COMPARING APPLES TO APPLEJACKS: COGNITIVE SCIENCE CONCEPTS OF SIMILARITY JUDGMENT AND DERIVATIVE WORKS

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INTRODUCTION

It seems quintessentially American that in the year of the United States bicentennial, one maker of a plastic toy Uncle Sam mechanical bank sued another to invalidate a copyright.[1] In determining the validity of the appellant's copyright, the court compared the plastic bank to a similar cast-iron Uncle Sam bank that had existed in the public domain since the 1880s. The appellant claimed a myriad of differences between his copyrighted bank and that of the original, including a change in the material the bank was made out of, the shape of the carpetbag Uncle Sam was holding, a shortened figure and narrowed base, a change in the texture of many of the bank's elements, the addition of leaves instead of arrows in the talons of an eagle on the bank and alterations to Uncle Sam's face, hairline, hat, dress, shirt collar and bow tie.[2] While noting that the long list of changes made the plastic bank more than a "faithful reproduction," the court found the alterations to be "merely trivial" and invalidated the copyright for lack of originality.[3] But if the plastic bank was not a simple reproduction, and not sufficiently original, what was it? What changes, if not to size, substance, texture, art, and shape, could the maker possibly have made that would have distinguished it sufficiently from its source material?

The questions generated by this landmark case highlight how, perhaps more than any other area of law, copyright law is grounded in the subjectivities of human perception. This is especially true in regard to derivative works, where courts and legislatures have long struggled to create laws and tests that outline qualities and categories for determining similarity

[1] L. Batlin & Son, Inc. v. Snyder, 536 F.2d 486 (2d Cir.), *cert. denied*, 429 U.S. 857 (1976).

[2] *Id*. at 489.

[3] *Id*.

between original and derivative material. But the question of how to create reliable strictures to judge something as subjective as similarity is not unique to copyright law. At a more theoretical level, cognitive scientists have struggled with the same questions for decades, creating various scientific and theoretical models to explain how humans prioritize, categorize and judge features to determine similarity between two or more objects.

This article will first look at copyright's derivative works right and the factor of transformation under the fair use test, examining historical issues in both statute and relevant case law. A brief history and summary of cognitive science and psychology's ideas about human perception of generalization, similarity and categorization will be reviewed in Parts I and II. Part III will then compare the cognitive science findings on how people assess similarity to the similarity tests used by the courts. Further, it will propose that cognitive science reveals that the courts are highly susceptible to a number of potential biases and framing heuristics in their tests for judging infringement, derivative works and fair use. Using these lessons and analysis, this article will suggest possible improvements to judicial frameworks, and future applications for cognitive science in copyright law, and in the meantime, ways in which both plaintiffs' and defendants' copyright attorneys might use such biases to their advantage.

I. THE DEVELOPMENT OF THE DERIVATIVE WORKS RIGHT AND FAIR USE DEFENSE IN DERIVATIVE WORKS

A. Brief History of Copyright and the Derivative Works Right

In keeping with the Copyright Clause of the United States Constitution,[4] Congress vested creators of original art or intellectual works with copyrights — alienable property rights that allowed the owner to control the copying or other exploitation of the work for a specified period of time. In the 200 years following the Constitutional recognition of interests embodied in copyrights, Congress and the courts engaged in piecemeal attempts to define how to qualify for a copyright, and what a copyright protected.[5] In response to the growing confusion at common law and the growth in new technologies, Congress overhauled the morass of court-made and statutory copyright law and put in place legislation that currently governs today: the Copyright Act of 1976.[6]

Among the rights codified in the Copyright Act of 1976 was the derivative works right. The right to prepare derivative works based on a copy-

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[4] U.S. CONST. art. I, § 8, cl. 8.

[5] *See generally* JULIE COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 3-40 (3d ed. 2010) (summarizing theoretical and historical underpinnings of copyright law).

