of each element of the two songs the Gayes' expert contended were similar, including analysis of the musical notes.⁸⁸ In other words, the dissent went one step further than the majority in critiquing the

78. *Id.* at 1124.

79. *Id.* at 1121, 1124–27.

80. *Id.* at 1125.

81. *Id.* at 1125–26.

82. *See id.* at 1124–27.

83. *Id.* at 1125–26.

84. *Id.* at 1126.

85. *Id.* at 1125.

86. *Id.* at 1127, 1136.

87. *Id.* at 1119–20.

88. *Id.* at 1138–52 (Nguyen, J., dissenting).

expert testimony and determining which elements of Gaye's song were unprotected by copyright.⁸⁹

The "Blurred Lines" decision produced a firestorm of controversy.⁹⁰ Some musicians took out insurance policies out of fear of being sued for any putative similarity with a past song.⁹¹ Commentators castigated the decision as "an outmoded way of thinking about music,"⁹² that will have a "chilling effect on creativity" in music.⁹³ Further, the case generated more business, but also greater notoriety, for forensic musicologists, experts who are hired to dissect similarities between songs for possible copyright infringement.⁹⁴ Today, forensic musicologists are hired not just as experts for copyright lawsuits, but also as a part of due diligence to assess copyright risk before a song is released.⁹⁵ As for the "Blurred Lines" case, some commentators criticized the Ninth Circuit for failing to scrutinize the forensic musicologists' testimony, but instead leaving that task all to the jury.⁹⁶

The firestorm may have been short-lived as the en banc Ninth Circuit in *Skidmore* recognized a greater role for courts in scrutinizing the testimony related to the extrinsic test or dissection.⁹⁷ As noted above, the court emphasized the importance of "distinguish[ing] between the protected and unprotected material in a plaintiff's work."⁹⁸ In two subsequent music cases decided in the same year as *Skidmore*, two district courts did just that in overturning a jury verdict of infringement on the ground that the alleged element copied, an ostinato, was not copyrightable as a matter of law,⁹⁹ and by throwing out the expert report of the plaintiff in another case because

89. *See id.*

90. *See infra* notes 91–93 and accompanying text.

91. *See* 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/> [<https://perma.cc/HU8D-25Y8>].

92. Jon Caramanica, *What's Wrong with the 'Blurred Lines' Copyright Ruling*, N.Y. TIMES (Mar. 11, 2015), <https://www.nytimes.com/2015/03/12/arts/music/whats-wrong-with-the-blurred-lines-copyright-ruling.html> [<https://perma.cc/6D8D-MQ36>].

93. Adam Graham, *'Blurred Lines' and the Chilling Effect on Creativity*, DETROIT NEWS (Mar. 13, 2015, 6:14 PM), <https://www.detroitnews.com/story/opinion/columnists/adam-graham/2015/03/13/blurred-lines-chilling-effect-creativity/70297332/> [<https://perma.cc/9S5W-6NPK>].

94. *See* Hermann, *supra* note 7.

95. *See id.*

96. *See* Grant Beiner, *Copyright in Music in U.S. Interpretation: The Case for Moving Away from Easy and Nonsensical Findings of Copyright Infringement*, 60 S. TEX. L. REV. 459, 486 (2019); Allen Madison & Paul Lombardi, *Blurred Justice*, 39 LOY. L.A. ENT. L. REV. 145, 161 (2019) ("Another failure in the appellate process was the majority's refusal to conduct any independent examination of the objective facts.").

97. *See* *Skidmore v. Led Zeppelin*, 952 F.3d 1052, 1064 (9th Cir. 2020).

98. *Id.*

99. *See* *Gray v. Perry*, No. 2:15-CV-05642-CAS-JCx, 2020 WL 1275221, at *17, *54 (N.D. Cal. Mar. 16, 2020) (granting judgment as a matter of law of no infringement because ostinato was unprotected), *appeal filed*, No. 20-55401 (9th Cir. April 15, 2020).

the expert failed to distinguish the unprotected elements in the dissection of the two works.¹⁰⁰ Although these recent cases following *Skidmore* represent a greater gatekeeping role (than the one exercised in *Williams*) for the court in scrutinizing what elements are unprotected and whether expert testimony has properly distinguished unprotected elements, they do not diminish the importance of experts in making these determinations.¹⁰¹ Indeed, they confirm the centrality of expert testimony.¹⁰² In both cases, the court relied on expert testimony in reaching its conclusion.¹⁰³

Notwithstanding the centrality of musicologists to copyright lawsuits, very little research has been attempted to study the effect that musicologists have on analyzing similarities between two works. Given the importance of experts to music disputes, it would be helpful to understand what effect, if any, experts have on jurors or courts in determining the similarities in dissecting the two works. This Article presents the first experimental study of that question.

2. *The Longstanding Controversy Over Experts*

Two prominent schools of thought have posited different theories to explain how expert testimony influences the trier of fact. First, the story model posits that expert testimony is one part of the overall story that includes other evidence introduced and the jurors' own pre-existing views; jurors incorporate expert testimony into an overall story that explains the issue in question.¹⁰⁴ Alternatively, the second explanation is the heuristic model, which posits that jurors rely on expert testimony as a heuristic shortcut—perhaps improperly swayed by the expert's credentials rather than testimony—to decide a complex issue that is difficult for them to understand.¹⁰⁵ Both models have been empirically supported.¹⁰⁶

Before examining past experiments related to the effect of expert testimony, it is important to acknowledge the extensive criticism experts—sometimes pejoratively called “hired guns”—have received. One criticism

100. See *Johannsongs-Publ'g Ltd. v. Lovland*, No. CV 18-10009-AB (SSx), 2020 WL 2315805, at *7 (granting summary judgment because plaintiff's musicologist failed to conduct a prior art analysis and filter out the unprotected elements required in extrinsic analysis).

101. See *id.* at *8–*18.

102. See *id.*; *Gray*, 2020 WL 1275221, at *17.

103. See *Gray*, 2020 WL 1275221, at *17; *Johannsongs-Publ'g Ltd.*, 2020 WL 2315805, at *8–*18.

104. Daniel A. Krauss & Bruce D. Sales, *The Effects of Clinical and Scientific Expert Testimony on Juror Decision Making in Capital Sentencing*, 7 PSYCH. PUB. POL'Y & L. 267, 273, 299–300 (2001).

105. *Id.*

106. *Id.* at 274.

is adversarial bias.¹⁰⁷ Scholars and commentators have questioned whether experts hired by the parties provide unbiased, valid opinions—or simply ones that favor the party who hired them regardless of the validity of the opinion.¹⁰⁸ And the parties themselves can engage in “expert shopping” or “expert mining” by interviewing different experts naturally to select the expert whose testimony or opinion will be most favorable to their side, while not presenting any contrary testimony of experts they enlisted.¹⁰⁹ Under Federal Rule of Civil Procedure 26(b)(4)(D), the other party is not even permitted to seek discovery of “opinions held by an expert who has been retained or specially employed by another party in anticipation of litigation or to prepare for trial and *who is not expected to be called as a witness at trial.*”¹¹⁰ In other words, the opposing side is not entitled to discover whether the other party hired an expert who gave a contrary opinion than the view presented by the party’s expert who testified at trial. Judge Richard Posner proposed a disclosure requirement to allow discovery of such (adverse) information,¹¹¹ but the current Rule 26 does not allow it.¹¹² Other countervailing factors likely chasten experts from simply acting as “hired guns” or uncritically adopting the view that favors the hiring party’s side. Experts are professionals whose ability to continue to serve as experts in future cases depends on their reputation; one disqualification in a case could jeopardize an expert’s participation in future cases as well as professional reputation generally.¹¹³ Moreover, courts are supposed to play a gatekeeping role in ensuring an expert is qualified to testify; and, when qualified, experts may be subject to vigorous cross-examination from the other side.¹¹⁴

107. See Greg Reilly, *Rethinking the PHOSITA in Patent Litigation*, 48 LOY. U. CHI. L.J. 501, 518–19 (2016) (discussing forms of adversarial bias in experts, including conscious bias, unconscious bias, selection bias, and partisan bias).

108. *Id.* at 504, 519.

109. See Jonah B. Gelbach, *Expert Mining and Required Disclosure*, 81 U. CHI. L. REV. 131, 131–32 (2014).

110. FED. R. CIV. P. 26(b)(4)(D) (emphasis added).

111. See Richard A. Posner, *An Economic Approach to the Law of Evidence*, 51 STAN. L. REV. 1477, 1541 (1999) (“[L]awyers who call an expert witness could be required to disclose the name of all the experts whom they approached as possible witnesses before settling on the one testifying. This would alert the jury to the problem of ‘witness shopping.’ Suppose the lawyer for the plaintiff hired the first economist, agronomist, physicist, physician, etc. whom he interviewed, and the lawyer for the defendant hired the twentieth one whom he interviewed. A reasonable inference is that the defendant’s case is weaker than the plaintiff’s.”) *But see* Gelbach, *supra* note 109, at 133 (contending that Posner’s disclosure proposal might “increase[] the fact finder’s information” with a “beneficial increase in accuracy,” but it “could also change the pattern of settlement and litigation, with potentially unpredictable effects on both the extent of litigation and primary behavior”).

112. FED. R. CIV. P. 26(b)(4)(D).

113. See Posner, *supra* note 111, at 1537.

114. *Id.*

Another criticism of experts is that jurors will inevitably have difficulty understanding an expert's opinion, especially if it is based on scientific or highly technical knowledge and offered in the context of duelling experts on both sides—the battle of the experts.¹¹⁵ Just imagine hearing the opinions of opposing experts on whether the defendant's accused products contained the following elements of a patentee's invention of FinFET technology for semi-conductors: "(1) a 'gate which is formed on said . . . second oxide layer'; (2) a 'first oxide layer'; (3) a 'first oxide layer . . . with a thickness greater or equal to that of the gate oxide'; and (4) 'a Fin active region which is a wall-shape single crystalline silicon.'"¹¹⁶ Even in cases that do not involve science or engineering, an expert is supposed to have some "technical, or other specialized knowledge [that] will help the trier of fact to understand the evidence or to determine a fact in issue."¹¹⁷ In other words, experts are supposed to have some specialized knowledge that the jurors do not have.

The asymmetry of knowledge—with experts possessing knowledge that the jurors lack—creates a paradox. In a case of duelling experts, jurors must evaluate the testimony of competing experts whose opinions are based on specialized knowledge the jurors typically do not have. Professor Jennifer Mnookin aptly summarizes this epistemic paradox:

Experts are necessary precisely because of what the jury does not know. They are supposed to provide information useful to the jury's decision-making that goes beyond what a jury would know without their assistance. But if the jury lacks the knowledge that the expert provides, how, then, can it rationally evaluate the expertise on offer? To be sure, one might not need to be an expert in order to assess expertise, but the main mechanisms for assessing expertise outside of one's domain of knowledge are, by necessity, secondary indicia, proxies: demeanor, perhaps, or credentials, or superficial explanatory plausibility.¹¹⁸

Jurors might also face problems in evaluating conflicting eyewitness testimony about the facts of a case,¹¹⁹ but at least evaluating eyewitness testimony about factual events or what happened (*e.g.*, "I saw X run the red

115. See Posner, *supra* note 111, at 1512; see also Sanja Kutnjak Ivković & Valerie P. Hans, *Jurors' Evaluations of Expert Testimony: Judging the Messenger and the Message*, 28 L. & SOCIAL INQUIRY 441, 444 (2003).

116. KAIST IP US LLC v. Samsung Elec. Co., 439 F. Supp. 3d 860, 874 (E.D. Tex. 2020).

117. FED. R. EVID. 702(a).

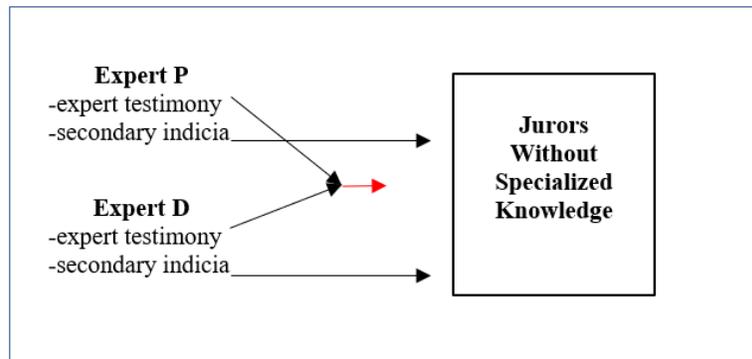
118. Jennifer L. Mnookin, *Expert Evidence, Partisanship, and Epistemic Competence*, 73 BROOK. L. REV. 1009, 1012–13 (2008).

119. See Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1113, 1180 ("Judges and lawyers complain a lot about the difficulty of evaluating expert testimony, but there is no particular reason to think that jurors or judges are less accurate at this task than at resolving disputes based on lay evidence.").

light.”) is easier to understand than a scientific or technical issue (*e.g.*, what a first oxide is).

Figure 1 below depicts the epistemic conundrum that jurors face in evaluating the testimony of competing or duelling experts. Jurors have a harder time evaluating the substance of technical or scientific testimony and an easier time evaluating proxies for persuasiveness—*e.g.*, the expert’s credentials, delivery, clarity, or other personal attributes.¹²⁰ There is a risk that jurors who have no knowledge of the particular field are unable to competently evaluate the merits of the opposing testimonies of the duelling experts, as least not based on the substance of the expert’s analysis. For example, if the duelling experts take completely opposing views on whether the defendant’s accused device had “a Fin active region which is a wall-shape single crystalline silicon,”¹²¹ how will a jury of laypeople decide which expert is right? The testimony of the experts may sound equally plausible or may simply go over the heads of the jurors. In some cases, jurors might understand the expert testimony, to some extent, especially if the experts “dumb down” their testimony into layperson terms as the lawyers in the case typically do.¹²² In Figure 1, the red line in the center signals the possible transmission of substantive information to the juror, but it is not as guaranteed to occur as the ability of the jurors to assess the secondary indicia, such as the expert’s credentials, delivery, or clarity in speaking.

FIGURE 1. DIAGRAM OF DUELLING EXPERTS TO JURORS LACKING KNOWLEDGE



Mnookin’s contention that jurors may use secondary indicia of expertise as proxies for evaluating the expert testimony finds some support in

120. *See id.*; Mnookin *supra* note 118, at 1014.

121. *See* KAIST IP US LLC v. Samsung Elec. Co., 439 F. Supp. 3d 860, 874 (E.D. Tex. 2020).

122. *See* Henry Weihofen, *Eliminating the Battle of the Experts in Criminal Insanity Cases*, 48 MICH. L. REV. 961, 962 (1950).

Andrew Jurs' survey of jurors from actual cases tried in Polk County, Iowa.¹²³ Jurors were given the option of choosing from six characteristics that they valued in considering experts more believable; jurors could choose more than one factor.¹²⁴ The results were as follows:

- 94% valued “ability to convey technical information in a nontechnical fashion”;
- 81% valued “leading expert in the field”;
- 72% valued the expert’s “willingness to draw firm conclusions”;
- 61% valued “impressive educational credentials”;
- 47% valued “pleasant personality”; and
- 28% valued “attractive physical appearance.”¹²⁵

Perhaps not surprisingly, virtually all jurors (97%) said they themselves understood the expert testimony in the case.¹²⁶ But “only 69% believed that jurors in general understood experts.”¹²⁷ The survey itself did not give the jurors the option of rating the content of expert testimony other than the first option of being presented “in a nontechnical fashion.” So we should not necessarily conclude from the survey that jurors weighed more heavily secondary indicia than the actual content of the expert’s testimony. But Jurs’ survey does support the notion that jurors’ highly value certain secondary indicia (*e.g.*, leading expert in the field) in evaluating the persuasiveness of expert testimony.

If a juror happens to have knowledge in the relevant field, the juror may be better equipped to evaluate the substance of the experts’ testimonies in an informed manner. Figure 2 depicts the situation that jurors have some specialized knowledge related to the experts’ testimonies. In this circumstance, jurors have the knowledge to better evaluate the substance of the experts’ opinions, perhaps equally as well as they can assess the secondary indicia, such as the credentials of the experts. On the other hand, the more knowledge that a juror has in the relevant field, the less the juror needs to rely on expert opinions. This raises one component of the epistemic paradox for expert testimony: the jurors with relevant knowledge of the field of expertise are in the best position to evaluate the expert testimony, but those jurors do not need the expert testimony as much as jurors who lack such knowledge. The more specialized knowledge the juror has, the less influence the experts’ opinions might possess. Conversely, the jurors who lack knowledge are in the worst position to evaluate the expert testimony, but

123. Andrew W. Jurs, *Expert Prevalence, Persuasion and Price: What Trial Participants Really Think About Experts*, 91 IND. L.J. 353, 374 (2016) (noting that 15% of jurors invited completed the survey).

124. *Id.* at 373, 373 tbl.2.

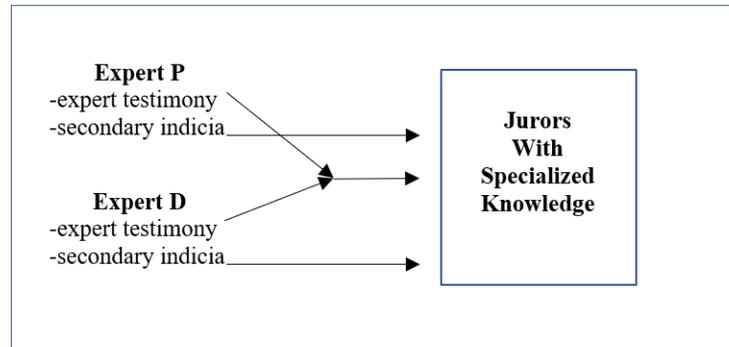
125. *Id.*

126. *Id.* at 372.

127. *Id.*

they need the expert testimony the most to understand the case. Of course, it is unlikely that all jury members would have the specialized knowledge relevant to a particular case; instead, perhaps one or two members might be impanelled on a jury.

FIGURE 2. DIAGRAM OF DUELLING EXPERTS TO JURORS WITH KNOWLEDGE



Even with these long-recognized problems with expert testimony, it remains a mainstay of civil litigation. Indeed, studies estimate that 86% of civil cases involve experts.¹²⁸ In some cases, such as music infringement cases, experts are considered essential.¹²⁹

3. *How Parties in Music Cases Seek Jurors with No Prior Music Knowledge*

Parties in music cases appear to recognize the epistemic paradox of expert testimony and try to capitalize on the scenario that increases the likelihood their expert can influence jurors, particularly those lacking relevant knowledge. As Finell, the musicologist for the Gayes in the “Blurred Lines” case, explained at a law school conference:

The challenge was and is to make music concrete to judges and juries who don’t necessarily have any musical training whatsoever. And I’ve been in groups of attorneys selecting juries and as soon as they found a potential juror with a musical education—and I do remember this very clearly from another notorious case in which one of the po-

128. See Jurs, *supra* note 123, at 355, 355 n.12; Shari Seidman Diamond, *How Jurors Deal with Expert Testimony and How Judges Can Help*, 16 J.L. & POL’Y 47, 56 (2007); Gross, *supra* note 119, at 1119.

129. See, e.g., *Williams v. Gaye*, 895 F.3d 1106, 1117 (9th Cir. 2019); *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946).

tential jurors was a Julliard professor, and they could not get that person out of the room fast enough. I mean, they do not want one juror to influence the others so they would prefer kind of a blank slate. And they certainly attempted to assemble that kind of jury in [the “Blurred Lines” case]. So then the job of the musicologist is to make music as concrete to them as something they could see as well as hear perhaps, and to be able to retain to discuss because it’s very, very fleeting when you listen to a recording and it’s over. So that’s always the challenge of the musicologist is to make it concrete and understandable so reasonable decisions can be made [by the jury], given the substantiation that is provided.¹³⁰

The parties’ desire to impanel jurors who are “blank slates” and lack the relevant specialized knowledge exacerbates—or capitalizes on—the epistemic paradox.¹³¹ The jurors least conversant in the specialized knowledge of the experts are the ones being sought to evaluate the expert opinions containing the specialized knowledge that those jurors lack.

B. *Past Studies on Experts*

The influence of expert testimony on juror decisions has been studied in a series of behavioral or psychological experiments outside of intellectual property disputes.¹³² These studies establish that expert testimony does influence juror decisions, but the expert effect may be muted or nullified in a “battle of the experts” scenario with experts on both sides.¹³³ When jurors have preexisting views on an issue, the effect of experts is also muted or negated.¹³⁴

1. *Other Areas of Law*

a. *Single-Expert Studies: Significant Effect*

Researchers have studied the effect of expert testimony in studies outside of intellectual property cases.¹³⁵ When one expert is presented, the expert testimony has a significant effect.¹³⁶ For example, some experimental studies showed that expert testimony about false confessions led to a skep-

130. NYU SCH. OF LAW, *Proving Similarity*, YOUTUBE (Jan. 7, 2020), <https://www.youtube.com/watch?v=UVQTz65Bq70> [<https://perma.cc/62QD-FXUG>].