[6] 17 U.S.C. §§ 101–810 (2006).

rightable work is closely related to an author's right to control reproduction of original work.[7] Building on derivative works definitions in past Copyright Acts,[8] Congress expanded the rights afforded to derivate works and better defined their creation.[9] While § 102 of the Act greatly expands the types of subject matter that are copyrightable,[10] § 101 of the Act formally adopts and defines the term derivative work as "a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted."[11] Further, it defined derivative works as "editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship . . . ."[12] If a work thus qualifies as a derivative work according to the standards set forth in these two sections, § 103 recognizes an independent copyright for derivative work, in the material added by the new author.[13]

Though these three sections of the Copyright Act served to codify and define the derivative works right, they failed to provide further insight into how to determine when a derivative material is sufficiently distinctive from the work on which it is based and can become its own copyrightable work, or when it simply reproduces the original work.[14] This issue continues to come before courts in two contexts: (1) determining copyrightability — when courts are asked to determine whether a secondary work is entitled to its own copyright, and (2) determining infringement — when courts are asked to determine whether a secondary work infringes on the copy-

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7 *See* COHEN ET AL., *supra* note 5, at 365.   **R**

8 The derivative works right was first statutorily recognized by Congress in the 1870 Copyright Act, which allowed authors to reserve the right to translate or dramatize their own works. When case law evolved to cover reproduction rights beyond translations and dramatizations, Congress codified these changes in the common law in the Copyright Act of 1909. *See* H.R. REP. NO. 60-2222, App. 13-2 at 13-6 (1909) (legislative history of 1909 Act indicating congressional intent to merely codify existing case law); COHEN ET AL., *supra* note 5, at 106.

9 17 U.S.C. § 101–106 (2006).

10 *Id.* § 102.

11 *Id.* § 101.

12 *Id.*

13 *Id.* § 103.

14 For a lengthier discussion on the definition of derivative works, see Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right* (Aug. 29, 2012), GEO. L.J., (forthcoming) (UC Berkeley Public Law Research Paper No. 2138479), *available* at SSRN: http://ssrn.com/abstract=2138479.

right of the underlying work.[15] The first of these contexts has produced two separate inquiries. To determine copyrightability, courts have traditionally looked at "the extent to which the two works are different" or "what the secondcomer has added."[16] In determining infringement, however, courts look instead to the extent the two works are similar or "what the secondcomer has taken."[17] The next two sections will address these distinctions.

1. Copyrightability: Originality

In determining copyrightability, courts have held that in order for a secondary, allegedly derivative work to qualify for its own copyright protection it must display some originality of its own. As discussed in the introduction, in *L. Batlin & Son, Inc. v. Snyder*, the Second Circuit stated that this originality had to be "something more than a 'merely trivial' variation" or copy.[18] In *Batlin*, defendant Snyder had obtained a copyright over the design of a plastic replica of an Uncle Sam bank, which was based on a similar toy bank that had been sold in the United States for decades and whose design was in the public domain. Batlin, another toy bank manufacturer sued to challenge the validity of Snyder's copyright.[19]

Pictures of the original Batlin bank and Snyder's copy made in 1975.[20]

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[15] *See* COHEN ET AL., *supra* note 5, at 106.   **R**

[16] *Id.*

[17] *Id.*

[18] 536 F.2d 486, 489 (2d Cir.), *cert. denied*, 429 U.S. 857 (1976) (quoting Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 103 (2d Cir. 1951)).

[19] *Id.* at 489.

[20] Pictures reproduced from online content of COHEN ET AL., *supra* note 5,   **R** *available at* http://www.coolcopyright.com/cases/chp2/batlinsnyder.htm (last visited Mar. 25, 2013).

The court held that Snyder's design was not eligible for copyright as a derivative work, because his "miniscule variations" — alterations to the size of the bank, the shape of a carpet-bag held by the figure, inclusion of a fixed-umbrella, and a wider base — were "not perceptible to the casual observer."[21] Four years later, the Second Circuit applied this principle again in *Durham Industries v. Tomy Corp.*[22] Tomy, a Disney toy licensee, sued Durham Industries, another Disney toy licensee, for copyright infringement of his Disney figures. Though Durham admitted to using Tomy's figures as models, the Court held that Tomy's toys contained "no independent creation, no distinguishable variation from preexisting works, [and] nothing recognizably the author's own contribution."[23] The Court also established a two-prong test to support a copyright in a derivative work: (1) that "original aspects" of the secondary work must be "more than trivial" and (2) those original aspects "must reflect the degree to which it relies on the preexisting material" and may not "affect the scope" of the original work's copyright protection.[24] This test was grounded in the policy of protecting the rights of the owner of the underlying copyright, and not allowing the owner of the first "virtually identical" derivative work copyright a monopoly over all subsequent derivative works.[25] In the years following *Durham*, other circuit courts have adopted this test in determining originality.[26]