131. *Id.*

132. See discussion *infra* Sections II.B.1, II.B.2.

133. See discussion *infra* Section II.B.1.b.

134. See discussion *infra* Section II.B.2.

135. See sources cited *infra* notes 137–39.

136. See sources cited *infra* notes 137–39.

ticism effect, with mock jurors less likely to convict based on a confession.¹³⁷ Other experimental studies indicated that expert testimony about the faultiness of eyewitness testimony “decreased belief in the defendant’s guilt” and lowered the rate of guilty verdicts.¹³⁸

b. Duelling-Expert Studies: Cancelling Out Effect

But when both sides present duelling experts in what is often characterized as a “battle of experts,” the effect of the experts diminishes.¹³⁹ For example, one experiment concluded that psychological expert testimony on the dangerousness of a criminal defendant influenced mock jurors’ determination of dangerousness for capital sentencing.¹⁴⁰ The study found, however, that adding a competing expert on the other side clearly reduced the influence of the expert testimony on mock jurors’ final dangerousness ratings to levels that existed before expert testimony was introduced.¹⁴¹ This reduction of influence of expert testimony did not occur if the first expert was a clinical expert (versus an actuarial expert), which was consistent with the study’s other finding that mock jurors were more heavily influenced by clinical experts.¹⁴² As noted above, researchers have identified a cancelling-out effect created by duelling experts.¹⁴³

c. Court-Appointed or Independent Expert Studies: Potentially Significant Effect

Other studies have examined whether court-appointed, independent, or nonadversarial experts have a different effect than the experts of parties.¹⁴⁴ In their provocative experiment, Christopher Robertson and David Yokum found a significant effect by “blinded experts,” who provide testi-

137. See Skye A. Woesthoff & Christian A Meissner, *Juror Sensitivity to False Confession Risk Factors: Dispositional vs. Situational Attributions for a Confession*, 40 L. & HUM. BEHAV. 564, 575 (2016).

138. See Michael Leippe, *The Case for Expert Testimony About Eyewitness Memory*, 1 PSYCH. PUB. POL’Y & L. 909, 935 (1995); see also Steven Penrod, *Witness Confidence and Witness Accuracy: Assessing Their Forensic Relation*, 1 PSYCH. PUB. POL’Y & L. 817, 841 (1995) (“[E]xpert testimony improved juror knowledge, sensitized jurors to witnessing and identification conditions, and desensitized them toward witness confidence without promoting skepticism toward the eyewitness identification.”).

139. See Leippe *supra* note 138, at 946.

140. See Krauss & Sales, *supra* note 104, at 299–300.

141. *Id.* at 302.

142. *Id.* at 300, 302.

143. See sources cited *supra* note 20 and accompanying text.

144. See sources cited *infra* notes 145–63.

mony in a case without knowledge of which party has hired them in a simulated medical malpractice trial.¹⁴⁵ Indeed, the testimony of the blinded expert *doubled* the odds of winning for the side the blinded expert's testimony supported.¹⁴⁶ Notably, the jurors viewed the blinded expert as more credible than regular experts; the addition of a blinded expert even lowered the credibility rating of the regular expert when jurors compared the two.¹⁴⁷

Judges also seem to value the opinions of court-appointed experts. Joe Cecil and Thomas Willging surveyed federal judges in 1988 to study the relatively few federal cases in which courts appointed experts under Federal Rule of Evidence 706.¹⁴⁸ Two-thirds of the cases involved "medical experts appointed in personal injury cases, engineering experts appointed in patent and trade secret cases, and accounting experts appointed in commercial cases."¹⁴⁹ Most of the patent or trade secret cases involved bench trials; "the parties agreed to the appointment of an expert to enhance the court's ability to understand the technology underlying the dispute."¹⁵⁰ The judges were nearly unanimous in their satisfaction with the assistance provided by the court-appointed experts.¹⁵¹ Notably, in fifty-one out of fifty-eight cases (88%), the outcome was consistent with the court-appointed expert's testimony in the view of the judges surveyed, although the experts' testimony did not always favor a side as opposed to providing context.¹⁵² In eleven of fourteen cases in which "the report or testimony of the appointed expert provided a context for understanding and evaluating other evidence presented by the parties," the judges said they followed or adopted the court-appointed expert's view.¹⁵³ The judges surveyed identified twelve jury trials in which the testimony of the court-appointed expert may have "overwhelm[ed] the expert testimony offered by the parties"¹⁵⁴ by, in effect, tipping the balance in favor of the testimony of one of the parties' experts.¹⁵⁵ Although Cecil and Willging express caution about reading too

145. See Christopher T. Robertson & David V. Yokum, *The Effect of Blinded Experts on Juror Verdicts*, 9 J. EMPIRICAL L. STUDS. 765, 786–90 (2012).

146. *Id.* at 765, 786.

147. *Id.* at 784.

148. See Joe S. Cecil & Thomas E. Willging, *Accepting Daubert's Invitation: Defining a Role for Court-Appointed Experts*, 43 EMORY L.J. 995, 996–98 (1994).

149. *Id.* at 1006.

150. *Id.* at 1007.

151. *Id.* at 1008.

152. *Id.* at 1041.

153. *Id.* at 1041–42.

154. See *id.* at 1043.

155. *Id.*

much into the results of their survey of judges, they suggest that court-appointed experts have been influential when used—and perhaps too influential.¹⁵⁶

Of course, one concern with the use of court-appointed experts is that jurors may use a different proxy or secondary consideration—the status of court-appointment—to evaluate the persuasiveness of the testimony. An experimental study by Brekke *et al.* found little effect produced by a court-appointed expert who was questioned only by the judge and not the parties.¹⁵⁷ Contrary to the typical practice, “[t]he judge [in the experiment] did not explain to the jury what a court-appointed witness is” before conducting the questioning.¹⁵⁸ Under this presentation, the mock jurors evaluated the court-appointed expert “no more favorably than they did one-sided adversarial expert testimony.”¹⁵⁹ When jurors were given the opportunity to deliberate, they “responded quite negatively to the adversarial battle of the experts,” however.¹⁶⁰ The study also found that “some evidence that court-appointed expert testimony was weighted more heavily than adversarial expert testimony prior to deliberations.”¹⁶¹ At least under the condition that the court did not explain what a court-appointed expert is, the jurors were not unduly swayed by the court-appointed expert.¹⁶² The study suggests that courts might not disclose the court-appointed status of an expert as a way to prevent jurors from favoring the expert testimony simply based on that status.

These are but a sampling of the psychological research demonstrating a clear effect by experts on mock jurors’ decisions, but potentially less so in the duelling expert scenario, where experts may, in effect, cancel each other out.¹⁶³ One study showed that blinded experts have a stronger effect on jurors because blinded experts are perceived as more credible,¹⁶⁴ whereas a prior study showed mixed results from the effect of a court-appointed expert, at least when the jurors lacked an explanation of what a court-appointed expert is.¹⁶⁵

156. *Id.* at 1044–45.

157. See Nancy J. Brekke, Peter J. Enko, Gail Clavet & Eric Seclau, *Of Juries and Court-Appointed Experts: The Impact of Nonadversarial Versus Adversarial Expert Testimony*, 15 L. & HUM. BEHAV. 451, 468–69 (1991).

158. *Id.* at 469.

159. *Id.*

160. *Id.*

161. *Id.* at 468.

162. *Id.* at 469–69.

163. See also Neil Vidmar & Shari Seidman Diamond, *Juries and Expert Evidence*, 66 BROOKLYN L. REV. 1121, 1153–54 (2001) (summarizing various studies).

164. See Robertson & Yokum *supra* note 145, at 784.

165. See Brekke *et al.* *supra* note 157, at 468–69.

2. *Prior Copyright Studies*

To our knowledge, there have been no prior published experimental studies examining the effect of experts in copyright cases—or, for that matter, other intellectual property cases.¹⁶⁶ This gap in scholarship is most surprising, given the necessity of experts especially in patent and trademark litigation.¹⁶⁷

Only a few articles have conducted experiments related to copyright infringement, all without consideration of expert testimony.¹⁶⁸ For example, Shyamkrishna Balganes, Irina Manta, and Tess Wilkinson-Ryan conducted a general experiment testing how mock jurors determine similarity between two images (without expert testimony).¹⁶⁹ The study suggested that jurors are more likely to find greater similarities if they know the defendant copied from the plaintiff's work; the jurors' knowledge of copying may have clouded or altered their evaluation of similarities.¹⁷⁰ In an experiment by Jamie Lund testing how mock jurors determine similarity between two musical works (without expert testimony), the results showed that the manner in which the songs were performed—something not protected by the copyright for musical works—had a significant effect on the jurors' determinations of substantial similarity.¹⁷¹

Our prior experimental study examined how the fair use defense affects the results in music disputes.¹⁷² We found that mock jurors' consideration of fair use resulted in greater findings of no liability than simple

166. One article discussed the general psychological model from a prior study of Richard Petty and John Cacioppo and how it might apply to experts in patent cases. See Laura Hall, *Technical Experts in Patent Trials: A Psychological Perspective*, 39 AIPLA Q.J. 195, 209–16 (2011).

167. See, e.g., Dolly Wu, *Patent Litigation: What About Qualification Standards for Court-Appointed Experts*, 210 B.C. INTELL. PROP. & TECH. F. 1, 1 (2010) (“Experts are so prevalent in patent litigation that even appellate judges in the U.S. Court of Appeals for the Federal Circuit (“CAFC”) lamented: ‘Evidentiary conflicts with respect to technology and science arise in a variety of cases; and the conflicting testimony of expert witnesses is ubiquitous.’”) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 1025 (Fed. Cir. 1995) (Newman, J., dissenting)); Charles J. Faruki, *Litigation Involving Trademarks: Preparing the Trademark Case for Trial*, 16 U. DAYTON L. REV. 85, 114–15 (1990) (“Since one side will undoubtedly offer survey results, the other side at least must be prepared to respond either by cross examination of the opposing party’s survey expert (which may itself require the assistance of one’s own survey expert), or by offering one’s own survey, done in such a way as to remedy the deficiencies of the opposing party’s survey.”).

168. See, e.g., Shyamkrishna Balganes, Irina Manta & Tess Wilkinson-Ryan, *Judging Similarity*, 100 IOWA L. REV. 267, 278–79 (2014).

169. *Id.*

170. *Id.* at 281.

171. Jamie Lund, *An Empirical Examination of the Lay Listener Test in Music Composition Copyright Infringement*, 11 VA. SPORTS & ENT. L.J. 137, 171 (2011).

172. See Lee & Moshirnia, *supra* note 25, at 472.

application of the test of substantial similarity in music cases.¹⁷³ This important finding suggests that the predominant strategy of defendants in avoiding fair use defenses in litigated music cases is a mistake.¹⁷⁴ The study also found a *knowledge effect* among jurors that significantly affected the decisions: persons with knowledge in music or the law—meaning prior training in either field—found liability under the test of infringement, but, at the same time, no liability under fair use, at greater rates than persons without such knowledge.¹⁷⁵ This inverse relationship—with jurors with music or legal knowledge finding liability under substantial similarity, but no liability under fair use, at greater rates than people lacking such knowledge—indicates that people with such knowledge are more sensitive to the differences between the legal rules of substantial similarity and fair use, and to the differences in the two musical works.¹⁷⁶

For this study, we tested how expert testimony affects (if at all) the analysis of copyright infringement in music disputes. Parties on both sides in a music case typically present forensic musicologists to provide an opinion on the issue of dissection of the two works, analyzing whether the two musical works are substantially similar based on copyrightable elements from the copyright owner's song.¹⁷⁷ Based on the other studies of experts summarized above, we surmised that (i) a similar expert effect occurs in copyright lawsuits, but (ii) perhaps less so or none at all in the scenario with duelling experts, who may, in effect, cancel each other out. We also tested an alternative scenario with three experts: two duelling experts and an independent, court-appointed expert. We expected that a court-appointed expert would affect the decisions, especially of persons lacking knowledge in music or the law.

III. STUDY DESIGN

Part III describes our research questions, hypotheses, the design of our study and survey instrument, and the participants' demographics.

173. *Id.*

174. See Edward Lee, *Fair Use Avoidance in Music Cases*, 59 B.C. L. REV. 1873, 1901 (2018) (“[O]nly one U.S. court has ever recognized, in a published decision under the 1976 Copyright Act, a nonparody fair use of a putative musical work.”).

175. See Lee & Moshirnia, *supra* note 25, at 560.

176. *Id.*

177. *Id.* at 526.

A. *Research Questions and Hypotheses*

The experiment sought to assess the relative effectiveness of the testimony of experts presented by the parties and a court-appointed expert in the context of music copyright disputes. The study was designed to examine whether expert testimony would affect differently mock jurors with prior background knowledge (specifically knowledge in music and/or the law) versus jurors without such knowledge. Three main sets of questions were examined:

(1) *Effect of duelling experts and court-appointed expert.* Does the expert testimony affect the outcome and subject confidence? We sought to examine whether subjects are inclined to change their liability determination when provided expert testimony in the form of (a) duelling experts and (b) a third, court-appointed expert. We also sought to determine whether subjects express similar levels of confidence in their liability determination when provided with expert testimony under these scenarios.¹⁷⁸

(2) *Effect of prior knowledge in music or the law.* Does prior knowledge (musical or legal) affect the outcome and subject confidence in light of expert testimony? We attempted to determine if subjects with prior experience in musical study or musical performance are less likely to be swayed by expert testimony. We also examined if subjects with prior legal training are less influenced by expert testimony.

(3) *Effect of degree of similarity between the songs.* Does the level of work similarity (low versus high) affect the outcome in light of expert testimony? Finally, we examined whether the degree of similarity between the two songs—either high or low—affected the results.

Our hypotheses presumed, first, that subjects would return comparable rates of liability when presented with no expert testimony and duelling experts, given that each expert would present equivalent, but opposing arguments supporting subjects' preferred outcome. We believed the introduction of a third-party court-appointed expert, however, would be more likely to change liability determinations in line with the court-appointed expert's recommendation. Second, we hypothesized that subjects with music knowledge would be less likely to be persuaded by expert testimony, as subjects with such knowledge would have a better understanding of musical elements and thus not necessarily find the expert necessary or persuasive. We presumed that subjects with legal knowledge would be less likely

178. Determining a subject's confidence provides greater information about how sure or confident the subjects were in their answers. See, e.g., Danielle E. Chojnacki, Michael D. Cicchini & Lawrence T. White, *An Empirical Basis for the Admission of Expert Testimony on False Confession*, 40 ARIZ. ST. L.J. 1, 29 (2008).

to be persuaded by expert testimony, as they would have a better understanding of the tailored and strategic use of expert testimony in cases. Third, we hypothesized that subjects would be more swayed by experts in cases with low similarity than in cases with high similarity, given that a copyright case tends to be easier to determine when the two works involved have high versus low similarity. More simply, we presumed that third party, court-appointed experts would affect outcomes, would have a more muted impact on subjects with prior knowledge, and would have a greater impact when the underlying case was difficult.

The experiment was designed to allow for both within-subjects and between-subjects comparisons. One concern is that subjects will have an anchoring, pre-test effect (that is, the reluctance to deviate from an earlier stated position). This experimental design addresses that concern by allowing for comparisons of outcomes in light of previous exposure to the control condition.

B. Demographic Overview

The sample consisted of 742 subjects ($N=742$). 174 subjects identified as receiving some legal training ($n=174$), and 568 identified as receiving no legal training ($n=568$). 400 subjects identified as receiving some musical training (“subjects with prior music knowledge”, $n=400$), and 342 identified as receiving no musical training (“subjects who lacked music knowledge”, $n=342$).¹⁷⁹ The N number of subjects was derived from a power analysis considering a binary end condition (liable or not liable for infringement) with expected difference of approximately 10%, an alpha value of .05¹⁸⁰ and a power of .8.

In terms of gender, 434 identified as male, 301 female, two nonbinary or third gender, and five declined to identify a gender. The sample consisted of the following individuals by age:

179. The partial exclusion of subjects that recognized at least one song from the high-similarity pair yielded 304 subjects with prior music knowledge and 284 subjects who lacked music knowledge, and 135 subjects with legal training and 452 subjects with no legal training. See *infra* Section III.B.

180. An alpha (or p) value may be understood as the “false positive” rate; that is, the likelihood that the apparent difference between groups does not actually exist.

TABLE 1: SUBJECTS BY AGE

Age group	Number of subjects	Percentage
18-24 year old	61	8.2%
25-34 year old	367	49.5%
35-44 year old	186	25.1%
45-54 year old	78	10.5%
55-64 year old	38	5.1%
65-74 year old	12	1.6%

The sample largely consisted of individuals with at least a high school education. The breakdown was as follows:

TABLE 2: SUBJECTS BY EDUCATION

Education level	Number of subjects	Percentage
no high school education	1	0.1%
high school education	34	4.6%
some college education	76	10.2%
associate's degree	52	7.0%
bachelor's degree	410	55.3%
master's degree	156	21.0%
professional degree or doctorate	13	1.8%

The sample matched the level of education that correlated with measured readability of the instrument: under the tests we ran, items would be understood well by individuals with a twelfth-grade education.¹⁸¹ Subjects showed different music listening frequencies:

181. See Table 3.

TABLE 3: SUBJECTS BY MUSIC LISTENING HOURS PER DAY

Subjects by Music Listening	Number of subjects	Percentage
Less than 1 hour a day	98	13.2%
1-2 hours a day	421	56.6%
3-4 hours a day	167	22.5%
5 or more hours a day	56	7.5%

C. The Survey Instrument and Six Simulated Music Cases

The instrument consisted of six scenarios:

- Case 1 – A v. B without expert testimony;
- Case 2 – A v. B with testimony from two duelling experts;
- Case 3 – A v. B with testimony from two duelling experts and court-appointed expert;
- Case 4 – C v. D without expert testimony;
- Case 5 – C v. D with testimony from two duelling experts; and
- Case 6 – C v. D with testimony from two duelling experts and court-appointed expert.

These are the same scenarios we used in our prior experiment.¹⁸² Our descriptions of the scenarios below are drawn largely from our prior article.¹⁸³ As explained later in Part III, using the same scenarios had the benefit of enabling us to validate the instrument we used.

Two differences from our prior study should be noted at the outset. First, we did not include a fair use instruction in this study but confined the subjects' examination to the question of substantial similarity. We plan on including fair use again in a subsequent study. Second, this study included expert testimony for the subjects to consider, either in a duelling expert scenario or in a three experts scenario, duelling experts with the addition of a court-appointed expert.

Subjects were presented with four of the above scenarios, two involving A v. B, and two involving C v. D. For each scenario, subjects were asked to rule on infringement and state their confidence in this outcome on a ten-item Likert scale.¹⁸⁴ After rendering a verdict, subjects were asked if

182. See Lee & Moshirnia, *supra* note 25, at 524–25.

183. *Id.*

184. A Likert scale is a psychometric scale often used in questionnaires, presenting examinees with ordinal choices (for example, a 1–10 scale paired with a statement, 1 meaning total disagreement and 10

they recognized any of the songs and to write out the name of the song. If a subject reported recognizing a song, they were queried if they harbored any ill feelings towards the song's author. These questions served as a means of addressing potential bias, but more importantly, served as an attention check for suspicious bot behavior. Additionally, subjects were asked an audio fidelity question, testing whether the subject could hear audio files. Lastly, the final question before the debrief was an attention check. The songs for A v. B and C v. D, and reasons for their inclusion in this experiment are discussed below. The testing instrument is appended to this Article as Appendix A.

1. *Cases 1–3: Songs A v. B (Low Similarity Between Songs)*

For our entire study, we selected two songs involved in successful copyright infringement actions. This selection helped to ensure that a trier of fact could find liability.

For Cases 1 through 3, the musical pair contained songs A and B. This pair of songs was meant to provide subjects with a potentially infringing song pairing with relatively low similarity, in our estimation. The dispute in Cases 1–3 is based on the “Blurred Lines” dispute. Song A is a piano instrumental of the song “Got To Give It Up” by Marvin Gaye. Song B is a piano instrumental of the song “Blurred Lines” by Robin Thicke, Pharrell Williams, and Clifford Harris Jr. (T.I.). We chose instrumental versions because, in the actual case, the copyright of Gaye’s song was limited to the deposit copy of the sheet music, which lacked a number of the musical components in the recording of the song commercially sold.¹⁸⁵ Gaye’s heirs prevailed in a copyright infringement action with respect to Thicke and Williams in a judgment upheld by a 2–1 panel on appeal.¹⁸⁶

2. *Cases 4–6: Songs C v. D (High Similarity Between Songs)*

For Cases 4 through 6, we selected the songs from *ABKCO Music, Inc. v. Harrisongs Music, Ltd.*¹⁸⁷ Song C is a piano instrumental of the song “He’s So Fine” by Ronald Mack.¹⁸⁸ Song D is a piano instrumental of the song “My Sweet Lord” by George Harrison.¹⁸⁹ In a well-publicized case,

meaning total agreement). See ROBERT M. LAWLESS, JENNIFER K. ROBBENOLT & THOMAS S. ULEN, EMPIRICAL METHODS IN LAW 172 (2010); see, e.g., Brian Sheppard & Andrew Moshirnia, *For the Sake of Argument: A Behavioral Analysis of Whether and How Legal Argument Matters in Decisionmaking*, 40 FLA. ST. U. L. REV. 537, 566 n.97 (2013).

185. *Williams v. Gaye*, 895 F. 3d 1106, 1125 (9th Cir. 2018).

186. *Id.* at 1127–28.

187. 722 F. 2d 988, 990 (2d Cir. 1983).

188. See *id.*

189. See *id.*

the owners of the copyright in “He’s So Fine” prevailed in a copyright infringement action against Harrison in a judgment upheld on appeal.¹⁹⁰ The musical pair containing songs C and D was meant to provide subjects with a potentially infringing song pairing with relatively high similarity, in our judgment, compared to musical pair A v. B.

3. *Limitations of the Instrument*

Our experiment was not intended to be a retrial of either the “Blurred Lines” or the “My Sweet Lord” case. Our online experiment did not attempt to reproduce all the elements of a typical music infringement trial, which would require days of testimony from lay and expert witnesses.¹⁹¹ Moreover, in jury trials, the members of the jury discuss the case with each other and deliberate potentially for days before reaching their unanimous verdict.¹⁹² Our experiment did not include deliberation among jurors but simply asked each subject to evaluate the case individually. In other words, our experiment simplified the music disputes to focus the mock jurors’ analysis to audio clips of the two songs and a relatively brief amount of expert testimony that trained the jurors’ attention on a couple key elements of the songs.¹⁹³ We crafted an instrument that attempted to balance the need to capture the main issue(s) and arguments related to substantial similarity between the songs, with the need to avoid confusing the mock jurors or overwhelming them with a time-consuming task that could deter some subjects from completing the study.

Given the limitations of our study, it bears emphasis that the results of our experiment should not be interpreted in any way as a critique of the actual decisions in either case, much less as criticism of the jury, the judge, or the experts in the cases.

190. See, e.g., George Harrison Guilty of Plagiarizing, *Subconsciously, a ‘62 Tune for a ‘70 Hit*, N.Y. TIMES (Sept. 8, 1976), <https://www.nytimes.com/1976/09/08/archives/george-harrison-guilty-of-plagiarizing-subconsciously-a-62-tune-for.html> [https://perma.cc/TS3R-2GM8].

191. See, e.g., Austin Siegemund-Broka, *‘Blurred Lines’ Trial Opens as Jurors Hear Dueling Arguments About What’s at Stake*, HOLLYWOOD REP. (Feb. 24, 2015, 2:16 PM), <https://www.hollywoodreporter.com/thr-esq/blurred-lines-trial-jury-selection-777503> [https://perma.cc/ZQ3M-Q3HC]; *Blurred Lines Trial: Jury Hears Closing Arguments in Case*, NBC NEWS, <https://www.nbcnews.com/pop-culture/music/blurred-lines-trial-jury-hears-closing-arguments-case-n31845> (Mar. 6, 2015, 7:16 AM) [https://perma.cc/S5M2-Z3RF].

192. See, e.g., Jess Collen, *Damages and ‘Blurred Lines’ Copyright—Court Says ‘You Got To Give It Up’*, FORBES (Mar. 21, 2018, 4:00 PM), <https://www.forbes.com/sites/jesscollen/2018/03/21/damages-in-blurred-lines-court-says-you-got-to-give-it-up/#7fe1220043b4> [https://perma.cc/BAA3-UQL7] (noting that the jury deliberated for two days in “Blurred Lines” case); FED. R. CIV. P. 48(b) (requiring unanimous jury verdict).

193. We provide a fuller explanation of how we composed the expert testimony below. See discussion *infra* Section III.C.6.

4. *Readability of Scenarios*

We tried to write the scenarios so they were accessible and understandable because we anticipated subjects with a variety of educational backgrounds would be reviewing the survey instrument. The A v. B scenarios had a Flesch-Kincaid Grade Level¹⁹⁴ of 8.2 and Gunning Fog Score of 10.6¹⁹⁵ (meaning they should be easily understood by eighteen-year-old high-school graduates) for Case 1; 10.0 and 12.9 for Case 2; and 9.9 and 13.3 for Case 3. The C v. D scenarios had a Flesch-Kincaid Grade Level of 9.9 and Gunning Fog Score of 11.9 for Case 4 (meaning they too should be easily understood by eighteen-year-old high-school graduates); 10.6 and 13.8 for Case 5; and 11.1 and 14.6 for Case 6. While scenarios involving experts did return higher scores, these readability scores were adequate, given that the great majority our subjects were high school graduates or above.

5. *The Jury Instructions and Expert Testimony*

a. Substantial Similarity Instruction

We used a simplified jury instruction for substantial similarity: Under the law, to prove Musician B has infringed the copyright to Musician A's song, Musician A must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as "identical." Musician A does not have to show that each of the individual elements of the songs is substantially similar. Musician A must show that there is enough similarity between original elements of Musician A's song and Musician B's song to constitute a substantial amount to the ordinary, reasonable listener. In light of the legal rule, does Musician B's song infringe Musician A's copyright?

This jury instruction is a simplified, composite instruction of substantial similarity. Some parts were drawn from Instruction No. 43 given in the "Blurred Lines" trial and upheld by the Ninth Circuit on appeal.¹⁹⁶ Although Instruction No. 43 pertains to what it calls "extrinsic similarity"—involved in the process of dissection discussed above—we decided against

194. While scholars have questioned the use of readability indices for determining overall survey question difficulty, the use of a readability tool can inform rapidity of reading. Timo Lenzner, *Are Readability Formulas Valid Tools for Assessing Survey Question Difficulty?*, 43 SOCIO. METHODS & RSCH. 677–98 (2013). It should be noted that the readability of a scenario does not necessarily comport with the cognitive difficulty of applying multi-factor tests or challenging concepts of substantial similarity.

195. These are both fairly common readability calculations included in most readability testing tools. See, e.g., *Readability Test*, WEBFX, <https://www.webfx.com/tools/read-able/> (last visited Jan. 12, 2022) [<https://perma.cc/259Q-K8QY>].

196. See *Williams v. Gaye*, 895 F. 3d 1106, 1124 (9th Cir. 2018).

delineating separate inquiries into “extrinsic” and “intrinsic similarity” as potentially confusing to the participants of our study.¹⁹⁷ We included the standard of the “ordinary, reasonable listener” from a combination of the Ninth and Eleventh Circuit pattern instructions, which are consistent with the approach adopted in *Arnstein v. Porter*.¹⁹⁸ We chose not to offer an instruction on proving defendant’s copying based on circumstantial evidence of access and similarities (the first step of the *Arnstein* test) because our examination focused on substantial similarity (the second step of the *Arnstein* test) and the facts in our survey instrument indicated that the defendant had access to the plaintiff’s work.¹⁹⁹

Our simplified jury instruction was similar in substance and length to the instruction used in Lund’s prior experiment on substantial similarity for music infringement.²⁰⁰ Of course, many other jury instructions related to a copyright claim could be given, but, for an experiment of this kind, adding more instructions would likely increase the complexity, possible confusion, and risk of subjects dropping out of the experiment due to time.

b. Expert Testimony

As noted above, we gave the mock jurors comparatively brief passages of expert testimony in the simulated cases. The expert testimony is included in the Instrument attached as an appendix to this Article.

For Songs A and B, which is based on the “Blurred Lines” case, we culled the main points we used in our experiment from the respective analysis of the parties’ experts in the “Blurred Lines” case as well as the majority and dissenting opinions.²⁰¹ We tried to present the strongest arguments on both sides. This case presented challenges, however. The Gayes’ expert Judith Finell opined that the similarities between the two songs can be found in a “constellation” of eight similarities between the two songs,

197. MANUAL OF MODEL CIVIL JURY INSTRUCTIONS FOR THE DISTRICT COURTS OF THE NINTH CIRCUIT § 17.19 (NINTH CIR. JURY INSTRUCTIONS COMM. 2017).

198. *See id.*; *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946).

199. *Arnstein*, 154 F.2d at 468.

200. *See* Lund, *supra* note 171, at 158 (“To find music copyright infringement between plaintiff’s and defendant’s songs, you must find that the songs are substantially similar. Two works are substantially similar if the original expression of ideas in the plaintiff’s (Song #1) copyrighted work and the expression of ideas in the defendant’s work (Song #2) that are shared are substantially similar. Original expression are those unique aspects of the plaintiff’s song that are not common or ordinary to the genre or to music generally. The amount of similarity must be both quantitatively and qualitatively significant, that is the defendant’s song copied either a substantial portion of the original expression of the plaintiff’s song, or copied a smaller but qualitatively important portion of the plaintiff’s song.”).

201. *See, e.g.*, Mike Doherty, *The New, Even Blurrier Lines of the Post-‘Blurred Lines’ Universe*, MACLEAN’S (Mar. 11, 2015), <https://www.macleans.ca/culture/the-new-even-blurrier-lines-of-the-blurred-lines-universe/> [https://perma.cc/L3UE-ES78].

but none on a note-for-note level.²⁰² To include all eight alleged similarities in our experiment would run the risk of overwhelming the mock jurors with very complex, technical analysis on eight different musical elements, each of which would require explaining the musical terminology. For example, Judge Nguyen's dissent took nine pages to review and critique each of the similarities and the entire combination.²⁰³ Nine pages was far more than we could reasonably include in our experiment—without greatly risking having subjects drop out of the experiment due to the substantial time commitment in reading nine pages' worth of expert testimony.

We acknowledge that we had to sacrifice some of the comprehensiveness of Finell's analysis. But we believe that we included several strong points of her analysis, including with respect to (1) the several alleged similarities related to the memorable phrase (which Finell described as the "signature phrase") in both songs, (2) the break in melodies in both songs (which Finell described as occurring at the exact same measure), (3) use of word painting, and (4) the combination of elements.²⁰⁴ Likewise, our main points for the expert testimony for the other side were drawn mainly from the expert testimony from Sandy Wilbur, the musicologist for Williams and Thicke.²⁰⁵ We attempted to capture the strong points of her testimony. We also drew upon Judge Nguyen's dissent.²⁰⁶ In drafting the expert testimony, we purposely chose to include some expert testimony that bore directly on the audio clips we provided the mock jurors. In addition to performances of the entire songs, we included short instrumental clips of the so-called signature phrases to focus the comparison. We also decided to include some expert testimony that would not necessarily be identifiable in the audio clips. For example, the break in the melodies and the word painting identified by Finell for the Gayes' side would not be identifiable in the instrumental clips, which did not contain any lyrics being sung. We made this decision because it would *increase* the likelihood that the expert testimony would provide *new* insights to the jurors—which is what, in an actual case, an expert would be expected to do. We also avoided including any lyrics because they might be a dead giveaway to the actual disputes (a confounding factor if the jurors knew the songs, artists, or case outcomes at issue).

202. *Id.*

203. See *Williams v. Gaye*, 895 F.3d 1106, 1143–52 (9th Cir. 2018) (Nguyen, J., dissenting).

204. See Austin Siegemund-Broka, *How Similar Is 'Blurred Lines' to A 1977 Marvin Gaye Hit?*, HOLLYWOOD REP. (Mar. 3, 2015, 5:00 AM), <https://www.hollywoodreporter.com/business/business-news/how-similar-is-blurred-lines-778635/> [<https://perma.cc/LV34-T7V3>].

205. See *Musicologist Who Testified In 'Blurred Lines' Trial Explains Her Case*, WBUR (Mar. 18, 2018), <https://www.wbur.org/onpoint/2015/03/18/another-musicologists-take-on-blurred-lines> [<https://perma.cc/KGC5-M6EJ>].

206. *Williams*, 895 F.3d at 1138–52.

For Songs C and D, which is based on the “My Sweet Lord”/Harrison case, we had an easier task in formulating the expert testimony. Judge Owen’s opinion in the case encapsulates the main similarity between the songs: a similar motif A repeated several times followed by a similar motif B repeated several times.²⁰⁷ For the expert testimony we drafted, the plaintiff’s expert accentuated the similarities in these sequences, whereas the defendant’s expert accentuated the differences, where Song D departed from the sequence. The defendant’s expert also testified that the individual motifs were common phrases already contained in prior songs. One caveat is worth noting. Given the sheet music available to us, which lacked the identical, “telltale grace note” given substantial weight by Judge Owen,²⁰⁸ we omitted the grace note in our audio clips. For Song D (based on “My Sweet Lord”), we had three repetitions of motif A, as indicated by the available sheet music, followed by three repetitions of motif B instead of Judge Owen’s description of four repetitions of motif A.²⁰⁹ Granted, these departures from the facts in the actual case reduced the similarities between the two songs. But, in our testing of the audio clips of the two songs before running the experiment, we concluded that there remained a noticeably high similarity between the two songs. To help focus on the similarities, we also included short music clips of the sequence of motifs A and B in both songs, in addition to clips of the entire song. As our results show, the high rate of liability found in the cases involving Songs C and D confirms our view that the modifications we made did not render the case a dispute with low similarity between songs.

Finally, for the court-appointed expert, we decided to have the court-appointed expert side with the view taken by the party that was *less likely* to prevail based on a comparison of the audio clips of the two songs in each case. We estimated that the plaintiff in the dispute involving Songs A and B (low similarity) had the more difficult case to win, whereas the defendant in the dispute involving Songs C and D (high similarity) had the more difficult case to win. We wanted to avoid the situation that the mock jurors might side with the court-appointed expert simply because it was consistent with the side with the easier position based on the degree of similarity between the songs at issue. By assigning the court-appointed expert the harder position to prevail, we could better evaluate whether the expert testimony itself affected the outcome.

207. See *Bright Tunes Music Corp. v. Harrisongs Music, Ltd.*, 420 F. Supp. 177, 180 (S.D.N.Y. 1976).

208. *Id.* at 180 n.10.

209. *Id.*

C. Tests Run

Data was analyzed in IBM SPSS Statistics v.26. A Chi-Square comparison was used to examine between-subjects binary liability determination rates, and McNemar's test (a within-subjects Chi-squared test) was used to examine within-subjects changes to liability rates.²¹⁰ Paired t-tests were also used to examine within-subjects changes in liability determinations.²¹¹ MANOVA repeated measures analysis was used to examine multiple variables and interactions.²¹² A Sidak correction factor was used when multiple levels of a single variable were compared.²¹³

210. A Chi-squared test can be used to determine if a difference between two variables with binary outcomes is likely to reflect a real difference between the two variables in the population. For an example of a chi-squared test and SPSS results applying the test, see *Chi-Squared Test for Nominal Data*, UNIV. OF THE WEST OF ENGLAND, <https://www.uwe.ac.uk/about/faculties-and-departments/health-and-applied-sciences> (last visited Jan. 12, 2022) [<https://perma.cc/T4T5-K7Z2>]. McNemar's Test is a chi-square test that can be used in 2x2 tables to test for consistency in responses (for example, when some subjects change from "yes" to "no" in repeated observations, McNemar's test can indicate if these changes random). For a primer on McNemar's test and its use in SPSS, see Omolola A. Adedokun & Wilella D. Burgess, *Analysis of Paired Dichotomous Data: A Gentle Introduction to the McNemar Test in SPSS*, 8 J. MULTIDISCIPLINARY EVALUATION 125–31 (2012).

211. A paired t-test compares the means of two related samples (that is, the two measurements are taken from the same subjects) and tests if the difference in means is large enough to be attributable to the hypothesis rather than sampling variation. For an example of a paired t-test and SPSS results applying the test, see *Paired T-Tests*, UNIV. OF THE WEST OF ENGLAND, <https://www.uwe.ac.uk/about/faculties-and-departments/health-and-applied-sciences> (last visited Jan. 12, 2022) [<https://perma.cc/5BJL-6Y5P>].

212. MANOVA is a multivariate analysis of variance test, in which differences among multiple group means are studied in relation to two or more response variables. An ANOVA is similar, but only examines one response variable. For an example of a MANOVA and SPSS results applying the test, see UCLA, *One-way MANOVA: SPSS Data Analysis Examples*, UCLA: STAT. CONSULTING GRP., <https://stats.idre.ucla.edu/spss/dae/one-way-manova/> (last visited Jan. 12, 2022) [<https://perma.cc/6YVZ-QLJC>]. An interaction occurs when the impact of one causal variable on the observed outcome depends on the presence or absence of a second causal variable (that is, the impact of variable A and/or variable B differ when both A and B are present). For an example of tests designed to determine an interaction effect in SPSS, see Ruben Geert van den Berg, *SPSS Two-Way ANOVA with Interaction Tutorial*, SPSS TUTORIALS, <https://www.spss-tutorials.com/spss-two-way-anova-interaction-significant/> (last visited Jan. 12, 2022) [<https://perma.cc/BVM7-F4NW>].

213. Once a test comparing multiple means (such as MANOVA or ANOVA) determines that a difference exists among the means (e.g., a difference exists between means A, B, C, and D), follow up tests (post-hoc tests) employ pairwise comparisons to examine the difference between each pair of means (e.g., A v B, A v C, A v D, etc.). Due to the fact that multiple comparisons are conducted (with an attendant increase in error rate), a correction factor is used to determine if the resulting differences are significant. See Sangseok Lee & Dong Kyu Lee, *What is the Proper Way to Apply the Multiple Comparison Test?*, 71 KOREAN J. ANESTHESIOLOGY 353, 353–60 (2018). The Sidak correction is one such correction factor. See *One-Way ANOVA Post Hoc Tests*, IBM, https://www.ibm.com/support/knowledge-center/SSLVMB_sub/statistics_mainhelp_ddita/spss/base/idh_onesw_post.html (last visited Jan. 12, 2022) [<https://perma.cc/SL7N-LZC9>].

IV. RESULTS

The results are provided below, with a summary of key findings, validation of the instrument in light of our previous studies, and results of hypothesis testing.

A. Summary of Key Findings

The results of our experiment largely supported our hypotheses regarding expert effects on mock jurors, including subjects with and without relevant background knowledge. Our key findings were:

First, duelling experts had little to no effect on the opinions of subjects who lacked background knowledge of music or law. Lay subjects showed no difference in liability outcomes or confidence in their decisions based on exposure to duelling expert testimony. This finding supports a cancelling out effect created by duelling experts of the parties. But subjects with music knowledge did have a significant difference in liability outcomes based on exposure to duelling experts in the high similarity case C v. D. The finding of liability lowered modestly among subjects with music knowledge. The finding appears to indicate that people with relevant knowledge are able to evaluate the substance of duelling testimony in an informed manner and at least sometimes rely on the expert testimony in reaching their decisions. That is, one of the experts may win the duel, even if starting from a position of equipoise.

Second, a court-appointed expert added to duelling experts was much more likely to persuade subjects to change their liability determination, but only if those subjects lacked background knowledge of music or law. By contrast, subjects with background knowledge were just as likely to reject a court-appointed expert's position as to adopt that position. One possible explanation is that subjects who lack knowledge are influenced by the independent or court-appointed status of the expert, whereas subjects with music knowledge are evaluating the substance of all the expert testimony and are not influenced by the court-appointed status. This might also point to difference in cumulative impact; that is, subjects without background knowledge may have been persuaded that two of the three presented experts recommended a particular outcome, whereas subjects with background knowledge relied on the content of the expert testimony. This finding comports with prior work regarding reliance on secondary indicia. It also demonstrates how jurors with relevant background knowledge are in a better position to evaluate the substance of expert testimony, compared to jurors lacking such knowledge, and do not need to rely on secondary indicia at all.

Third, regardless of background knowledge, subjects who were persuaded to switch from their initial liability outcome by a court-appointed expert exhibited significantly lower confidence in their new liability determination. Perhaps not surprisingly, when a subject flipped positions with the addition of testimony from a court-appointed expert, the subject had lower confidence in the conclusion. A change in position resulted in a lowering of confidence.

In sum, duelling experts had little to no effect on lay subjects who lacked prior music knowledge, but did have an effect on subjects with knowledge in a case of high similarity between songs in the direction of the party with the harder position to prove (noninfringement). A court-appointed expert persuaded lay subjects who lacked prior music knowledge, but with the lowering of the subjects' confidence in the outcome. Interestingly, neither duelling experts nor a court-appointed expert significantly increased subjects' confidence. Results are discussed in greater detail below.

B. *Validation of Instrument*

Prior studies have shown that subjects differ significantly in their findings of copyright infringement based on their background knowledge in music or law.²¹⁴ Subjects with background knowledge in music are significantly more likely to find substantial similarity than subjects without music background.²¹⁵ Subjects with background knowledge in law are significantly more likely to find substantial similarity than subjects without legal background.²¹⁶ We expected that similar patterns would be detected in this experiment. Additionally, prior studies involving the musical pairs at issue in this experiment returned higher rates of infringement for Songs C v. D (the high similarity pair) than for Songs A v. B (the low similarity pair). The control condition for this experiment is essentially identical to this prior use. Accordingly, the instrument can be validated by evaluating if Songs C v. D returns a higher infringement finding than Songs A v. B.