The originality test was given further emphasis when the Supreme Court applied it to the copyrightability of compilations in *Feist v. Rural* in 1991.[27] Though compilations are technically distinct from derivative works under the Copyright Act, they are addressed jointly under § 103.[28] Thus, the Court's emphasis on originality in *Feist* can help shed light on its application in derivative works contexts. In *Feist*, the Court recognized a need for a "minimal degree" of creativity and identified three elements central to creating a copyrightable compilation: (1) collection and assembly; (2) selection, coordination or arrangement, and (3) the creation through particular selection, coordination or arrangement, of an original

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[21] *Id.*

[22] 630 F.2d 905, 910-11 (2d Cir. 1980).

[23] *Id.* at 909.

[24] *Id.*

[25] *Id.*

[26] *See, e.g.*, Entm't Research Grp., Inc. v. Genesis Creative Grp., 122 F.3d 1211 (9th Cir. 1997) (applying *Durham* test and finding that plaintiff's three-dimensional inflatable costume designs based on copyrighted cartoon characters, while not exact replicas, were not sufficiently original to deserve copyright).

[27] 499 U.S. 340 (1991).

[28] 17 U.S.C. § 103 (2006).

work of authorship.[29] Applying this test to the creation of white pages, the Court declined to find a "modicum of creativity" and denied copyright protection.[30] The Ninth Circuit, however, has construed these elements slightly differently. Twenty years before *Feist*, the Ninth Circuit established a "total concept and feel" standard in *Roth Greeting Cards* in determining whether a compilation was an original work.[31] In *Roth*, the circuit court recognized that while the underlying text and phrases used in a greeting card created by Roth were part of the public domain, when viewed in totality, Roth had created a "tangible expression of an idea" in combining these phrases with original art, and as such, was entitled to copyright protection.[32] Relevantly, in finding the work original, the court took into account the similarity between the "total concept and feel" of Roth's work and the public domain elements.[33] This standard continues to be applied within the Ninth Circuit,[34] even after *Feist.*

In sum, these cases illustrate that the originality requirement in recognizing the copyrightability of a derivative work is based not just on isolated judgment of the secondary work, but a finding of originality based on a comparison to the primary work. At its core, this is functionally a similarity judgment, though perhaps it would be better stated as a *dissimilarity* judgment, or even a "differences" judgment. This is an important distinction, as will be revealed later.

2. Infringement: Substantial Similarity

In determining whether something is a derivative work for purposes of infringement, courts have looked less to questions of originality, and more to judging the level of similarity between the secondary and underlying work. This idea of "substantial similarity," which is also used in infringement of basic reproduction rights cases, is especially hard to apply in the derivative works context, as derivative works, by definition, involve some replication of the original work.[35] Because of this inherent diffi-

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[29] *Feist*, 499 U.S. at 357.

[30] *Id*. at 362.

[31] Roth Greeting Cards v. United Card Co., 429 F.2d 1106 (9th Cir. 1970).

[32] *Id*. at 1109-10.

[33] *Id*. at 1110.

[34] *See, e.g.*, Apple Computer, Inc. v. Microsoft Corp., 35 F.3d 1435, 1446 (9th Cir. 1994). The Ninth Circuit has also held that the number of selections contained in a compilation can be considered to determine originality. *See, e.g.*, Lamps Plus, Inc. v. Seattle Lighting Fixture Co., 345 F.3d 1140 (9th Cir. 2003) (holding combination of four features in a lamp did not create sufficient originality); Satava v. Lowry, 323 F.3d 805 (9th Cir. 2003) (holding combination of six features in glass-in-glass jellyfish figurines did not create sufficient originality).

[35] *See* COHEN ET AL., *supra* note 5, at 366.   **R**

culty, courts have developed various tests to determine if a derivative work infringes on an underlying copyright. The most well-established is the "qualitative-quantitative" approach which establishes a de minimis threshold for infringement.[36] The qualitative element looks to whether a secondary work has copied expression, rather than underlying facts, while the quantitative element looks at the total amount of the original work copied by the secondary work.[37] Courts have also looked to the more holistic test established in *Roth Greeting Cards*, which said that a copyright had been infringed when the "total concept and feel" of both works was the same.

In applying these tests, courts have struggled to balance between finding sufficient *differentiation* to create a new work that can sustain a separate copyright, and finding sufficient *similarity* to constitute an infringement on the derivative work's right. In *Castle Rock*, the Second Circuit found a trivia quiz book based on the show *Seinfeld* was an infringing derivative work because it copied large swaths of the show's "creative expression."[38] Paradoxically, while the trivia book in *Castle Rock* added enough originality in changing the mode of presentation from television to print to qualify as a derivative work and not a reproduction, the court still found the two works substantially similar. This was also the case in *Twin Peaks*, when the Court similarly held that a book that recounted plot details of the television show *Twin Peaks* was enough to constitute an "abridgement" and qualified it as an infringing derivative work.[39] A few years later, these standards were distinguished in *Warner Brothers*, when the Southern District Court held that a "Lexicon" book of encyclopedic entries based on the Harry Potter series did not constitute a derivative work.[40] The court found the Lexicon sufficiently different from the underlying Harry Potter series because it did not simply "recast the material in another medium" but rather gave "the copyrighted material another purpose."[41] Despite this difference, however, the court still found the reproduction right had been violated.[42]

Beyond using assessments of substantial similarity in finding an infringing derivative work, some courts have also considered originality.

36 Castle Rock Entm't, Inc. v. Carol Publ'g Grp., Inc, 150 F.3d 132, 140 (2d. Cir 1997) (quoting Ringgold v. Black Entm't Television, Inc. 126 F.3d 70, 75 (2d Cir. 1997)).
37 *Id.* at 140.
38 *Id.*
39 Twin Peaks Prods., Inc. v. Publ'ns Int'l, Ltd., 996 F.2d 1366, 1373 (2d Cir. 1993).
40 Warner Bros. Entm't, Inc. v. RDR Books, 575 F. Supp. 2d 513, 513 (S.D.N.Y. 2008).
41 *Id.* at 539.
42 *Id.*

Two similar cases illustrate the difficulty in applying originality in this context. In *Mirage Editions*, the Ninth Circuit found that A.R.T. Company created an infringing derivative work when it bought copyrighted artwork books, cut out the prints, glued them to ceramic tiles and then sold the tiles in the open market.[43] In so holding, the Court found that the tile making process "recast or transformed" the underlying images so as to meet the definition of a derivative work.[44] Almost ten years later, in a remarkably similar case, the Seventh Circuit reached the opposite conclusion. In *Lee v. A.R.T. Company*, the Court held that the mounting of copyrighted images to tiles did not "recast" or "transform" the underlying work sufficiently to create a derivative work.[45] Comparing the mounting process to that of framing, the Court hinted that such an alteration was "too trivial to support an independent copyright" and thus, also too slight to constitute a derivative work.[46]

In sum, these cases illustrate the courts' difficulties in applying the substantial similarity test to find infringement. In recognizing the infringement of a derivative work right, courts must move between searching for differences between the secondary and underlying works, to make it a derivative works case instead of a reproduction case, and then searching for infringing similarities. At its core, this inquiry involves judgments of similarity, but in some contexts also reverts to consideration of the originality added by the second work, and, thus, differences.

B. *Fair Use Defense in Derivative Works: Transformativeness*

If a work is found to infringe on an underlying copyright through the tests above, an additional question is raised: whether the infringer can be excused from liability through an affirmative defense, like fair use. Unlike derivative works, the codification of fair use in the Copyright Act of 1976 lists specific factors to govern its application:

> In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—
>> (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
>> (2) the nature of the copyrighted work;
>> (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
>> (4) the effect of the use upon the potential market for or value of the copyrighted work.[47]

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[43] Mirage Editions, Inc. v. Albuquerque A.R.T. Co., 856 F.2d 1341 (9th Cir. 1988).

[44] *Id*. at 1344.

[45] 125 F.3d 580 (7th Cir. 1997).

[46] *Id*. at 582.

[47] 17 U.S.C. § 107 (2006).

Despite this supposedly explicit test, courts have long differed over how to weigh each factor, interpreting it largely on a case-by-case basis.[48] While there is much to discuss in each of these statutory elements, this article will focus only on the first factor of purpose and character and courts' emphasis on "transformativeness" in their analysis of this factor.