For ease of reference, the prior findings involving these musical pairs are provided here. In our previous study, 503 subjects ($N=503$) considered the Songs A v. B low similarity music pairing under a substantial similarity rule, and found liability 39.2% of the time.²¹⁷ Subjects with music knowledge ($n=217$) found the liability at a higher rate (49.4%) than subjects who lacked music knowledge ($n=286$, 32.2%).²¹⁸ 503 subjects

214. See Lee & Moshirnia *supra* note 25, at 532.

215. See *id.*

216. See *id.*

217. See *id.* at 544.

218. See *id.*

($N=503$) also considered the Songs C v. D high similarity music pairing under a substantial similarity rule, and found liability 59.4% of the time. Subjects with music knowledge ($n=217$) found the liability at a slightly higher rate (60.4%) than subjects who lacked music knowledge ($n=286$, 58.8%).²¹⁹

As discussed below, the results of this experiment's control condition—that is, musical pairs without expert testimony—comport with findings in our previous study on copyright infringement decisions in light of musical and legal training.²²⁰ This consistency provides further validation of the instruments as well as our previous study and indicates that subjects in this study were responding nonrandomly.²²¹

1. *Validating the Instrument: Control Condition of High Similarity Pair Returns Higher Infringement Rate than Lower Similarity Pair*

In this experiment, 373 subjects evaluated the Songs A v. B, low similarity musical pair in the control condition (that is, without any musical expert testimony). Among this group, 168 subjects found infringement, for a rate of 45.0%. Likewise, 304 subjects evaluated the Songs C v. D, high similarity musical pair in the control condition. 230 subjects found infringement, for a much higher rate of 75.7%. A chi-square comparison showed these rates were significantly different ($p < .001$).²²² This difference comported with previous findings. The A v. B liability findings were in line

219. *See id.*

220. *See id.*

221. The latter is especially a concern in view of recent difficulties with administration of experiments on mTurk. *See* Ekaterina Damer, *Stop Using MTurk for Research*, PROLIFIC: BLOG (July 31, 2019), <https://blog.prolific.co/stop-using-mturk-for-research/> [<https://perma.cc/JTZ7-HBWF>]. But the validation of the instrument we used indicates our study avoided these difficulties.

222. The p value or probability value is a measure of the probability of obtaining, assuming the null hypothesis is correct, test results that are at least as extreme as the results obtained. A p value is stated between 0 and 1, and a threshold for the p value (commonly 0.1, 0.05, or 0.01) is used to determine whether a result is statistically significant. *See generally*, *P-Value*, CORP. FIN. INST., <https://corporate-financeinstitute.com/resources/knowledge/other/p-value/> (last visited Jan. 12, 2022) [<https://perma.cc/B6XT-7Y6M>]. A lower p value is associated with greater statistical significance. Historically, a $p \leq 0.05$ was often used as the threshold for statistical significance based on R.A. Fisher's approach, but that selection has faced increasing criticism as arbitrary and open to misunderstanding. *See, e.g.*, James K. Skipper, Jr., Anthony L. Guenther & Gilbert Nass, *The Sacredness of .05: A Note Concerning the Uses of Statistical Levels of Significance in Social Science*, 2 AM. SOCIOLOGIST 16, 16 (1967); Tukur Dahiru, *P-Value, a True Test of Statistical Significance? A Cautionary Tale*, 6 ANNALS OF IBADAN POSTGRADUATE MED. 21, 21 (2008); Valentin Amrhein, Sander Greenland & Blake McShane, *Scientists Rise Up Against Statistical Significance*, NATURE (Mar. 20, 2019), <https://www.nature.com/articles/d41586-019-00857-9> [<https://perma.cc/ZZ2H-AG74>]. In our study, we have indicated the p values in our tables of results and the threshold p value we considered to be statistically significant, which ranged from a low of $p < .001$ to a high of $p < .10$. In practice, we include findings of $p < .075$. This level is further justified in that $p < .1$ is not uncommon in social sciences. Our charts use the following symbols with regard to significance: ** ($p < .01$), * ($p < .05$), + ($p < .075$).

with our previous experiment, but the C v. D liability findings were elevated. This difference appears to be attributable to the comparatively higher number of C v. D subjects in the current experiment who reported recognition of at least one song in the C v. D musical pair.²²³ Prior knowledge of the actual lawsuit in which the court found infringement contributed to the higher rate of infringement in this second experiment compared to our first experiment.

This difference between the two cases persisted across experimental conditions: subjects were significantly ($p < .001$) more likely to find infringement of the high similarity pair, even when a third expert recommended a finding of liability in A v. B and a finding of no liability in C v. D, as seen in Table 4a below.

TABLE 4A: BETWEEN SUBJECTS LIABILITY RATE, ALL SUBJECTS, ALL CONDITIONS, ALL CASES

Case	Liability under Control Condition	Liability under Duelling Experts	Liability Under Court-Appointed Expert
A v. B	N=373** 45.0%	N=570** 45.4%	N=547** 51.6%
C v. D	N= 304** 75.7%	N=448** 71.4%	N=424** 68.6%

** Significantly different across music pair at $p < .001$

2. *Validating the Instrument: Music Knowledge Returns Higher Infringement Rate for Both Pairs in the Control Condition*

Subjects with music knowledge or training were significantly more likely to find infringement than subjects without music knowledge. These subjects considering Songs A v. B in the control condition ($n=194$) found infringement at a rate of 53.6%, while subjects who lacked music knowledge ($n=179$) found infringement at a rate of 35.8% ($p=.001$). Subjects with music knowledge found infringement at a rate of 81.8% when considering Songs C v. D in the control condition ($n=209$), while subjects lacking such knowledge ($n=163$) found infringement at a rate of 70.6% ($p=.013$). This difference comported with previous findings in our prior experiment, though C v. D findings of infringement in this experiment were elevated.²²⁴

223. See *infra* Section III.B.4.

224. See *infra* Section III.B.4.

Our previous experiment showed that subjects with music knowledge were significantly more likely to find substantial similarity between two works than subjects lacking such knowledge. This difference persisted in the experimental conditions: subjects with prior music knowledge were more likely to find infringement than subjects who lacked music knowledge when faced with expert testimony. As summarized in Table 4b below, in *every* scenario of A v. B, subjects with prior music knowledge found infringement at a higher rate than subjects who lacked music knowledge. The difference between subjects with prior music knowledge or training and subjects without such knowledge was most pronounced when considering duelling experts; subjects with music knowledge found the testimony increased liability while subjects without music knowledge found it decreased liability. Subjects without music knowledge were significantly more likely to find liability when considering three experts (42.7%) than when considering duelling experts (30.6%). By contrast, subjects with music knowledge showed no significant differences across experts.

TABLE 4B: BETWEEN SUBJECTS LIABILITY RATE, BY MUSIC BACKGROUND, ALL CONDITIONS, ALL CASES

Case	Experts	All Subjects Liability	Subjects with Music Knowledge Liability	Subjects Without Music Knowledge	Sig.
A v. B	None	N=373 45.0%	N=194 53.6%	N=179 35.8%	.001
A v. B	Duelling	N=570* 45.4%	N=318 57.2%	N=252 30.6%**	<.001
A v. B	Court-Appointed	N=547* 51.6%	N=294 59.2%	N=253 42.7%**	<.001
C v. D	None	N=304 75.7%	N=159 81.1%	N=145 69.7%	.014
C v. D	Duelling	N=448 71.4%	N=239 77.0%	N=209 65.1%	.004
C v. D	Court-Appointed	N=424 68.6%	N=210 76.2%	N=214 61.2%	<.001

**Significantly different at $p=.018$ after Sidak Correction; * significantly different at $p=.065$ after Sidak Correction

In *every* scenario of C v. D, subjects with prior music knowledge found infringement at a higher rate than subjects lacking such knowledge. Both groups showed no significant differences across expert conditions.

3. *Validating the Instrument: Legal Knowledge Returns Higher Infringement Rate for Both Pairs*

Our prior experiment showed that subjects with legal knowledge were significantly more likely to find substantial similarity between two works

than subjects lacking such knowledge.²²⁵ This pattern was also observed in these results, though it should be noted that most of the subjects with legal knowledge also had music knowledge.

Subjects with legal knowledge were significantly more likely to find infringement in the control condition than subjects without legal knowledge. Subjects with legal training considering Songs A v. B ($n=75$) in the control no-expert condition found infringement at a rate of 81.3%, while subjects with no legal training ($n=298$) found infringement at a rate of 35.9%, ($p<.001$). Though a significant interaction was detected between musical and legal knowledge in the context of Songs A v. B ($F=6.305$, $p=.012$), the finding is undermined by the fact that of the seventy-five subjects with legal training who considered the control condition, seventy-three also had prior music knowledge or training. The two subjects ($n=2$) who had legal but not music knowledge found infringement at a rate of 0.0%, while subjects with legal training and prior music knowledge ($n=73$) found infringement at a rate of 83.6%.

Subjects with legal training found infringement at a rate of 86.3% when considering Songs C v. D ($n=80$), while subjects who lacked legal knowledge ($n=223$) found infringement at a rate of 71.8%, ($p=.009$). This difference comported with previous findings. Of note is the fact that no interaction was detected for Songs C v. D. That is, subjects with legal training and prior music knowledge ($n=71$) and subjects with legal training but no prior music knowledge ($n=9$) found infringement at comparable rates (86.0% and 88.9%, respectively).

4. *Threats to Data: Individuals' Recognition of Songs*

Due to the fact that both song pairings used in this experiment involved real-world songs and publicized adjudications, subjects were asked if they recognized either of the songs. Ninety-eight subjects ($n=98$) reported recognizing at least one of the songs in Songs A v. B. Only forty subjects ($n=40$), however, named one of the two songs or artists correctly. Moreover song-recognizing subjects showed no significant differences from nonrecognizing subjects in determining liability for Songs A v. B in the control and three expert scenarios. Recognizing subjects also did not show significantly different change rates across expert conditions than non-recognizing subjects.

Recognizing subjects returned liability at a higher rate for the duelling experts condition ($n=75$, 65.3%) when compared to nonrecognizing subjects ($n=495$, 42.4%). As a caution, removal of recognizing subjects did not

225. See Lee & Moshirnia, *supra* note 25, at 544.

vitate any significant findings, so we included recognizing subjects in A v. B results.²²⁶

We had a similar question for Songs C v. D: subjects were asked if they recognized either of the songs. A greater number—154 subjects ($n=154$)—reported recognizing at least one of the songs in Songs C v. D. Moreover, seventy-six subjects ($n=76$) named one of the two songs or artists correctly. This posed a greater challenge to Songs C v. D results. A greater portion of subjects reported recognition, a greater portion of those subjects successfully named one of the songs in the pairing, and recognizing users differed significantly from nonrecognizing users in the expert conditions (though curiously not in the control condition). Recognizers were significantly more likely to find infringement (84.1%) than nonrecognizers (71.4%, $p=.004$) in the duelling experts scenario, and were significantly more likely (80.0%) than nonrecognizers (68.6%) in the triple experts scenario. In light of this, recognizers were excluded in C v. D results.

5. *No Anchoring or Pre-Test Effect Detected*

We analysed if prior exposure to the control condition or an experimental condition influenced subsequent outcome determinations. No pre-test or anchoring effect was detected. In the case of Songs A v. B, subjects did not significantly differ in their duelling-expert liability determination regardless of whether they had previously encountered the control no-expert condition ($F=.621$). Nor was a significant interaction present with either category of background knowledge, law ($F=1.21$) and music ($F=1.16$). The same was true with respect to the court-appointed expert liability determination ($F=1.79$; $F=1.20$; $F=.905$, respectively). The same was true in the case of Songs C v. D, in the context of duelling experts ($F=.103$; $F=.001$; $F=.110$, respectively) and a court-appointed expert ($F=.992$; $F=.320$; $F=.985$).

226. When recognizing subjects were removed from within-subjects analysis, however, a slightly significant difference was returned for liability for subjects considering duelling experts after first considering the control condition. This finding is reported below for completeness but does not significantly change results.

Group	N	Control Finding Liability	Duel Expert Finding Liability	Difference	Significance
Control - Duelling	175	43.4	38.3	-5.1%	.095

C. Hypothesis Testing and Findings

Each subject received four scenarios, with two scenarios drawn from A v. B, the low similarity work pair, and two drawn from C v. D, the high similarity pair. Within-subjects comparisons (that is, examining the liability determinations of subjects across their two given scenarios) and between-subjects comparisons (that is, examining the overall liability determinations for each condition) indicate that (1) duelling experts are unlikely to be persuasive, especially if the subject lacks musical or legal training, (2) a court-appointed expert may be persuasive, especially if the subject lacks musical or legal training or if the underlying works were of low similarity, and (3) subjects who are persuaded to switch from their initial liability outcome by a court-appointed expert are less confident in their new liability determination. These results are discussed, in turn, below.

1. Effect of the Duelling Expert Testimony on Outcome

- a. Cancelling Out Effect: Duelling Experts Did Not Significantly Change Jurors' Liability Decisions in Low Similarity Case A v. B

We hypothesized that duelling experts would have little to no effect on liability determinations due to an equipoise or clash of the experts' testimony. Within-subjects and between-subjects results clearly comported with this hypothesis in the low-similarity context. Within-subjects results were less clear in the high-similarity context but suggest duelling experts had a modest impact.

Tables 5a and 5b below summarize the results for A v. B, within subjects and between subjects. Subjects who considered the low similarity pair, A v. B, first with no experts and then with duelling experts ($n=198$) showed no significant difference in their rate of finding of liability in the control (45.4%) and duel expert (41.4%) conditions, as shown in Table 5a. Similarly, comparison of all subjects that considered no experts ($n=373$) and all subjects that considered duelling experts ($n=570$) showed no significant difference in their rate of finding liability in the control (45.0%) or duel expert (45.5%) conditions, as shown in Table 5b.

TABLE 5A: WITHIN SUBJECTS LIABILITY RATE, CONTROL TO DUELLING EXPERTS, LOW SIMILARITY

Group	Work Similarity	Music knowledge	N	Control Finding Liability	Duel Expert Finding Liability	Difference	Significance
Control - Duelling	Low (A v. B)		198	45.4	41.4	-4.0%	---
Control - Duelling	Low (A v. B)	Subjects with prior music knowledge	109	53.2	50.5	-2.75%	---
Control - Duelling	Low (A v. B)	Subjects with no prior music knowledge	89	35.9	30.3	-5.6%	---

TABLE 5B: BETWEEN SUBJECTS LIABILITY RATE, CONTROL TO DUELLING EXPERTS, LOW SIMILARITY

Work Similarity	Experts	N	Subjects Liability
Low (A v. B)	None	373	45.0%
Low (A v. B)	Duelling	570	45.4%

Our findings are consistent with prior studies identifying a cancelling out effect by duelling experts. Another factor may be that, in a case of low similarity between songs, jurors were able to decide the case for themselves, in which case the expert who took the position for liability had a harder case to make compared to the other expert.

b. Duelling Experts Had a Significant Change on Liability Decisions of Jurors with Prior Music Knowledge in High Similarity Case C v. D

Tables 6a and 6b below summarize the results for C v. D, within subjects and between subjects. The picture is less clear with respect to the impact of duelling experts in the high-similarity context. The rate of liability lowered for subjects with prior music knowledge when presented with duelling experts. Among this group, the duelling experts did not necessarily cancel each other out, or at least not as much as other contexts.

As shown in Table 6a, a within-subjects comparison of subjects who considered the high similarity pair, C v. D, first with no experts and then considered duelling experts ($n=198$) showed a significant difference in their rate of finding of liability in the control (77.4%) and duel expert (71.3%, -6.1% difference, $p=.059$) conditions. Further exploration of this finding showed that the impact of duelling experts differed greatly due to previous music knowledge or legal training.²²⁷ Subjects with prior music

227. This finding is explored further *infra* Section V.C.5.

knowledge ($n=94$) who considered both the control and duelling conditions showed a significant difference in their rate of finding of liability in the control (84.0%) and duel expert (75.3%, -8.5% difference, $p=.045$) conditions, while subjects who lacked music knowledge ($n=70$) showed no significant difference in their rate of finding of liability in the control (68.6%) and duel expert (65.7%) conditions. Between-subjects analysis showed no significant differences, as summarized in Table 6b. Comparison of all subjects that considered the no experts ($n=304$) and all subjects that considered duelling experts ($n=448$) showed no significant difference in their rate of finding liability in the control (75.7%) or dual-expert (71.4%) conditions.

TABLE 6A: WITHIN SUBJECTS LIABILITY RATE, CONTROL TO DUELLING EXPERTS, HIGH SIMILARITY

Group	Work Similarity	Music knowledge	N	Control Finding Liability	Duel Expert Finding Liability	Difference	Sig.
Control - Duelling	High (C v. D)		164	77.4	71.3	-6.1%	.059
Control - Duelling	High (C v. D)	Subjects with prior music knowledge	94	84.0	75.5	-8.5%	.045
Control - Duelling	High (C v. D)	Subjects with no prior music knowledge	70	68.6	65.7	-2.9	--

TABLE 6B: BETWEEN SUBJECTS LIABILITY RATE, CONTROL TO DUELLING EXPERTS, HIGH SIMILARITY

Case	Experts	N	All Subjects Liability
C v. D	None	304	75.7%
C v. D	Duelling	448	71.4%

These results for subjects lacking music knowledge were unsurprising. If equally powerful analyses are presented, in theory there should be little deviation from a subject's outcome. Similar results have been shown in legal simulations involving categories of argument to subjects evaluating immigration decisions.²²⁸ But the persuasiveness or effect of duelling experts for musically trained subjects in C v. D, the high-similarity context, is intriguing: it may reflect that the expert opinions were not in true equipoise, that is, one of the views presented was incorrect or unconvincing and only musically trained subjects detected that weakness. Alternatively, since the duelling experts lowered the rate of liability—which we estimated was

228. Sheppard & Moshimia, *supra* note 184, at 580.

the more difficult position to prove—the addition of duelling expert opinions may have added some insight(s) that enabled the subjects with music knowledge to make a more informed decision, with some subjects changing their views. In any event, this finding indicates the knowledge effect in jurors may interact in some situations to reduce the cancelling out effect of duelling experts. Jurors with knowledge may be able to evaluate the battle of experts better—and rely on the expert testimony in a way that jurors lacking such knowledge cannot.²²⁹

2. *Effect of the Court-Appointed Expert Testimony on Outcome*

a. The Court-Appointed Expert Effect on Subjects Without Prior Music Knowledge in Low Similarity Case A v. B

We hypothesized that a court-appointed expert would have a significant effect on liability determinations due to perceived impartiality.²³⁰ The instrument described the expert as follows: “Given the divergent views of the parties’ experts, the court sought the opinion of an independent expert with no allegiance to either party.” We were unsure if a court-appointed expert would have a greater impact if introduced after a duelling-expert condition or a control no-expert condition. Each subject was presented two cases based on Songs A v. B and two cases based on songs C v. D, from the six possible cases described above.

The results were consistent with our main hypothesis. A court-appointed expert did have an effect. The effect operated in somewhat different fashion between the two cases, however, depending on the scenarios the subjects tested. First, for Songs A v. B, within-subjects and between-subjects results showed a court-appointed expert had a significant impact after a duelling expert condition in the low-similarity context. Second, for Songs C v. D, within-subjects and between-subjects results showed a court-appointed expert had a significant impact after a control no-expert condition in the high-similarity context. Moreover, the court-appointed expert effect was limited to subjects without music knowledge. We explain these findings below.

229. This possibility, coupled with the fact that juries will contain a mixture of jurors with varying levels of background knowledge, raises interesting questions of the effectiveness of duelling experts in a mixed-member jury. If a juror with musical knowledge is convinced to change a preferred position by duelling expert testimony, would that juror play an outsized role in deliberations? Would that juror’s conversion be persuasive in-and-of-itself, regardless of the fact that the individual juror’s confidence in outcome likely *decreased*? These are questions worthy of additional study.

230. As noted above, the status of the expert as court-appointed could be taken as a secondary indicator of credibility. The mere presence, however, of an additional expert may also have a cumulative impact on jurors.

First, a court-appointed expert had a significant change on liability decisions of jurors who lacked musical training after considering duelling experts in low similarity case. Subjects were significantly more likely to revise their opinion to find liability when faced with a liability-recommending court-appointed expert after considering duelling experts in the low similarity context, as shown in Table 7 below. This finding was driven by subjects without music knowledge, who were far more likely to change their individual determinations. Indeed, when considering Songs A v. B subjects with a music background showed *almost no movement* from the control determination at all, when faced with duelling experts ($n=109$, 2.7% decrease), or the court-appointed expert ($n=85$, no change). By contrast, subjects who considered the duelling experts in Songs A v. B and then the court-appointed expert in Songs A v. B ($n=372$) were significantly more likely to find infringement in the three-expert scenario (53.5%), than in the duelling expert scenario (47.6%, $p=.006$), as seen in Table 7 below. Interestingly, the introduction of a court-appointed expert scenario had no significant impact on subjects who first considered the control condition.