Factor One, which inquires whether a new work merely "supersede[s] the objects"[49] of the primary work or instead adds something sufficiently new, has been called "the soul of fair use."[50] At its core, this factor asks whether or not a new work is "transformative."[51] This term, coined by Judge Pierre Leval in 1990, focuses on the secondary work's added value to the primary work, and how it enriches society as "raw material, transformed in the creation of new information, new aesthetics, new insights and understandings."[52] Leval's interpretation was adopted by the Supreme Court in 1994, in *Campbell v. Acuff-Rose Music*.[53] In *Campbell*, the Court emphasized the transformativeness of parody in describing defendant 2 Live Crew's rendition of Roy Orbison's ballad, *Oh, Pretty Woman*.[54] In finding 2 Live Crew's version to be transformative, the Court considered that the lyrics quickly "'degenerat[e] into a play on words,'" that "juxtapose[ ] the romantic musings of a man . . . with degrading taunts, a bawdy demand for sex, and a sigh of relief from paternal responsibility."[55] Collectively, these changes to the purpose of the song and its features, created a comment or criticism on the original, and significantly transformed the original, making it excused from liability under the fair use doctrine.[56] Four years later in *Castle Rock*, discussed *supra*, the Second Circuit was not as generous in finding transformation, holding that the transformative purpose of a *Seinfeld* trivia book was "slight to non-existent."[57] Declining to accept the author's arguments that the book was created as a critique or commentary on the popular television show, the court instead looked to the book's purpose of satisfying viewers "between-episode [*Seinfeld*] cravings."[58] In addition to the book's lack of creative input and use of information "without substantial alteration," the court found

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[48] *See* COHEN ET AL., *supra* note 5, at 534.   **R**

[49] Folsom v. Marsh, 9 F. Cas. 342 (C.C.D. Mass 1841) (No. 4,901).

[50] Pierre Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1116 (1990).

[51] *Id.* at 1111.

[52] *Id.*

[53] 510 U.S. 569 (1994).

[54] *Id*. at 579.

[55] *Id*. at 582.

[56] *Id*. at 594.

[57] Castle Rock Entm't, Inc. v. Carol Publ'g Grp., Inc, 150 F.3d 132, 140 (2d Cir. 1997).

[58] *Id*. at 142.

this purpose to be too in line with the purpose of the underlying work to be considered transformation.[59]

Notably, courts have found transformation to the purpose of a work to qualify as a fair use even where identical, not just similar, copies of the original work were used in the secondary work. In *Kelly v. Arriba Soft*, the Ninth Circuit found that the search engine Arriba's use of thumbnail images of Kelly's commercial photographs was sufficiently transformative to qualify as fair use.[60] The court balanced the "minimal loss of integrity to Kelly's images" against the public benefit created by improving online access to information in finding for Arriba.[61] Five years later, the Ninth Circuit again balanced competing interests in thumbnail Internet images. In *Perfect 10*, plaintiffs, who ran an adult entertainment subscription-only website, sued Google for infringement when the search engine displayed thumbnail images of Perfect 10's copyrighted images.[62] The court, citing *Kelly*, found Google's use of thumbnails "highly transformative" because the search engine provides not only a social benefit, but an entirely new use of the original work.[63]

In sum, somewhat like the test for whether to recognize a copyright in derivative works, determinations of transformation in fair use look to what has been added to the fundamental purpose of the underlying work, not just changes to the four corners of the work. In so doing, the balancing tests shifts from what is similar, to what is different between the two works.

C. Summary of Copyright's Format for Assessing Similarity

Though courts, and this discussion, have split the question of derivative works into creation, infringement and fair use, they are perhaps best thought of in a more binary fashion. For the purposes of judging copyrightability of an allegedly derivative work and transformativeness in fair use, for example, the courts' tests apply essentially the same factors: looking first to value-added or originality and then weighing resulting differences.[64] Though the courts use different terminology in describing their analysis, at its core, both these inquiries frame comparison between two works in terms of differences. In contrast, when determining whether something is an infringing derivative work, courts traditionally look at the "substantial similarity" between the secondary and original work. As this article will later discuss, the framing of these legal tests in these two very

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[59] *Id.* at 143.
[60] 280 F.3d 934 (9th Cir. 2002).
[61] *Id.* at 942.
[62] Perfect 10, Inc. v. Amazon.com, Inc., 508 F.3d 1146 (9th Cir. 2007).
[63] *Id.* at 1165.
[64] *See supra.*

different ways can greatly alter the outcome reached by a supposedly objective decision-maker, and increase the likelihood that certain inherent cognitive biases affect the court's findings.

II. COGNITIVE SCIENCE AND SIMILARITY JUDGMENT

As shown *supra*, courts have long struggled with how to determine when a derivative work is sufficiently distinctive or transformative. At the heart of these inquiries are judgments of similarity, but as we have seen, determining what features make two things more or less similar from each other is a difficult determination. The answer cannot simply be quantitative: Any two objects can have an infinite number of "similar features" and an infinite number of "different features."[65] To illustrate, when asking a person, "What makes two things similar?" a common response is likely to be, "When they have something in common." Here, a property in common attempts to use similarity as a means of categorization. An apple is similar to an orange in that they are both fruits, both edible, etc. Yet, how similar is a peanut to a tricycle? At first, they seemingly share no properties in common, yet in fact the number of things they have in common is infinite. Peanut and tricycle both weigh under 100 pounds, and 101 pounds, and 102 pounds, etc. They both are not used in guerrilla warfare, and they're both not found at the bottom of the ocean. The list of similarities, and differences, could go on forever. In a comparison more salient to the copyright world, Song A, for example, can possess all the same notes as Song B, but in a different arrangement. Song C, however, might have no exact notes in common with Song A, but contain the exact same arrangement. To a lay-person, Song A will be considered more similar to Song C, though Song B might have more quantitative similarities with Song A.[66] This is because certain qualitative considerations, like arrangement, are conventionally judged to be more salient features in assessing similarity between songs, than the number of notes in common.

As courts have struggled with determinations like whether Song A is substantially similar to Song B, psychologists and cognitive scientists have been struggling with exactly how humans make those determinations of similarity to begin with. This section will outline some of the major cognitive science and psychological theories in how similarity judgment works

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[65] *See generally* Nelson Goodman, *Seven Strictures on Similarity*, *in* How Classification Works: Nelson Goodman among the Social Sciences 13-23 (Mary Douglas & David L. Hull eds., 1992).

[66] For more on substantial similarity assessments in music, see Jamie Lund, An Empirical Examination of the Lay Listener Test in Music Composition Copyright Infringement (Mar. 29, 2012), *available at* SSRN: http://ssrn.com/abstract=2030509 *or* http://dx.doi.org/10.2139/ssrn.2030509.

and how people's determinations of similarity are effected by the framing of the problem presented.

A.   *Tversky Model (1977)*

Perhaps the most well-known and successful model of similarity is Amos Tversky's contrast model.[67] Looking at the features of two objects or concept, the model assumes that the similarity of Object *a* to Object *b* is a function of the attributes they have in common (A+B), those attributes contained by A, but not by B (A-B), and those attributes contained by B, but not in A (B-A).[68] Less abstractly, imagine that object A is a lemon and object B is an orange. According to Tversky, a person would determine the "similarity" of the orange and the lemon by not only looking at traits in common (citrus, edible, fruit, palm sized) but also the lemon's unique qualities from the orange (yellow, sour) and the orange's unique qualities from the lemon (orange, sweet). According to Tversky's model, therefore, similarity is not just a judgment of certain *common* features, but is also dependent on features that are *different* between objects.[69] Perhaps most notably, Tversky found that depending on the framing of the question of "similarity," the weight given to these attributes differs. For example, when asked to judge *similarity*, people give greater weight to common features between the two objects or ideas ($A \cap B$ or citrus, edible, fruit, palm-sized) than the differences. In contrast, when asked to judge *difference*, people give greater weight to the two distinctive feature sets ($A-B$ and $B-A$ or yellow, sour and orange, sweet).[70] While this might seem like an over-complicated stating of common sense ideas —people use different attributes to judge difference and similar attributes to judge similarity — in practice, the model reveals inconsistencies and asymmetries in how people weight these feature sets based on how questions are posed.[71]

Additional work by Tversky reveals asymmetries in similarity judgment based on framing, such as when peoples' assessment of similarity

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[67] MICHAEL EYSENCK & MARK T. KEANE, COGNITIVE PSYCHOLOGY: A STUDENT'S HANDBOOK 297 (6th ed. 2010).