As mentioned above, this finding of a court-expert effect was driven by subjects' lack of music background. Subjects with a music background ($n=209$, .5% decrease, not significant) were significantly less likely ($p=.004$) to be swayed by the addition of a court-appointed expert than subjects without a music background ($n=163$, 12.9% increase, $p=.001$), as seen in Table 7 and Figure 3 below.²³¹

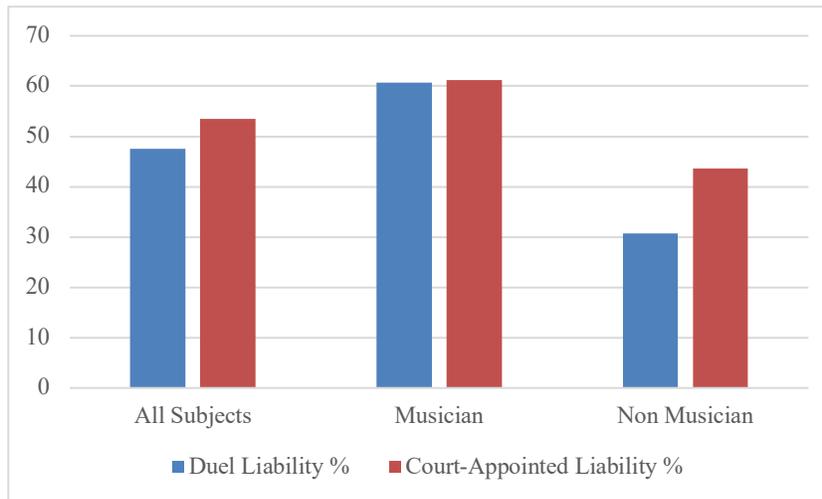
231. Similarly, subjects with a legal education ($n=99$, 1% decrease, not significant) were significantly less likely to be swayed by the addition of a court-appointed expert than subjects without a legal background ($n=269$, 8.5% increase, $p=.049$).

TABLE 7: WITHIN-SUBJECTS LIABILITY RATES ACROSS EXPERT CONDITIONS, LOW SIMILARITY (A v. B)

Group/Music	N	Work Similarity	Control Finding Liability	Duel Expert Finding Liability	Court-appointed Expert Finding Liability	Difference	Significance
Control to Three Experts / All Subjects	175	Low (A v. B)	44.6	--	47.4	2.8%	---
Duelling to Three Experts/ All Subjects	372	Low (A v. B)	--	47.6	53.5	5.9%	.006
Duelling to Three Experts/ Subjects with Music Knowledge	209	Low (A v. B)	--	60.7	61.2	.5**	---
Duelling to Three Experts/ Subjects Without Music Knowledge	163	Low (A v. B)	--	30.7	43.6	12.9**	<.001

** Significantly different from each other at $p=.004$

FIGURE 3. WITHIN SUBJECTS EXPERT LIABILITY RATES BY MUSIC BACKGROUND IN LOW SIMILARITY CASE (A v. B)



Between-subjects testing computed with these results, as indicated in Table 8 and Figure 4 below. Comparisons of all subjects that considered the duelling experts ($n=570$) and all subjects that considered the triple expert conditions ($n=547$) in the low similarity context showed a significant difference in their rate of finding liability in the duel (45.4%) and court-

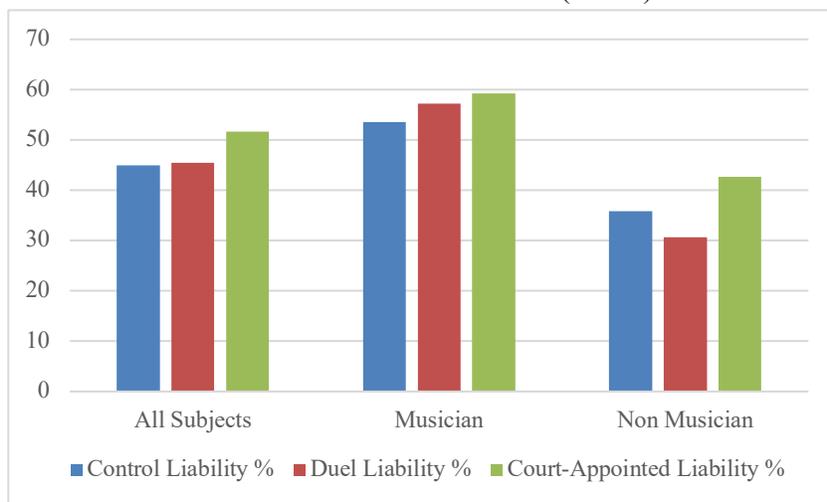
appointed expert (51.6%, $p=.065$) conditions. This difference arose from subjects' lack of musical training. Subjects lacking musical knowledge ($n=253$) showed a significant difference in their rate of finding liability in the duel (30.6%) and court-appointed expert (42.7%, $p=.018$) conditions.

TABLE 8: BETWEEN-SUBJECTS LIABILITY RATES ACROSS ALL CONDITIONS, LOW SIMILARITY (A v. B)

Case	Experts	All Subjects Liability	Subjects with Music Knowledge Findings Liability	Subjects Without Music Knowledge Findings Liability	Sig.
A v. B	None	N=373 45.0%	N=194 53.6%	N=179 35.8%	.001
A v. B	Duelling	N=570* 45.4%	N=318 57.2%	N=252 30.6%**	<.001
A v. B	Three Experts	N=547* 51.6%	N=294 59.2%	N=253 42.7%**	<.001

**Significantly different at $p=.018$ after Sidak Correction; * significantly different at $p=.065$ after Sidak Correction

FIGURE 4. BETWEEN-SUBJECTS LIABILITY RATES ACROSS ALL CONDITIONS IN LOW SIMILARITY CASE (A v. B)



b. The Court-Appointed Expert Effect on Subjects Without Prior Music Knowledge in High Similarity Case C v. D

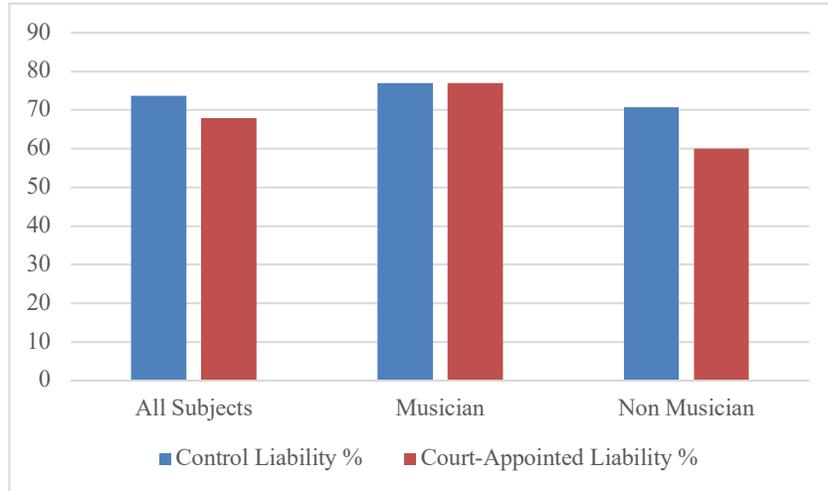
Second, for Case C v. D, we also found a court-appointed expert effect on subjects lacking prior music knowledge, but it occurred differently.

In contrast to the low similarity pair, subjects considering the high similarity pair showed a significant difference in outcome when considering the triple expert condition after the control condition, but no significant difference after first experiencing the duelling experts, as summarized in Table 9 and Figure 5 below. Again, this significant difference was driven by subjects lacking musical training. Subjects who lacked music knowledge ($n=75$) showed a significant decrease in liability when considering three experts (60.0%) after the control condition of no experts (70.7%, $p=.02$). In contrast, subjects with a music background ($n=65$) showed no significant change when considering three experts (77.0%), as compared to the control (77.0%). This difference between groups was itself significant.

TABLE 9: WITHIN-SUBJECTS LIABILITY RATES ACROSS EXPERT CONDITIONS IN HIGH SIMILARITY CASE

Group/Music	Case	N	Control Finding Liability	Duel Expert Finding Liability	Court-appointed Expert Finding Liability	Difference	Significance
Control to Court Experts / All Subjects	C v. D	140	73.6	--	67.9	-5.7%	.074
Control to Court Experts/ Subjects with Music Knowledge	C v. D	65	77.0	--	77.0	0%	--
Control to Court Experts / Subjects Without Music Knowledge	C v. D	75	70.7	--	60.0	-10.7	.02
Duelling to Three Experts/ All Subjects	C v. D	284		71.5	69.0	-2.5%	--

FIGURE 5. WITHIN-SUBJECTS CONTROL AND COURT-APPOINTED EXPERT LIABILITY RATES BY MUSIC BACKGROUND IN HIGH SIMILARITY CASE (C v. D)

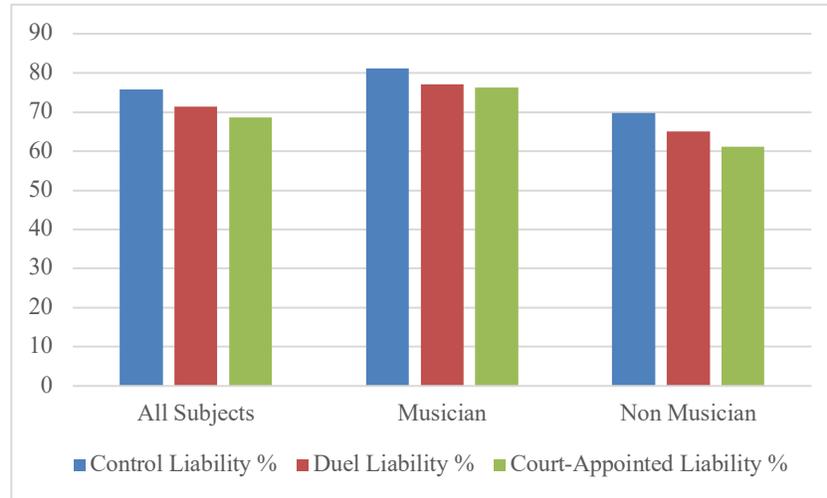


Between-subjects results comported with these results, with subjects who lacked music knowledge showing a large tendency to be swayed by the court-appointed expert, as summarized in Table 10 and Figure 6 below. The last column in Table 10 and in Figure 6 show how subjects without prior music knowledge decreased progressively in their findings of liability in C v. D when presented with duelling experts and a court-appointed expert.

TABLE 10: BETWEEN-SUBJECTS LIABILITY RATES ACROSS ALL CONDITIONS IN HIGH SIMILARITY CASE

Case	Experts	All Subjects Finding Liability	Subjects with Music Knowledge Finding Liability	Subjects Without Music Knowledge Finding Liability
C v. D	None	N=304 75.7%	N=159 81.1%	N=145 69.7%
C v. D	Duelling	N=448 71.4%	N=239 77.0%	N=209 65.1%
C v. D	Court Appointed	N=424 68.6%	N=210 76.2%	N=214 61.2%

FIGURE 6. BETWEEN-SUBJECTS LIABILITY RATES ACROSS ALL CONDITIONS IN HIGH SIMILARITY CASE (C V. D)



These two findings suggest that people lacking music knowledge are able to differentiate among experts' opinions more readily with the addition of a court-appointed expert. The cancelling out effect of duelling experts is itself overcome by the addition of an independent expert. One possible explanation is that such jurors are swayed by the independent or court-appointed status. Another possibility is that the jurors favor the side supported by a majority of the experts as sort of a tiebreaker. A third possibility is that the substance of the court-appointed expert's testimony is more convincing.

3. *Effect of Expert Testimony on Confidence of Jurors*

a. Exposure to Reaffirming Court-Appointed Expert Testimony Does Not Increase Subject Confidence²³²

We hypothesized that expert testimony would increase the confidence of subjects who reaffirmed their liability determinations after exposure to court-appointed expert testimony. In this scenario, two experts (a party's expert and a court-appointed expert) reached the same result as the one taken by the subject.

232. Determining a subject's confidence provides greater information about how sure or confident the subjects were in their answers. See, e.g., Danielle E. Chojnacki, Michael D. Cicchini & Lawrence T. White, *An Empirical Basis for the Admission of Expert Testimony on False Confessions*, 40 ARIZ. ST. L.J. 1, 29 (2008).

Within-subjects results did not comport with our hypothesis, however. This was surprising. No group or subgroup showed a significant increase of confidence after exposure to court-expert testimony that favored the same result. This was true even if subjects reaffirmed their initial liability determination and agreed with the court-appointed expert.

In the A v. B low similarity context, sixty-six subjects initially found liability in the no-expert condition and reaffirmed that liability with a liability-recommending court-appointed expert. These subjects reported only a minor .21 increase in confidence, from 7.33 ($SD=1.57$) to 7.55 ($SD=1.77$). This difference was not significant. Similarly, 156 subjects initially found liability in the duelling expert condition and reaffirmed that liability with a liability-recommending court-appointed expert. These subjects reported a .08 decrease in confidence. This difference was not significant.

Likewise, in the C v. D high similarity context, thirty-one subjects initially found no liability in the no-expert condition and reaffirmed that finding with a no-liability-recommending court-appointed expert. These subjects reported a .48 increase in confidence, from 6.42 ($SD=1.86$) to 6.90 ($SD=1.79$). This difference was not significant. Sixty subjects initially found no liability in the duelling expert condition and reaffirmed that finding with a no-liability-recommending court-appointed expert. These subjects reported no difference in confidence.

It is unclear why subjects did not show an increase in confidence levels with the addition of a court-appointed expert that reached the same result. It may be the case that subjects did not give expert testimony much weight and were therefore not bolstered by a supportive expert. Or it may suggest that subjects were sufficiently confident in their outcome that expert intervention was inconsequential. It does at least suggest that when subjects reach the same result, as they do both with and without experts, experts have practically no effect on the subjects.

b. Exposure to Expert Testimony Significantly Decreases Subject Confidence, Especially for Subjects Who Reversed Initial Liability Determination

We further hypothesized that expert testimony would lower the confidence of subjects who changed liability determinations after exposure to expert testimony.

Here we did see the expected effect. Within-subjects results comported with our hypothesis. In the context of A v. B (low similarity) within-subjects analysis, subjects significantly revised their confidence downward when presented with the court-appointed expert after the control condition or duelling experts. Subjects first considering the control condition ($n=175$) lowered their confidence in outcome from 7.38 ($SD=1.7$) to 7.14 ($SD=1.98$)

when considering the court-appointed expert, which was significant ($p=.057$). Subjects first considering duelling experts ($n=372$) lowered confidence from 7.38 ($SD=1.8$) to 7.21 ($SD=1.88$), significant at $p=.033$. No significant difference was detected from control to duelling experts.

As shown in Table 11 below, the difference in confidence levels derived from subjects who lacked music knowledge. Subjects with prior music knowledge had no significant drop in confidence involving three experts in comparison to the no-expert and duelling expert conditions, while subjects who lacked music knowledge had significant drops of .32 ($STM=.17$, $p=.067$) and .26 ($STM=.13$, $p=.048$) in both respectively.²³³

TABLE 11: CHANGE IN CONFIDENCE ACROSS ALL CONDITIONS IN LOW SIMILARITY CASE

Background Knowledge	Case	Change in Confidence, Control to Court-Appointed Expert	Change in Confidence, Duelling Expert to Court-Appointed Expert
All Subjects	A v. B	N = 175 -.240	N = 372 -0.172
Music Knowledge	A v. B	N=85 -.15	N=209 -.10
Non-Music Knowledge	A v. B	N=90 -.32*	N=163 -.26**

*Significant at $p<.10$; ** Significant at $p<.05$

Further examination affirmed our hypothesis that this diminished confidence was due to subjects changing their liability determination after exposure to expert testimony rather than simply considering additional information. Indeed, confidence in initial liability determination strongly predicted the likelihood of altering liability after exposure to the court-appointed expert testimony. Moreover, subjects who changed their liability determination showed a significant decrease from their initial confidence.

In the A v. B low similarity context, 175 subjects considered the no-expert condition and then the court-appointed, triple-expert condition (where the court-appointed expert recommended liability). Among this group, 146 subjects arrived at the same liability determination in both conditions (as noted above, eighty subjects found no liability in both conditions, and sixty-six subjects found liability in both conditions). Subjects who did not switch results or change their views reported similar initial confidence of 7.45 ($SD=1.67$) and final confidence of 7.29 ($SD=1.97$). As

233. Interestingly, the only scenario that appeared to harm confidence of subjects with prior music knowledge was the consideration of two experts after considering control ($n=109$, .26 decrease, $STM=.14$, $p=.07$).

reported above, the sixty-six reaffirming, expert-supported subjects did not see a significant increase in confidence. But the eighty reaffirming, expert-resisting subjects did see a significant decrease in confidence, a .46 reduction from 7.54 ($SD=1.74$) to 7.08 ($SD=2.14$).

Subjects who changed their liability determination had a clear decrease in confidence. Among this group, seventeen subjects initially found no-liability in the no-expert condition, but found liability in the court-appointed condition. They reported a decrease in confidence of .41, from 6.94 to 6.52. Twelve subjects initially found liability in the no-expert condition but found no liability in the court-appointed expert condition. They reported a decrease in confidence of 1.00, from 7.17 to 6.17. Overall, the twenty-nine changing subjects reported a decrease in confidence of .66 and final confidence of 6.38, both of which were significantly different from reaffirming subjects, who did not change their views when presented with two scenarios.

This pattern was also clear in subjects who considered the A v. B low similarity pair first by encountering the duelling experts and then the court-appointed expert. As summarized in Table 12 below, 372 subjects considered the duelling and court-appointed expert conditions in Songs A v. B. Among this group, 308 subjects maintained their liability determination across both conditions and had no significant change to their confidence to a final confidence of 7.42. Forty-three subjects, however, switched to adopt the court-appointed-expert recommendation of liability and had a confidence *decrease* of .44, to a final confidence of 6.07. Likewise, twenty-one subjects switched to reject the court-appointed expert recommendation and had a confidence decrease of .52, to a final confidence of 6.43. The final confidence of both groups that changed liability determinations was significantly different from the confidence of nonswitching subjects.

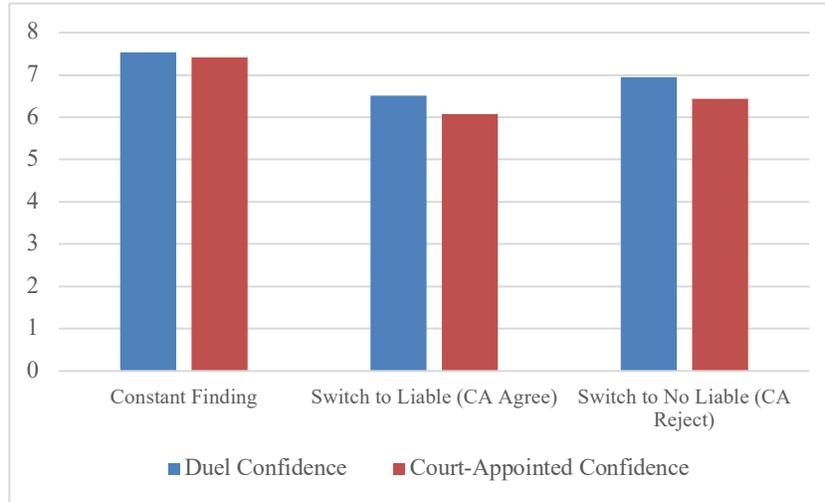
TABLE 12: CONFIDENCE BY LIABILITY AGREEMENT ACROSS EXPERT
CONDITIONS IN ALL CASES

Liability Across Duelling and Court-Appointed Expert	Case	N	Duel Expert Confidence	Court-Appointed Expert Confidence
All Subjects	A v B	372	7.38 (1.80)	7.21 (1.88)
Same Liability	A v B	308	7.53 (1.70)	7.42 (1.72)
No liability / Liability (Expert Agree)	A v B	43	6.51** (2.37)	6.07** (2.32)
Liability / No Liability (Expert Reject)	A v B	21	6.95** (1.35)	6.43* (2.11)
All Subjects	C v D	284	7.461 (1.79)	7.331 (1.95)
No liability / Liability (Expert Reject)	C v D	235	7.53 (1.73)	7.62 (1.85)
No liability / Liability (Expert Agree)	C v D	21	6.48** (1.72)	6.00** (2.12)
Subjects finding liability control / No Liability Expert	C v D	28	6.82** (2.00)	5.93* (1.741)

** Significantly different from control value at $p < .001$; * $p < .05$

Figure 7 below depicts the drop of confidence levels when subjects considering A v. B changed their positions on liability, even if this change matched the court-appointed expert's position. In other words, agreeing with the court-appointed expert in Case A v. B still lowered the confidence levels of the subjects.

FIGURE 7. SUBJECT CONFIDENCE BY CONSISTENCY DUELLING AND COURT-APPOINTED EXPERT AFFIRMATION/REJECTION IN LOW SIMILARITY CASE (A v. B)

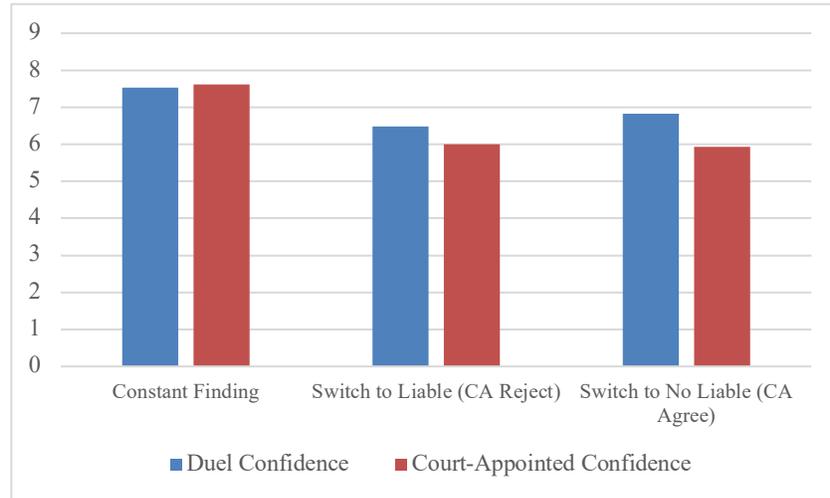


We saw a similar dynamic in confidence levels in Case C v. D, the high similarity context. For C v. D, initial confidence in the control condition liability determination did not predict a change in liability determination the triple-expert condition. As with A v. B, however, subjects who reported lower confidence in their outcome in light of duelling experts were significantly more likely to change their liability determination when faced with the court-appointed expert. Moreover, these subjects reported significantly lower confidence in their new outcome. A total of 284 subjects considered the duelling and court-appointed expert conditions in Songs C v. D. Of this group, 235 subjects maintained their liability determination across both conditions and had no significant change to their confidence to a final confidence of 7.62. Twenty-one subjects, however, switched to reject the court-appointed-expert recommendation of no liability and had a confidence decrease of .48, to a final confidence of 6.00. Likewise, twenty-eight subjects switched to accept the court-appointed expert recommendation and had a confidence decrease of .9, to a final confidence of 5.93. The final confidence of both groups that changed liability determinations was significantly different from the confidence of nonswitching subjects.

Figure 8 below depicts the drop of confidence levels when subjects considering C v. D changed their positions on liability, even if this change matched the court-appointed expert's position. Just as with Case A v. B, a subject's agreement with the court-appointed expert's position that resulted

in the subject's change in position lowered the confidence level of the subject in Case C v. D.

FIGURE 8. SUBJECT CONFIDENCE BY CONSISTENCY DUELLING AND COURT-APPOINTED EXPERT AFFIRMATION/REJECTION IN HIGH SIMILARITY CASE (C v. D)



4. *The Knowledge Effect: Subjects with Prior Music Knowledge Were Significantly Less Likely to Be Swayed by Court-Appointed Expert Testimony*

We hypothesized that subjects with prior music knowledge would be less likely to change their outcome or confidence in the face of expert testimony. As detailed above, the presence of prior music knowledge (especially when interacting with prior legal training) greatly muted any expert effect. Subjects with music knowledge were less likely to change their initial liability determinations than lay subjects and less likely to change these determinations to comport with the court-appointed expert recommendation. That is, subjects with music knowledge who changed their liability determination from the duel expert condition in the court-appointed expert condition were just as likely to go *against* the court-appointed expert's recommendation as to agree with it. This indifference was evident in the context of both the A v. B and C v. D pairs.

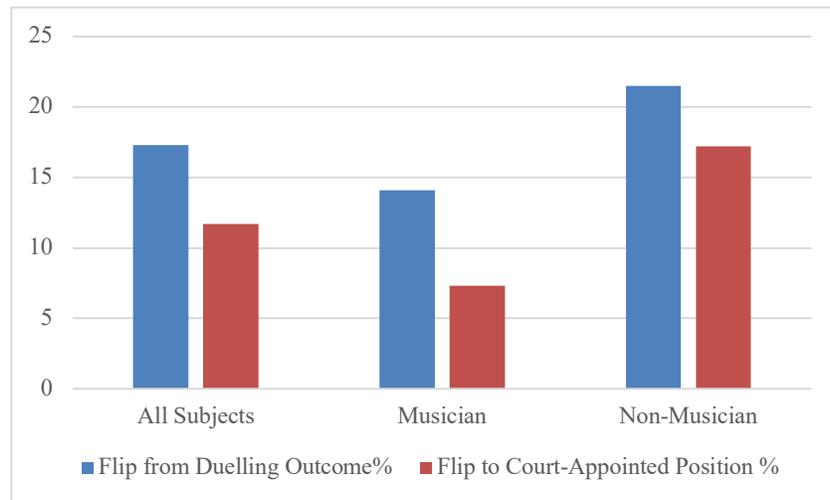
As shown in Table 13 and Figure 9 below, in the context of A v. B low similarity works, 369 subjects considered the two-expert scenario and then the three-expert scenario. Subjects with a music background were significantly less likely to change their outcome determination, with twenty-

nine changes of 206 subjects, than subjects without a music background, with thirty-five changes of 163 subjects. Moreover, these changes were not in line with the court-appointed expert's recommendation. Of the twenty-nine changes, fifteen were from a finding of no liability to the recommended liability, but fourteen were from a finding of liability to no-liability. That is, subjects with music knowledge were just as likely to change their liability determination in rejecting the court-appointed expert's recommendation, as they were to change in agreement of that recommendation. In contrast, subjects who lacked music knowledge clearly followed the lead of the court-appointed expert, with twenty-eight of the thirty-five changes from a finding of no-liability to the recommended liability (and only seven subjects in the opposite direction). This difference was significant at $p=.004$.

TABLE 13: LIABILITY CHANGE RATE BY EXPERT CONDITION IN
A V. B LOW SIMILARITY CASE

	n	Flip from Duelling Expert Outcome	Flip to Court-Appointed Expert Position	Flip from Duelling Expert Outcome %	Flip to Court-Appointed Expert Position %
All Subjects	369	64	43	17.3	11.7
Subjects with Music Knowledge Findings Liability	206	29	15	14.1	7.3
Subjects Without Music Knowledge Findings Liability	163	35	28	21.5	17.2

FIGURE 9. PERCENT OF SUBJECT LIABILITY CHANGE FROM DUELLING TO COURT-APPOINTED EXPERT, BY MUSIC KNOWLEDGE IN A V. B LOW SIMILARITY CASE

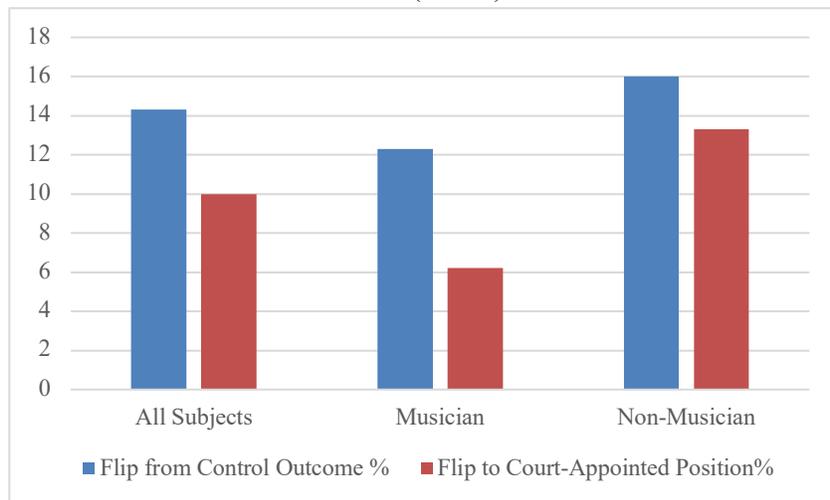


As summarized in Table 14 and Figure 10 below, in the context of C v. D high similarity works, the same pattern is extant. A total of 140 subjects considered the control scenario and then the three-expert scenario. Of this group, twenty changed their determination across conditions. Subjects with a music background ($n=65$) accounted for eight of those flips, while subjects without a music background ($n=75$) accounted for twelve. But the subjects with a music background were far less likely to accept the court-appointed expert's recommendation that no liability be found. Of the eight subjects with a music background who flipped, only four were from finding of liability to the expert-recommended no liability. As before, subjects with background knowledge considering C v. D, were just as likely to change their liability determination in rejecting the court-appointed expert's recommendation, as they were to change in agreement of that recommendation. By contrast, of the twelve people who lacked music knowledge and changed their positions, ten were from a finding of liability to the court-appointed expert's recommended liability. This was slightly significant at $p=.093$.

TABLE 14: LIABILITY CHANGE RATE, CONTROL TO COURT APPOINT EXPERT CONDITIONS, C V. D

	n	Flip from Control Outcome	Flip to Court-Appointed Expert Position	Flip from Control Outcome %	Flip to Court-Appointed Expert Position %
All Subjects	140	20	14	14.3	10
Subjects with Music Knowledge Findings Liability	65	8	4	12.3	6.2
Subjects Without Music Knowledge Findings Liability	75	12	10	16	13.3

FIGURE 10. PERCENT OF SUBJECT LIABILITY CHANGE FROM CONTROL TO COURT-APPOINTED EXPERT, BY MUSIC KNOWLEDGE IN HIGH SIMILARITY CASE (C V. D)



The results in the context of a court-appointed expert are intriguing, especially when considered with our earlier finding that duelling experts had a significant effect on subjects with music knowledge in Case C v. D.²³⁴ One possible explanation fits the epistemic paradox explained in Part II. Subjects with music knowledge are in the best position to evaluate the

234. See *supra* Section IV.C.3.b.

expert testimony, but do not need to rely on the expert testimony to understand the facts or music as much as subjects who lack music knowledge. Thus, perhaps it should not be surprising that subjects with prior music knowledge are just as likely to reject as they are to accept the view of a court-appointed expert. In the context of duelling experts, such subjects are still evaluating the substance of the expert testimony and making an informed decision.

5. *Subjects with Both Prior Legal Training and Musical Training Appear Less Sensitive to Expert Testimony in Low-Similarity Case*

The demographic overlap of musical training and legal training in the recruited subjects complicates any analysis of legal training separate from music knowledge.²³⁵ It is possible, however, to examine results for an interaction between the two kinds of knowledge. Results reveal several interactions in the low similarity context, while no significant interactions were detected in the high similarity context.

For A v. B, 373 subjects reviewed the control, no-expert condition. 194 of these subjects identified as having musical training, while seventy-five identified as having legal training. In addition, seventy-three others identified as having both musical and legal training. Multivariate tests returned a significant interaction for legal education and musical education ($F=3.177$, $p=.043$). An examination of between-subjects effects showed that subjects with prior music knowledge and legal training ($n=73$) were significantly more likely to find infringement (83.6%) than subjects with prior music knowledge but no legal training ($n=121$, 35.6%) or subjects with legal training but no music training ($n=2$, 0%, $p=.012$). No interaction was found with regard to confidence.

Likewise, 567 subjects reviewed A v. B in the duelling-expert condition. 315 of these subjects identified as having musical training, while 140 identified as having legal training. In addition, 131 identified as having both musical and legal training. Legal education returned a significant multivariate result ($F=6.418$, $p<.001$). An examination of between-subjects effects showed that individuals with legal training returned significantly higher infringement rates ($n=131$, 80%) than subjects without legal training ($n=315$, 33.72%, $p<.001$). A significant interaction between legal education and musical education was also detected ($F=3.286$, $p=.07$), showing that subjects with prior music knowledge and legal training ($n=131$) were significantly more likely to find infringement (82.4%).

235. We hope to conduct future study to examine if there are different effects from legal versus music knowledge in the resolution of music infringement claims.

Finally, 544 subjects reviewed A v. B in the triple-expert condition. 291 of these subjects identified as having musical training, while 133 identified as having legal training. In addition, 122 identified as having both musical and legal training. Legal education returned a significant multivariate result ($F=4.416, p=.013$). An examination of between-subjects effects showed that individuals with legal training returned significantly higher infringement rates ($n=133, 77.4%$) than subjects without legal training ($n=411, 42.8%, p=.011$). A significant interaction between legal education and musical education was also detected ($F=4.729, p=.03$), showing that subjects with prior music knowledge and legal training ($n=131$) were significantly more likely to find infringement (80.3%).

The prevalence of significant interactions of legal and musical training suggests that subjects familiar with musical and legal concepts were significantly more likely to find infringement in the A v. B low-similarity context—and resist or reject expert opinion (finding infringement at a *lower* rate when the court-appointed expert sided with a finding of infringement). The fact that this phenomenon is not detected in the high similarity context (C v. D) may be due to the relatively high rate of infringement findings in that case under the control condition (that is, without expert analysis) by all groups.

6. *Work Similarity Effect on Outcome: Court-Appointed Experts May Have Greater Impact in Low-Similarity Cases*

In both the low-similarity and the high-similarity context, the final liability determination of nonmusically-trained subjects was significantly influenced by the inclusion of the court-appointed expert. In the low-similarity context, A v. B, the starkest difference was between the infringement findings in the duelling expert and court-appointed expert conditions, indicating that perhaps additional expert analysis may have provided clarity in an otherwise close determination.

By contrast, in the high-similarity context, the starkest difference was between the infringement findings in the no-expert and court-appointed expert conditions. This difference indicates that the additional analysis of a court-appointed expert seems to have provided clarity only when subjects hadn't considered duelling opinions before encountering the court-appointed expert scenario. Future research will be necessary to clarify this finding, which may be due to the possibility that the high-similarity case in the duelling experts scenario made the determination of infringement obvious or clear. This interpretation is supported by the fact that subjects with prior music knowledge may have found duelling experts persuasive in the high-similarity context.

IV. DISCUSSION

The results of our experimental study call into question the current way in which expert testimony is presented to juries as a battle of experts in music disputes. If the admission of expert testimony under Federal Rule of Evidence 702(a) is predicated on the court's determination that "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,"²³⁶ there is little evidence that jurors are helped much in the common "battle of the experts" scenario, during which musicologists on both sides presenting opposing views of the same music. That is especially so if, as is common, parties in music cases attempt to select only jurors lacking music training or knowledge, the "blank slates."²³⁷ Our results confirm that jurors with knowledge (who are *not* blank slates) are better able to evaluate the substance of expert musicologist testimony and do not need to rely on secondary indicia, such as status of the expert. All told, these findings suggest the current use of duelling experts in music cases is suboptimal, especially when the jury is composed of individuals who lack music knowledge. Allowing a court-appointed expert to testify, along with the parties' experts, would provide a better, more helpful form of presentation for jurors who lack music knowledge. Such an approach can reduce the canceling out effect created by the battle of experts. The precise reason for the court-appointed expert effect (whether a secondary consideration based on status, a cumulative impact from multiple experts in agreement, or other factor) is unclear; we plan to examine it in future study. Below we discuss the ramifications of our findings.

A. *The Current Use of Musicologists in a Battle of Experts Is Suboptimal*

The problem with the ability of jurors to evaluate opposing expert testimony presented in a battle of experts with contrary views on the same issue has been well-documented.²³⁸ Our findings were consistent with the view that, in a battle of experts, the experts' testimonies largely cancel each

236. FED. R. EVID. 702(a) (emphasis added).

237. See Douglas G. Smith, *The Historical and Constitutional Contexts of Jury Reform*, 25 HOUSTON L. REV. 377, 462 (1996).

238. See, e.g., Hand, *supra* note 33, at 54; Lee M. Friedman, *Expert Testimony, Its Abuse and Reformation*, 19 YALE L.J. 247, 249 (1909-1910); Henry Weihofen, *Eliminating the Battle of the Experts in Criminal Insanity Cases*, 48 MICH. L. REV. 961, 962 (1949-1950); Michelle M. Mello, *Using Statistical Evidence to Prove the Malpractice Standard of Care: Bridging Legal, Clinical, and Statistical Thinking*, 37 WAKE FOREST L. REV. 821, 853-54 (2002).

other out as found in other experimental studies outside of music disputes.²³⁹ Our study removed the distinguishing credentials between the two parties' experts and simply described both parties' experts as a "musicologist with an advanced degree in the study of music." This generic description reduced the possibility that the mock jurors could simply rely on secondary indicia, such as more prestigious schooling or degrees of an expert, when evaluating the testimony of each party's expert. Thus, when presented with expert testimony with no different credentials, the expert testimony did not alter most of the decisions made by the jurors who lacked music training when compared to their decisions without any expert testimony.²⁴⁰ Of course, in an actual trial, jurors would typically learn about the credentials of the experts when they are qualified to testify as experts.²⁴¹ But the credentials of the experts would increase the chance that the jurors use the credentials as proxies for or determinants of the soundness of the expert testimony instead of the substance of the testimony.

Our findings should not be interpreted as an indication that a battle of the experts can never influence the trier of fact in music cases. Indeed, we found one situation in which duelling experts did have a significant effect: when jurors with prior music knowledge evaluated the high similarity case *C v. D*, the rate of liability decreased somewhat, meaning the duelling experts' opinions apparently caused some jurors to change their positions and adopt what we considered to be the more difficult position to prove (non-infringement). For jurors who did not have prior knowledge in music, however, duelling experts did not have any impact. Of course, in real cases, jurors who lack background knowledge may resort to evaluating secondary indicia, such as expert credentials, to evaluate which testimony is more persuasive. Moreover, in a battle of experts, it is possible that one side's expert concedes a crucial point²⁴² or even makes a mistake that undermines the entire testimony.²⁴³ Yet, assuming the experts clash in their testimony, the effect that experts have in the outcomes of music disputes may be modest at best. Jurors without prior music knowledge appear to have a hard time evaluating the duelling opinions of musicologists on the merits, whereas jurors with prior music knowledge can evaluate such testimony and appear to be able to decide when to rely on or reject expert testimony without resort

239. See Krauss & Sales, *supra* note 104, at 299–300.

240. Aside from the small expert effect on musically trained subjects considering a high-similarity case. See discussion *supra* Section IV.B.1.b.

241. See *supra* Section IV.B.1.c.

242. See, e.g., *Gray v. Perry*, No. 2:15-CV-05642-CAS-JCx, 2020 WL 1275221, at *19–20 (N.D. Cal. Mar. 16, 2020), *appeal filed*, No. 20-55401 (9th Cir. Apr. 15, 2020).

243. See, e.g., *Johannsongs-Publishing Ltd. v. Lovland*, No. CV 18-10009-AB (SSx), 2020 WL 2315805, at *5–*7 (C.D. Cal. Apr. 3, 2020) (granting summary judgment because plaintiff's musicologist failed to conduct a prior art analysis and filter out the unprotected elements required in extrinsic analysis).

to secondary indicia. The epistemic paradox presented by experts—individuals who, given their lack of knowledge, stand to learn the most from expert testimony have the least ability to evaluate the soundness of competing expert testimony—appeared to play out in our study. Likewise, individuals who had prior music knowledge were better able to evaluate the substance of the expert musicologist testimony but didn't need to rely on it in all cases to determine the outcome.

Based on our study, we believe the current approach to presenting musicologist testimony in a battle of experts in music cases is suboptimal. By a cost-benefit analysis, it is hard to justify the submission of expert testimony in light of its limited impact: the only jurors who demonstrated a significant effect from the duelling experts were jurors with background knowledge, but they did so only in one case (*C v. D*). In a high-profile music case, the fees of a prominent expert can be exorbitant. For example, Gaye's lead expert, Finell, reportedly charged \$337,000 for her services, an amount that the Gaye estate, as the prevailing party, unsuccessfully sought recovery from Williams and Thicke.²⁴⁴ That high amount does not include the expert fees for the other experts who testified in the case, plus the additional experts who were retained but did not testify.²⁴⁵ Using the expert fees in the "Blurred Lines" case as providing at least some indicator of the amount needed to litigate a high-profile music dispute, we question whether, at a systemic level, the copyright system is enhanced in resolving such disputes with the addition of such expensive expert testimony.²⁴⁶ Put another way, our study suggests that the results might be the same without the expert testimony, despite the added expense. Our finding is consistent with one general survey of jurors from civil cases by Andrew Jurs, who found that 64% of the jurors surveyed said "they did not believe that the expert was essential to their verdict."²⁴⁷

In addition, the high cost of forensic musicologists may have a disparate impact on new, less known, or less established musicians who are unable to enlist the services of musicologists to even consider bringing a lawsuit to protect their copyrighted songs.²⁴⁸ Thus, even if a new musician has a legitimate copyright claim against, let's say, a prominent musician

244. See Ashley Cullins, *Robin Thicke's Attorney Argues \$3.5M Fee Award in 'Blurred Lines' Case Would Set Bad Precedent*, HOLLYWOOD REP. (Feb. 11, 2016, 1:09 PM), <https://www.hollywoodreporter.com/thr-esq/robin-thicke-attorney-argues-35m-864382> [<https://perma.cc/2FYX-63QN>]; Plaintiffs and Counter-Defendants' Opposition to Defendants and Cross-Complainants' Motions for Award of Attorneys' Fees and Expenses (Doc. 479, 502); Memorandum of Points and Authorities at 1, *Williams v. Bridgeport Music, Inc.*, No. 2:13-cv-06004-JAK-AGR (C.D. Cal. Feb. 10, 2016).