[68] *See generally* Amos Tversky, *Features of Similarity*, 84 PSYCH. REV. 327 (1977). The whole of the model is: $s(a,b)=\theta \cdot f(A \cap B) - \alpha \cdot f(A-B) - \beta \cdot f(B-A)$, where *a* and *b* are the two objects or ideas being compared, $A \cap B$ represents the attributes in common between *a* and *b*, $A-B$ represents the features relatively distinctive to *a*, and $B-A$ represents the features relatively distinctive to *b*. The symbols θ, α and β represent multipliers to reflect the relative importance of certain attribute sets. Finally, the function *f* weights certain features according to their salience and importance. *Id. See also* EYSENCK & KEYNE, *supra* note 67, at 297.   **R**

[69] *See* Tversky *supra* note 68.   **R**

[70] *See* EYSENCK & KEYNE, *supra* note 67, at 297.   **R**

[71] *Id.*

changes when asked how similar *a* is to *b*, rather than how similar *b* is to *a*. In a study looking at judgment pairs of countries, Tversky discovered that Americans asymmetrically found greater similarity in the phrase "Mexico is like the United States" than the phrase "the United States is like Mexico."[72] Explaining that similarity statements have "subjects" and "referents" (*a* [subject] is like *b* [referent]), Tversky found that greater similarity is likely to be found when the more "prominent" idea or object is the referent, rather than the subject. Similarly, Tversky found that this asymmetry could be seen when one object is the focus of attention over another object. For example, if Object *a* is the focus of attention, its unique features will be more heavily weighted ($A-B$) than the unique features of Object *b*, and consequently found to be less similar.[73]

B. *Medin: Extending and Critiquing the Contrast Model*

While Tversky's model was, and continues to be, a breakthrough in understanding how people make similarity judgments, it has been heavily critiqued for its short-comings. Perhaps one of the most enduring criticisms of the model is that it fails to offer an explanation for what qualifies as a feature, why features are weighted differently, and why weighting changes across contexts.[74] Gregory Murphy and Douglas Medin tried to answer these questions by taking a more context dependent and relational approach to judging similarity. Though recognizing that the "relative weighting of a feature varies with the stimulus context and task, so that there is no unique answer to the question of how similar one object is to another," they attempted to augment Tversky's approach.[75] They found, in keeping with the asymmetrical framing observations of Tversky, that similarity cannot be based merely upon attribute comparisons —features and properties — but also on relational judgments and context. Relational similarity can be understood "by the fact that seeing a tiger and her cub at a zoo is similar in some ways to seeing a robin and her nestling in a tree."[76] While the animals share few *attributional* features in common, people are likely to find the scenes similar because the *relation* of the elements are the same.

Medin illustrated this in an experiment conducted in 1990. Subjects were given two arrangements — Arrangement A and Arrangement B — and asked to judge which arrangement was most similar to the stimulus,

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[72] *See* Tversky *supra* note 68. **R**

[73] *Id.*

[74] Joshua Tenenbaum & Thomas Griffiths, *Generalization, Similarity and Bayesian Inference*, 24 BEHAV. & BRAIN SCI. 629, 638 (2001).

[75] Gregory Murphy & Douglas Medin, *The Role of Theories in Conceptual Coherence*, 92 PSYCH. REV. 289 (1985).

[76] *Id.* at 223.

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Arrangement T.[77] While Arrangement A had an attribute in common with Arrangement T (both contain a shaded circle), Arrangement B shared a relational element with Arrangement T (all shapes in Arrangement T were shaded while none of the shapes in Arrangement B were shaded).[78]
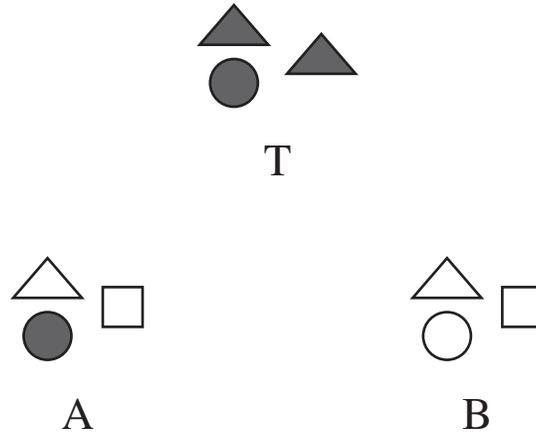

Figure 1. [This appears as Figure 6 in the article, "Respects for Similarity" authored by Douglas L. Medin, Robert L. Goldstone, and Dedre Gentner in *Psychological Review,* 1993. Vol. 100., No. 2., at 254-78. The caption shown here is the caption written by the authors as it appears in the article]. A sample stimulus set in which similarity and difference judgments are not mirror images of each other. (The standard T is attributionally similar to A because they both have a checkered circle. The stimulus B does not have this attributional match but instead shares a matching relation, "same shading," with T.)