245. See *Williams v. Gaye*, 895 F. 3d 1106, 1125 (9th Cir. 2018).

246. See *id.* at 1115.

247. See Jurs, *supra* note 123, at 372.

248. See Hermann, *supra* note 7.

who copied a part of the new musician's song posted on SoundCloud, the new musician might not be able to afford a reputable musicologist, much less file a copyright lawsuit to protect the new musician's copyrighted song.²⁴⁹ Hiring a reputable musicologist becomes a barrier to entry to the new musician in the enforcement of copyright. The new small claims tribunal established by the Copyright Alternative in Small-Claims Enforcement Act of 2020 (CASE Act) won't eliminate this problem.²⁵⁰ Small claims are capped at \$30,000 in damages, experts are not permitted except in "exceptional cases . . . for good cause shown," and the new Copyright Claims Board in the Copyright Office can dismiss a claim due to the lack of expert testimony that is needed.²⁵¹ These limitations make the small-claims board an unattractive forum to handle music infringement cases of the kind discussed in this Article.

Although we mentioned the expert fees in the "Blurred Lines" case, it bears repeating that we are *not* evaluating the experts involved in the case or the value they may have added to jury's understanding of the two songs. Our commentary relates to the general practice of relying on expert musicologist testimony in music disputes. Moreover, as mentioned above in Part III, though we used the songs from the "Blurred Lines" case in our experiment, we did not attempt to retry the case with, for example, the full testimony of the experts, much less all the other evidence presented at trial. Our highly simplified expert testimony in our experiment cannot be taken as even an approximation of the actual testimony of the experts in the "Blurred Lines" case, although we did base our simplified testimony on what we believed to be the strongest points of the actual testimony of both sides' experts in the case.

We acknowledge that some accounts of the verdict suggest that Finell's detailed testimony on what she called a "constellation" of eight similarities between the two songs was critical, ultimately influencing the jury's decision.²⁵² But some of these same accounts also suggested another possible factor that could have swayed the jury: both Williams and Thicke provided shifting stories about how they created "Blurred Lines"—going from wanting to copy the groove of Gaye's song to not even thinking of Gaye's song (for Williams) or not even participating (for Thicke) in the creation of "Blurred Lines."²⁵³ During closing argument, the Gaye's attorney pounded away at the conflicting statements by Williams and Thicke:

249. See generally Molly Shaffer Van Houweling, *Distributive Values in Copyright*, 83 TEX. L. REV. 1535, 1540 (2005) (highlighting copyright law's distributive aspects and attempts to "ensure[] that creative opportunities are not available solely to the independently wealthy").

250. A H.R.133—Consolidated Appropriations Act, Pub. L. No. 116-260, § 212 (2021).

251. *Id.* §§ (e)(1)(D), (f)(3), (o)(2).

252. See, e.g., Doherty, *supra* note 201.

253. See Lee, *supra* note 174, at 1875–76.

“What it boils down to is: ‘Yes, we copied. Yes, we took it. Yes, we lied about it. Yes, we changed our story every time’ Are you going to believe Robin Thicke, who told us all he’s not an honest person?”²⁵⁴ Even putting aside the shifting explanations, the mere fact that Thicke had stated at one point that they wanted to *copy* the groove of Gaye’s song raises the possibility that such an admission of copying affected the jury’s finding of substantial similarity, under the cognitive bias one study has identified.²⁵⁵ Moreover, to the extent that jurors in the case relied on the expert testimony, it is impossible to rule out that some, if not all, of the jurors weighed the secondary indicia of the experts more than the substance of their forensic musicology analysis.

In any event, our study does not take a view on what influenced the jurors in the “Blurred Lines” case. Instead, our study examines the effect of experts generally through a behavioral experiment. Our results call into question whether expert testimony presented in a battle of experts in a music dispute is of much help to the trier of fact, especially if the jury is composed of people who lack training in music—precisely the profile of jurors (the blank slates) that Finell admitted that parties in music cases seek.²⁵⁶

B. Court-Appointed, Independent Experts Can Have a Greater Expert Effect

An alternative approach already available to courts under Federal Rule of Evidence 706 is the use of court-appointed experts.²⁵⁷ Our study found a significant effect from a court-appointed expert who was added to a battle of duelling experts of the parties. For jurors who lacked prior music knowledge, independent experts were more influential even when advancing the position in both simulated cases that we considered to be the more difficult position to prove. For jurors with prior music knowledge, however, independent experts had no significant effect. Because one would expect a typical jury of lay people will include some, if not only, individuals who lack relevant background knowledge in music, courts should consider including a court-appointed expert in the trial.

254. See Doherty, *supra* note 201.

255. See Balganesch et al., *supra* note 168, at 284.

256. See LEO, *supra* note 7, at 171–72 (“The manner and extent to which musical expertise figures into these decisions remain uncertain”); see also *Proving Similarity*, *supra* note 130.

257. See FED. R. EVID. 706.

Whether courts should make greater use of independent experts has been long-debated.²⁵⁸ One legitimate concern is that a court-appointed expert might be unduly influential due to the court-appointed status.²⁵⁹ We did not test whether jurors were using secondary indicia such as the designation of “an independent expert with no allegiance to either party” or being “court-appointed” as a proxy for trustworthiness of the opinion. We plan to do so in a future study. If one goal of permitting expert testimony is to assist the trier of fact in deciding an issue in a way potentially different than they would have decided without such expert testimony (that is, the expert testimony has a potential to make a difference in result), then the use of a court-appointed expert presents a more effective way to assist the trier of fact. Our results for court-appointed experts were similar to Robertson-Yokum’s findings of a significant effect on jurors by blinded experts.²⁶⁰

One additional benefit of a court-appointed expert is that the costs of the expert would be split between the parties.²⁶¹ If courts appoint an expert in music cases more routinely, this would raise the possibility for a party with fewer resources—such as a less established or unknown musician—to forgo the additional expense of hiring its own musicologist, relying instead on the court-appointed expert.

C. *Can Expert Musicologists Help the Court Play a Greater Gatekeeping Role?*

We were not able to determine whether expert testimony has a different effect on subjects with legal knowledge, but who lack music knowledge or training. As noted above, the great majority of subjects who had legal knowledge in our study also had music knowledge. We plan to conduct future research examining whether subjects with legal training but not music training might (1) better evaluate a battle of experts than lay jurors or (2) be more sensitive to or influenced by expert musicologist testimony than jurors with music knowledge, who were not swayed by expert testimony.

The issue is important because it can help us understand if expert testimony, whether in a battle of experts or with a court-appointed expert, may

258. See, e.g., William L. Foster, *Expert Testimony, Prevalent Complaints and Proposed Remedies*, 11 HARV. L. REV. 169, 184 (1897); Hand, *supra* note 33, at 56; Lee M. Friedman, *Expert Testimony, Its Abuse and Reformation*, 19 YALE L.J. 247, 247 (1909); E. Barrett Prettyman, *Needed: New Trial Technique: Suggestions for the Trial of Complicated Cases*, 34 A.B.A. J. 766, 769–70 (1948).

259. See Mark R. Patterson, *Conflicts of Interest in Scientific Expert Testimony*, 40 WM. & MARY L. REV. 1313, 1370 (1999).

260. See Robertson & Yokum, *supra* note 145, at 786–87.

261. See FED. R. EVID. 706 (compensation “by the parties in the proportion and at the time that the court directs—and the compensation is then charged like other costs”).

assist judges, who have legal training but not necessarily music training. If so, judges might be able to evaluate a battle of experts in performing a gatekeeping role, either pre-trial or post-trial, in identifying cases in which the alleged similarities are based on unprotected or uncopyrightable elements. Courts following the en banc Ninth Circuit's decision in *Skidmore* have taken a greater gatekeeping role in identifying the unprotected elements of musical works or the failure of the plaintiff's expert to do so.²⁶² For example, Judge Snyder granted Katy Perry's motion for judgment as a matter of law and threw out a jury verdict that found Perry's hit song "Dark Horse" infringed the copyright to the plaintiffs' "Joyful Noise" based on a similar ostinato (of eight notes).²⁶³ Judge Snyder dissected the plaintiffs' expert musicologist's analysis of the two songs under the extrinsic test and ruled that each of the nine putative similar elements identified by the plaintiff's expert were not copyrightable elements because they were merely "commonplace elements that courts have routinely denied copyright protection, at least standing alone, as a matter of law."²⁶⁴ Judge Snyder further ruled that the combination of these elements lacked sufficient originality as a matter of law.²⁶⁵ Citing the unrebutted testimony of Perry's expert musicologist and other forensic musicology analysis, Judge Snyder's opinion is highly technical and conversant in music terminology:

It is undisputed in this case, even viewing the evidence in the light most favorable to plaintiffs, that the signature elements of the 8-note ostinato in "Joyful Noise"—the 3-3[-]3-3-2-2 pitch sequence, the resolution of that sequence with a 3-2-1-5 sequence, the even rhythm without syncopation, and its development across a sparse texture—is not a particularly unique or rare combination, even in its deployment as an ostinato: prior compositions, including prior works composed by the parties, as well as what all agree is a separate noninfringing ostinato in "Dark Horse," all contain similar elements. *See* Trial Tr. at 904:7-905:17, 907:17-908:4 (unrebutted testimony of defendants' expert Dr. Ferrara discussing the presence of this pitch sequence in an even rhythm in the children's songs "Merrily We Roll Along" and "Jolly Old St. Nicholas"); *see id.* at 884:8-20, 886:12-24, 913:8-914:11 (unrebutted testimony from Dr. Ferrara that three other songs, including a song composed by defendant Gottwald called "Love Me Or Hate Me," contains the same evenly-spaced, repeating, pitch content, with the same 3-2-1-5 resolution, including as an ostinato); *see*

262. *See supra* notes 64–65 and accompanying text.

263. *See* Gray v. Perry, No. 2:15-CV-05642-CAS-JCx, 2020 WL 1275221, at *32–33 (N.D. Cal. Mar. 16, 2020), *appeal filed*, No. 20-55401 (9th Cir. Apr. 15, 2020).

264. *Id.* at *6.

265. *Id.* at *10.

id. at 496:8-497:6 (testimony from Dr. Decker that the “melodic contour of pitches” in the allegedly infringing ostinato in “Dark Horse,” and another ostinato in “Dark Horse” that is not infringing, are “the same”). *See also* Am. Br. at 8 (explaining that a search of music databases housed by the Center for Computer Assisted Research in the Humanities at Stanford University, and the Repertoire International des Sources Musicales, indicates that there are at least 6 other compositions in the same key containing the same pitch sequence, and more than 2,000 in all keys).²⁶⁶

This exercise is reminiscent of the kind of dissection that Judge Hand performed nearly a century ago.²⁶⁷

Judge Snyder’s opinion suggests that courts might be better at sifting through a battle of expert musicologists than lay jurors and making some rulings on uncopyrightable elements as a matter of law.²⁶⁸ The role of the court as a gatekeeper in music cases hearkens back to Judge Clark’s dissent in *Arnstein*, who took the view that the court “ought to assume the responsibility of decision now.”²⁶⁹ Otherwise, he warned, we will end up with “chaos, judicial as well as musical.”²⁷⁰ Interestingly, Judge Clark preferred “the help of musical experts” as well.²⁷¹ Apparently, he thought the court could use expert testimony in deciding music disputes on summary judgment, where appropriate.²⁷²

Future research might explore this possibility by conducting an experiment with lawyers or judges who have no music knowledge. And, if it is established that judges are indeed better at understanding and dissecting expert musicologist testimony, the copyright system might be better served by a greater gatekeeping role for judges—both pre-trial and post-trial—in determining whether the plaintiff has satisfied its burden of showing that the similarities between two songs are based on protected elements. Indeed, although the circuits apparently are split on whether copyrightability and originality are questions of law, fact, or mixed questions of law and fact,²⁷³

266. *Id.*

267. *See* *Fred Fisher, Inc., v. Dillingham*, 298 F. 145, 148–49 (S.D.N.Y. 1924).

268. *See Gray*, 2020 WL 1275221, at *6.

269. *Arnstein v. Porter*, 154 F.2d 464, 480 (2d Cir. 1946) (Clark, J., dissenting).

270. *Id.*

271. *Id.* at 478.

272. *See id.* at 478–79.

273. *See Gaiman v. McFarlane*, 360 F.3d 644, 648–49 (7th Cir. 2004) (citing circuit split); *see also* Julia Reytblat, Note, *Is Originality in Copyright Law a “Question of Law” or a “Question of Fact?”: The Fact Solution*, 17 *CARDOZO ARTS & ENT. L.J.* 181, 181 (1999) (advocating for the treatment of originality as a question of fact).

courts can always decide an issue as a matter of law when there are no genuine issues of material fact,²⁷⁴ including in music disputes.²⁷⁵

D. Focusing on Similarities That Are Perceptible to Lay Persons

A final alternative to the battle of duelling experts dissecting every element of two songs would be limit the analysis to music similarities that are *perceptible* to the lay audience, in which case expert testimony might not even be necessary or helpful. The Ninth Circuit adopted this approach in applying the de minimis doctrine to Madonna's alleged sampling of a sound recording ("0.23-second segment of horns from an earlier song") and use of the sample in a modified form.²⁷⁶ The Ninth Circuit applied the same test of de minimis to the copying of the musical work (that was performed in the sound recording), focusing on *what the lay audience can perceive*.²⁷⁷ This approach was also adopted by the Court of Justice of the European Union in *Pelham GmbH v. Hütter*, in a case of music sampling involving a part of sound recording copied into another song.²⁷⁸ The CJEU held that "where a user, in exercising the freedom of the arts, takes a sound sample from a phonogram in order to use it, *in a modified form unrecognisable to the ear*, in a new work, it must be held that such use does not constitute 'reproduction' within the meaning of Article 2(c) of [the EU] Directive 2001/29."²⁷⁹

Because the de minimis doctrine has been applied to "the threshold for determining that the degree of similarity suffices to demonstrate actionable infringement,"²⁸⁰ the existing case law already supports framing the test for infringement on what the lay audience can hear or perceive from the performance of the musical works. In other words, if the lay audience

274. See *CMM Cable Rep, Inc. v. Ocean Coast Properties, Inc.*, 97 F.3d 1504, 1517 (1st Cir. 1996) ("[W]here there are no genuine issues of material fact as to the originality of the work, such that no reasonable trier-of-fact could find originality, then the movant is entitled to judgment as a matter of law.").

275. See, e.g., *Peters v. West*, 692 F.3d 629, 636 (7th Cir. 2012) (holding that elements of song allegedly copied, including rhyme pattern and reference to famous model, were uncopyrightable as a matter of law).

276. *VMG Salsoul, LLC v. Ciccone*, 824 F.3d 871, 879 (9th Cir. 2016) ("As noted above, listening to the audio recordings confirms what the foregoing analysis of the composition strongly suggests: A reasonable jury could not conclude that an average audience would recognize an appropriation of the Love Break composition."). *But see* *Bridgeport Music Inc. v. Dimension Films*, 410 F.3d 792, 803 (6th Cir. 2005) (de minimis doctrine does not apply to sound recordings).

277. See *Fisher v. Dees*, 794 F.2d 432, 434 n.2 (9th Cir. 1986) ("As a rule, a taking is considered de minimis only if it is so meager and fragmentary that the average audience would not recognize the appropriation.").

278. Case C-476/17, *Pelham GmbH v. Hütter*, ECLI:EU:C:2019:624, ¶¶ 1–2 (July 29, 2019).

279. *Id.* ¶ 31 (emphasis added).

280. See *Ringgold v. Black Ent. Television, Inc.*, 126 F.3d 70, 74 (2d Cir. 1997).

cannot hear the alleged similarities in the musical works, the similarities would not be actionable—notwithstanding any expert testimony identifying similarities.²⁸¹

Some might object that musical works are more than just a performance, in contrast to sound recordings. But this objection ignores the existing case law on the *de minimis* doctrine, which generally focuses on what the lay audience can recognize.²⁸² Moreover, although the musical work and the sound recording are distinct works with different scopes of copyright,²⁸³ the practical and legal boundaries that separate the musical work from the sound recording are increasingly collapsing.²⁸⁴ When today's hit songs are produced on computers and not created by someone composing a song on sheet music,²⁸⁵ there appears to be little, if any, justification for the jury considering any element of a musical work that is not audible or recognizable to them in the performance of the work. Sheet music is more of an artifact, created after the act of composing or music production. Since the test of infringement for both sound recordings and musical works ultimately rests on the viewpoint of the lay audience, courts could limit the substantial similarity analysis to *audible* or *perceptible* elements of both types of works in determining if an infringement occurred. This inquiry would be on top of dissection and filtering out the unprotected elements in the extrinsic analysis.

Courts might even consider rejecting expert musicologist testimony altogether, as Patry has provocatively suggested.²⁸⁶ Instead, the court could have the musicians whose music is involved in the lawsuit testify about and perform, through a neutral recording or performance, the relevant portions of alleged similarities identified by the plaintiff.²⁸⁷ Alternatively, one might expand the type of evidence considered. Based on a review of copyright cases involving expert musicologist testimony in the United Kingdom, Lionel Bently has argued for greater scrutiny of expert testimony in music

281. See *id.* at 76.

282. See *id.* at 70.

283. See, e.g., 17 U.S.C. § 114.

284. See Lee & Moshirnia, *supra* note 25, at 499–500; Robert Brauneis, *Musical Work Copyright for the Era of Digital Sound Technology: Looking Beyond Composition and Performance*, 17 TUL. J. TECH. & INTELL. PROP. 1, 43–44 (2014).

285. See Lee & Moshirnia, *supra* note 25, at 500.

286. See *supra* notes 31–32 and accompanying text.

287. See *supra* notes 31–32 and accompanying text. *But see* *Frisby v. Sony Music Entm't*, No. CV 19-171-GW-AGR_x, 2021 WL 2325646, at *18 & n. 25 (C.D. Cal. Mar. 11, 2021) (ruling on summary judgment that plaintiff musician who was not a musicologist and did not read sheet music was not qualified as musicologist to testify on alleged similar elements in musical works), *appeal filed*, No. 21-55586 (9th Cir. June 4, 2021); *Batiste v. Lewis*, 976 F.3d 493, 499-500 (5th Cir. 2020) (finding that the district court did not abuse discretion in rejecting plaintiff musician's request to resubmit an expert report on similarities that plaintiff had ghost written for hired expert because "restyled report was unreliable and untimely").

cases because such testimony involves value judgments on what musical elements in popular songs count as authorship or copyrightable expression.²⁸⁸ Instead of barring musicologist testimony, Bently recommended that parties consider offering experts and other witnesses beyond traditional forensic musicologists to testify about issues related to the authorship of a pop song, including the actual practices of music producers.²⁸⁹ As we did above, Bently emphasized that popular music production is far more dependent on sounds and performance than the traditional view of a musical work has recognized.²⁹⁰

Ultimately, we believe it is beneficial for courts to take a closer look at whether and, for what purposes, expert musicologist testimony “will help the trier of fact” in a copyright dispute. Our study calls into question the helpfulness of such testimony presented as duelling experts to jurors who lack knowledge in music—which is the profile of juror that parties typically seek. The risk of a cancelling out effect or jurors simply favoring the expert with “better” credentials or other secondary indicia is high. To avoid these problems, courts can play a greater gatekeeping role. To the extent the court finds musicologist testimony helpful in dissecting similar musical elements in the two songs or the existence of the same element in the prior art, the court could appoint an expert under Federal Rule of Evidence 706 and hold a pretrial, *Markman*-style hearing or a bifurcated trial, separating dissection from the ultimate determination of infringement.²⁹¹ The court could also limit the admission of expert testimony to those similarities that are allegedly audible to a lay audience. And, if the plaintiff’s alleged similarities were not even perceptible to a lay audience, a court could resolve the case on summary judgment. We believe this approach comports with the longstanding *de minimis* doctrine. Our studies’ identification of a knowledge effect based on prior legal training suggest that judges have the capability of making these determinations.

288. See Lionel Bently, *Authorship of Popular Music in UK Copyright Law*, 12 INFO. COMM’N SOC’Y 179, 192–95 (2009). UK copyright law requires a “significant” and “original” contribution to a musical work to qualify as a co-author. *Id.* at 190. As we discussed above, musicologists testifying in U.S. cases have a fair amount of discretion in characterizing a musical element as common, basic, stock, or otherwise unprotectable. See *supra* note 15 and accompanying text.

289. Bently, *supra* note 288, at 198.

290. *Id.* at 196–97.

291. A *Markman* hearing involves a pretrial hearing by the court to construe the patent claims as a matter of law. For the evolution of this proceeding, see Edward Brunet, *Markman Hearings, Summary Judgment, and Judicial Discretion*, 9 LEWIS & CLARK L. REV. 93, 98 (2005); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 370 (1996). One of our students, Christopher Tuinenga, suggested the idea of holding a *Markman*-style hearing for music dissection in copyright cases.

VI. CONCLUSION

This Article conducted an experimental study to determine what effect, if any, expert musicologists have on mock jurors in cases involving a copyright claim alleging that one song is substantially similar to a prior song. Consistent with our hypothesis, our study found the effect of experts was muted or diminished when presented as a battle of duelling experts with opposing views. The duelling experts largely cancelled each other out. But, when we added a third, court-appointed expert, the court-appointed expert had a significant effect on jurors who lacked prior music knowledge or training. This court-appointed expert effect led to a significant change in jurors' determinations of substantial similarity between the two songs at issue. These findings applied only to jurors who lacked knowledge in music, however. For jurors who had music knowledge, the results were dramatically different. In one case involving high similarity between the two songs, duelling experts had a significant effect on jurors with music knowledge, but the court-appointed expert had no significant effect at all. In other words, jurors with music knowledge appeared to be able to evaluate the substance of the expert testimony in all forms—and to decide when to rely on it or reject it. Our findings call into serious question the current approach to deciding music copyright cases. Indeed, the reliance on a battle of expert musicologists may be the least effective way to assist the jury.

APPENDIX A

Music Disputes - Musicology

[Below is the survey instrument with the consent form and completion code omitted. Each respondent was randomly assigned two versions of A v. B and two versions of C v. D.]

SPEAKER CHECK

This study requires you to listen to music. To check that you are able to properly hear the music that will be played, please listen to the audio file below.

[Sound Check]

Please type in the box below the number that the speaker is saying in the audio file. This answer is required in order to be paid for participating in this study.

Please type the number you hear in the audio file

What is your gender?

- Male
- Female
- Non-binary/Third Gender
- Prefer not to state

What is your age?

- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 to 74
- 75 or older

What is the highest degree or level of school you have completed? (If you are currently enrolled in school, please indicate the highest degree you have received.)

- Nursery school to 8th grade
- Some high school, no diploma
- High School graduate
- Some college, no degree

- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree / Doctorate degree

How often do you listen to music per day?

- Less than 1 hour
- 1-2 hours
- 3-4 hours
- 5 hours or more

Do you play any musical instrument, or have substantial training in playing a musical instrument, or have substantial experience in publicly performing or singing musical works?

- Yes
- No

Are you a lawyer or have you ever attended law school?

- Yes
- No

In an effort to make sure you are paying attention, that the questions you receive are properly distributed, and accurately read, please select this number: 3

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

CASE 1: MUSICIAN A V. MUSICIAN B

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician A wrote and recorded a song that became popular and commercially successful. Musician B was familiar with Musician A's song. Several years later, Musician B wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician A. Musician A alleges that Musician B has copied parts of Musician A's song. Musician A claims this copying infringes Musician A's copyright. For example, Musician A says a significant part of Song A starting at 0:06 and at 3:03 was copied by Musician B into Song B starting at 0:48, as well as at other parts. At the time of this lawsuit, Musician A's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician B. Musician B denies the allegation by Musician A.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG A]

[SONG B]

The parties in the case agreed to the use of the following audio clips as evidence to compare a 10-note sequence in Song A and 12-note sequence in Song B.

[10-note sequence in Song A]

[12-note sequence in Song B]

JURY INSTRUCTION

Under the law, to prove Musician B has infringed the copyright to Musician A's song, Musician A must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as "identical." Musician A does not have to show that each of the individual elements of the songs is substantially similar. Musician A must show that there is enough similarity between original elements of Musician A's song and Musician B's song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician B's song infringe Musician A's copyright?

Yes

No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

CASE 2: MUSICIAN A v. MUSICIAN B

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician A wrote and recorded a song that became popular and commercially successful. Musician B was familiar with Musician A's song. Several years later, Musician B wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician A. Musician A alleges that Musician B has copied parts of Musician A's song. Musician A claims this copying infringes Musician A's copyright. For example, Musician A says a significant part of Song A starting at 0:06 and at 3:03 was copied by Musician B into Song B starting at 0:48, as well as at other parts. At the time of this lawsuit, Musician A's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician B. Musician B denies the allegation by Musician A.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG A]

[SONG B]

TESTIMONY

Musician A presented Expert A, a musicologist with an advanced degree in the study of music, who testified as follows: “The two songs are substantially similar in my expert opinion. My conclusion is based on the similar combination of several elements in both songs. For example, Song A has a memorable 10-note melodic sequence. Similarly, Song B has a 12-note melodic sequence. Song A’s sequence begins with a note repeated 4 times. Song B’s sequence begins with a note repeated twice. Each includes a distinctive pattern of 3 consecutive ascending pitches and 2 consecutive descending pitches. Both songs start with one measure with the first 6 notes in exactly the same rhythm, meaning the pattern in time each note is played. When the lyrics are included, both songs end using a melisma, meaning a single word sung over multiple pitches. Another key similarity is that both songs have a noticeable break from the melody when the lyrics in both songs shift from being sung to being spoken in Song A or rapped in Song B. These breaks in melody occur in exactly the same bars or measures of the two songs. Exactly the same. Song A’s break from melody is immediately preceded by the use of word painting for three phrases in the lyrics, meaning the words are sung to reflect the meaning of the words, such as singing lower in tone on the word “down.” Similarly, Song B’s break from melody is immediately followed by the use of word painting for three phrases in the lyrics. This combination of similarities is highly distinctive and not found in prior songs. Based on this distinctive combination, the two songs are substantially similar.”

Musician B presented Expert B, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, the two songs are not substantially similar. None of the 12 notes in Song B’s sequence have the same pitch, rhythm, and placement as the 10 notes in Song A. There is only one note in Song B’s sequence that has the same pitch and placement as Song A’s sequence, but the duration of that single note is different. In other words, the sequences are quite different. Any similarities are based simply on common musical elements in many prior songs, or what are basic building blocks in music open for all musicians to use. Repeating the same note in a song is so common, it can be found in “Happy Birthday to You” and Beethoven’s Fifth Symphony. The note repeated 4 times by Song A is different from the note repeated 2 times by Song B. Likewise, having consecutive ascending pitches or descending pitches—whether 3, 2, or other number—is also a common technique in music. It is based on a very basic building block of music: performing a scale of notes either going higher in pitch (ascending) or lower in pitch (descending). Having one measure of the same rhythm is also just a basic building block of music, as is the use of a melisma. A break from

the melody is a common technique used in many songs. Song A and Song B are not substantially similar, either in their individual elements or in combination.”

The parties in the case agreed to the use of the following audio clips as evidence to compare a 10-note sequence in Song A and 12-note sequence in Song B.

[10-note sequence in Song A]

[12-note sequence in Song B]

JURY INSTRUCTION

Under the law, to prove Musician B has infringed the copyright to Musician A’s song, Musician A must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as “identical.” Musician A does not have to show that each of the individual elements of the songs is substantially similar. Musician A must show that there is enough similarity between original elements of Musician A’s song and Musician B’s song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician B’s song infringe Musician A’s copyright?

- Yes
- No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

Did you recognize either song in the musical pair? If yes, please provide your best guess as to the name(s) of the song(s).

- Yes _____
 No

CASE 5: MUSICIAN C V. MUSICIAN D

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician C wrote and recorded a song that became popular and commercially successful. Musician D was familiar with Musician C's song. Several years later, Musician D wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician C. Musician C alleges that Musician D has copied parts of Musician C's song. Musician C claims this copying infringes Musician C's copyright. For example, Musician C says a significant part of Song C starting at 0:05 was copied by Musician D into Song D starting at 0:30, as well as at other parts. At the time of this lawsuit, Musician C's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician D. Musician D denies the allegation by Musician C.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG C]

[SONG D]

TESTIMONY

Musician C presented Expert C, a musicologist with an advanced degree in the study of music, who testified as follows: "The two songs are substantially similar in my expert opinion. Song D has a pattern of two musical phrases that are very similar to Song C. If we use the well-accepted method of assigning syllables for the notes, Song C has 4 repetitions of 'sol-mi-re' followed by 4 repetitions of 'sol-la-do-la-do.' Song D uses only 3 repetitions of 'sol-mi-re' followed by 3 repetitions of 'sol-la-do-la-do,' but this minor variation in Song D does not diminish the great similarity between the two songs. Even though the two musical phrases 'sol-mi-re' and 'sol-la-do-la-do' are common musical phrases in prior songs, the combination of the two musical phrases repeated 4 times in Song

C is unique and new. Song D is substantially similar to Song C in my expert opinion.”

Musician D presented Expert D, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, the two songs are not substantially similar. Most of the similarities between the two songs involves standard or commonly used musical phrases ‘sol-mi-re’ and ‘sol-la-do-la-do’ found in many prior songs. Moreover, the combination of elements in the two songs is quite different. Song C follows a 4x4 repetition of the two musical phrases. But Song D follows a 3x3 repetition with the inclusion of a much different musical phrase in place of the fourth repetition of ‘sol-la-do-la-do.’ Each song also has its own departures from ‘sol-mi-re’ and ‘sol-la-do-la-do,’ adding different notes to fit the different lyrics. Therefore, Song D is not substantially similar to Song C in my expert opinion.”

The parties in the case agreed to the use of the following audio clips as evidence to compare the musical themes in Songs C and D.

[Musical themes in Song C]

[Musical themes in Song D]

JURY INSTRUCTION

Under the law, to prove Musician D has infringed the copyright to Musician C’s song, Musician C must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as “identical.” Musician C does not have to show that each of the individual elements of the songs is substantially similar. Musician C must show that there is enough similarity between original elements of Musician C’s song and Musician D’s song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician D’s song infringe Musician C’s copyright?

- Yes
- No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

CASE 6: MUSICIAN C V. MUSICIAN D

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician C wrote and recorded a song that became popular and commercially successful. Musician D was familiar with Musician C's song. Several years later, Musician D wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician C. Musician C alleges that Musician D has copied parts of Musician C's song. Musician C claims this copying infringes Musician C's copyright. For example, Musician C says a significant part of Song C starting at 0:05 was copied by Musician D into Song D starting at 0:30, as well as at other parts. At the time of this lawsuit, Musician C's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician D. Musician D denies the allegation by Musician C.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG C]

[SONG D]

TESTIMONY

Musician C presented Expert C, a musicologist with an advanced degree in the study of music, who testified as follows: “The two songs are substantially similar in my expert opinion. Song D has a pattern of two musical phrases that are very similar to Song C. If we use the well-accepted method of assigning syllables for the notes, Song C has 4 repetitions of ‘sol-mi-re’ followed by 4 repetitions of ‘sol-la-do-la-do.’ Song D uses only 3 repetitions of ‘sol-mi-re’ followed by 3 repetitions of ‘sol-la-do-la-do,’ but this minor variation in Song D does not diminish the great similarity between the two songs. Even though the two musical phrases ‘sol-mi-re’ and ‘sol-la-do-la-do’ are common musical phrases in prior songs, the combination of the two musical phrases repeated 4 times in Song C is unique and new. Song D is substantially similar to Song C in my expert opinion.”

Musician D presented Expert D, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, the two songs are not substantially similar. Most of the similarities between the two songs involves standard or commonly used musical phrases ‘sol-mi-re’ and ‘sol-la-do-la-do’ found in many prior songs. Moreover, the combination of elements in the two songs is quite different. Song C follows a 4x4 repetition of the two musical phrases. But Song D follows a 3x3 repetition with the inclusion of a much different musical phrase in place of the fourth repetition of ‘sol-la-do-la-do.’ Each song also has its own departures from ‘sol-mi-re’ and ‘sol-la-do-la-do,’ adding different notes to fit the different lyrics. Therefore, Song D is not substantially similar to Song C in my expert opinion.”

Given the divergent views of the parties’ experts, the court sought the opinion of an independent expert with no allegiance to either party. The court appointed Expert 2, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, Song D is not substantially similar to Song C based on a comparison of Song C’s elements that qualify for copyright protection. Song C’s melody consists of 4 repetitions of a short basic musical phrase, which can be indicated as ‘sol-mi-re’ by following the well-accepted system of assigning certain short syllables for musical notes. This three-note phrase is sometimes altered in Song C to fit the words and is followed by 4 repetitions of another short musical phrase ‘sol-la-do-la do.’ By contrast, Song D consists of 3 repetitions of the basic musical phrase, ‘sol-mi-re,’ modified to fit the words of Song D, and 3 repetitions of the basic musical phrase, ‘sol-la-do-la-do.’ Instead of the fourth repetition that exists in Song C, Song D uses a

different transitional passage. The short musical phrases ‘sol-mi-re’ and ‘sol-la-do-la-do’ contained in both Song C and Song D are common in many prior songs. Repetition of phrases is common in music, and using a simple combination of two common phrases is not unique. In my expert opinion, the two songs are not substantially similar.”

The parties in the case agreed to the use of the following audio clips as evidence to compare the musical themes in Songs C and D.

[Musical themes in Song C]

[Musical themes in Song D]

JURY INSTRUCTION

Under the law, to prove Musician D has infringed the copyright to Musician C’s song, Musician C must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as “identical.” Musician C does not have to show that each of the individual elements of the songs is substantially similar. Musician C must show that there is enough similarity between original elements of Musician C’s song and Musician D’s song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician D’s song infringe Musician C’s copyright?

- Yes
- No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

Did you recognize either song in the musical pair? If yes, please provide your best guess as to the name(s) of the song(s).

- Yes _____
- No

If you recognized song A, B, C, or D, do you have any negative feelings towards the actual musician(s) who created or recorded the song? If yes, please specify the song(s) and briefly describe those feelings below.

- Yes _____
- No
- I do not recognize any of the songs

On this question, our goal is to determine that you have been paying attention. Please select the number 7 below. Do not select any other number.

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

DEBRIEF

The purpose of this study was to analyze to examine how experts can help courts decide disputes involving music. We have included different scenarios involving music disputes in which testimony from experts was provided. We want to know how the testimony of experts influences jurors and the outcomes in music cases. Your answers will help us understand the role that experts play in copyright cases involving music.

You are all done! Please click the “NEXT” button to receive your unique survey completion code, which is necessary to receive compensation for your work.

- NEXT

CASE 3: MUSICIAN A V. MUSICIAN B

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician A wrote and recorded a song that became popular and commercially successful. Musician B was familiar with Musician A's song.

Several years later, Musician B wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician A. Musician A alleges that Musician B has copied parts of Musician A's song. Musician A claims this copying infringes Musician A's copyright. For example, Musician A says a significant part of Song A starting at 0:06 and at 3:03 was copied by Musician B into Song B starting at 0:48, as well as at other parts. At the time of this lawsuit, Musician A's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician B. Musician B denies the allegation by Musician A.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG A]

[SONG B]

TESTIMONY

Musician A presented Expert A, a musicologist with an advanced degree in the study of music, who testified as follows: "The two songs are substantially similar in my expert opinion. My conclusion is based on the similar combination of several elements in both songs. For example, Song A has a memorable 10-note melodic sequence. Similarly, Song B has a 12-note melodic sequence. Song A's sequence begins with a note repeated 4 times. Song B's sequence begins with a note repeated twice. Each includes a distinctive pattern of 3 consecutive ascending pitches and 2 consecutive descending pitches. Both songs start with one measure with the first 6 notes in exactly the same rhythm, meaning the pattern in time each note is played. When the lyrics are included, both songs end using a melisma, meaning a single word sung over multiple pitches. Another key similarity is that both songs have a noticeable break from the melody when the lyrics in both songs shift from being sung to being spoken in Song A or rapped in Song B. These breaks in melody occur in exactly the same bars or measures of the two songs. Exactly the same. Song A's break from melody is immediately preceded by the use of word painting for three phrases in the lyrics, meaning the words are sung to reflect the meaning of the

words, such as singing lower in tone on the word “down.” Similarly, Song B’s break from melody is immediately followed by the use of word painting for three phrases in the lyrics. This combination of similarities is highly distinctive and not found in prior songs. Based on this distinctive combination, the two songs are substantially similar.”

Musician B presented Expert B, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, the two songs are not substantially similar. None of the 12 notes in Song B’s sequence have the same pitch, rhythm, and placement as the 10 notes in Song A. There is only one note in Song B’s sequence that has the same pitch and placement as Song A’s sequence, but the duration of that single note is different. In other words, the sequences are quite different. Any similarities are based simply on common musical elements in many prior songs, or what are basic building blocks in music open for all musicians to use. Repeating the same note in a song is so common, it can be found in “Happy Birthday to You” and Beethoven’s Fifth Symphony. The note repeated 4 times by Song A is different from the note repeated 2 times by Song B. Likewise, having consecutive ascending pitches or descending pitches—whether 3, 2, or other number—is also a common technique in music. It is based on a very basic building block of music: performing a scale of notes either going higher in pitch (ascending) or lower in pitch (descending). Having one measure of the same rhythm is also just a basic building block of music, as is the use of a melisma. A break from the melody is a common technique used in many songs. Song A and Song B are not substantially similar, either in their individual elements or in combination.”

Given the divergent views of the parties’ experts, the court sought the opinion of an independent expert with no allegiance to either party. The court appointed Expert 1, a musicologist with an advanced degree in the study of music, who testified as follows: “In my expert opinion, Song B is substantially similar to Song A based on the combination of musical elements in both songs. The melodies of both songs use a substantially similar sequence that is memorable or distinctive in both songs. Song A’s 10-note sequence and Song B’s 12-note sequence both contain four similar elements.

- (1) The beginning of each sequence starts by repeating a note and with the first measure in the same rhythm or the note’s placement in time.
- (2) The first 6 notes in each sequence follow the same rhythm.
- (3) Each sequence has a distinctive combination of 3 consecutive ascending pitches and 2 descending pitches.

(4) When combined with the lyrics, each sequence uses a melisma that changes the pitch in which a single word is sung at the end of sequence.

This combination of four elements in both songs is not found in prior songs. The structure of both songs is also very similar. Each song breaks off from the melody at exactly the same measure. During this break, both songs change from singing to speaking or rapping the lyrics for exactly the same number of measures. Song A uses a technique called word painting—where the singer changes tone to match the meaning of the lyric—right before the melodic break. Song B uses the same technique right after the melodic break. Both songs use word painting in three successive lines of lyrics. My expert opinion is that the two songs are substantially similar based on the extensive similarities in the selection and arrangement of musical elements in both songs.”

The parties in the case agreed to the use of the following audio clips as evidence to compare a 10-note sequence in Song A and 12-note sequence in Song B.

[10-note sequence in Song A]

[12-note sequence in Song B]

JURY INSTRUCTION

Under the law, to prove Musician B has infringed the copyright to Musician A’s song, Musician A must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as “identical.” Musician A does not have to show that each of the individual elements of the songs is substantially similar. Musician A must show that there is enough similarity between original elements of Musician A’s song and Musician B’s song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician B’s song infringe Musician A’s copyright?

Yes

No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

CASE 4: MUSICIAN C V. MUSICIAN D

There is a legal dispute involving two songs. Imagine that you are a juror. Copyright law protects works of authorship, including a song or musical work. You have been asked to determine if one song infringes the copyright of another song.

Musician C wrote and recorded a song that became popular and commercially successful. Musician D was familiar with Musician C's song. Several years later, Musician D wrote and recorded a song that also became popular and commercially successful.

The audio of the two songs is embedded below. The first clip is the song by Musician C. Musician C alleges that Musician D has copied parts of Musician C's song. Musician C claims this copying infringes Musician C's copyright. For example, Musician C says a significant part of Song C starting at 0:05 was copied by Musician D into Song D starting at 0:30, as well as at other parts. At the time of this lawsuit, Musician C's song still earned some royalties from licensed uses by third parties.

The second clip is the song by Musician D. Musician D denies the allegation by Musician C.

Please listen to these songs carefully. You may listen as many times as you wish.

[SONG C]

[SONG D]

The parties in the case agreed to the use of the following audio clips as evidence to compare the musical themes in Songs C and D

[Musical themes in Song C]

[Musical themes in Song D]

JURY INSTRUCTION

Under the law, to prove Musician D has infringed the copyright to Musician C's song, Musician C must prove the songs are substantially similar to the ordinary, reasonable listener. This is not the same as "identical." Musician C does not have to show that each of the individual elements of the songs is substantially similar. Musician C must show that there is enough similarity between original elements of Musician C's song and Musician D's song to constitute a substantial amount to the ordinary, reasonable listener.

In light of the legal rule, does Musician D's song infringe Musician C's copyright?

- Yes
- No

How Confident are you of this decision, on a scale from 1-10, with 1 being the least confident and 10 being the most confident?

- 1 (Least Confident)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Most Confident)