Overall, subjects found more similarity between Arrangement B and Arrangement T, indicating that relational similarity was weighted more than feature similarity and that people were sensitive to context in making similarity judgments.[79] Paradoxically, this relational weighting also extended to judgment of differences as well, with new subjects finding Arrangement B to be more different from Arrangement T, when asked which two arrangements were the most dissimilar.[80]

Medin's relational features model suggests that attributes are not as important as relational ideas, but subsequent studies have qualified this. In a variation on Medin's experiment of finding similarity between Arrangement T, and Arrangements A and B, subjects were more likely to

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[77] Douglas Medin et al. *Similarity Involving Attributes and Relations: Judgments of Similarity and Difference Are Not Inverses*, 1 PSYCH. SCI. 64-69 (1990).

[78] *Id.*

[79] *Id*.

[80] *Id*.

find similarity when the relational elements were based on sameness, rather than differentness.
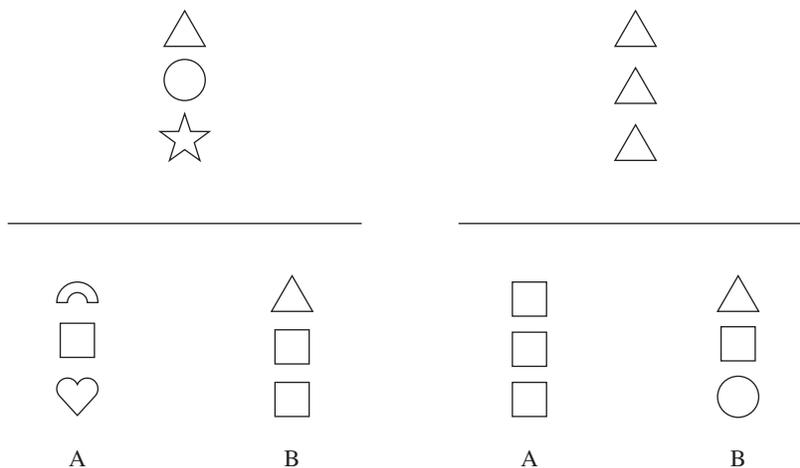

Figure 2. [This appears as Figure 6 in the article, "Generalization, Similarity and Bayesian Inference," authored by Tenenbaum and Griffiths in *Behavioral and Brain Sciences*, 2001. Vol. 24., at 629, 638. The caption shown here is the caption written by the authors as it appears in the article]. The relative weight of relations and primitive features depends on the size of the set of objects that they identify. Most observers choose B (the primitive feature match) as more similar to the top stimulus in the left panel, but choose A (the relational match) in the right panel, in part because the relation "all same shape" identifies a much smaller subset of objects than the relation "all different shapes."

For example, if Arrangement T is comprised of three different shapes (triangle, circle, star) it will likely be judged more similar to Arrangement B (triangle, square, square), in which it shares only an attribute (a triangle), rather than Arrangement A (half circle, square, heart), with which it shares a relational feature (both arrangements have all different shapes).[81] This inconsistency challenges whether Medin's relational model actually clarifies Tversky, or merely adds another kind of feature to be considered in the context of judging similarity.

III.   ANALYSIS: APPLYING COGNITIVE SCIENCE PRINCIPLES TO COPYRIGHT LAW

A.   Copyrightability and Fair Use: Finding Concepts and Perceptions of Originality and Transformation

As discussed *supra*, in determining whether a secondary work is entitled to its own copyright as a derivative work, courts have traditionally

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[81] *See* Tenenbaum & Griffiths, *supra* note 74, at 638.   **R**

looked at the differences between the two works, and what has been "added" to the secondary work.[82] This is not unlike the questions raised by the courts in assessing whether a derivative work is excused from liability under the fair use doctrine.[83] In fair use, the test of transformativeness also looks at the differences between the original and secondary work and how much value the author of the derivative work has added.[84] This section will first apply the cognitive science principles described in Part II *supra* in the context of copyrightability, and then apply these principles in the context of fair use.

1. *Copyrightability*

Applying some of the findings of Tversky, one can see how a particular framing of a question might affect the outcome of the test. First, as discussed *supra* in Part II.A, when asked to make a judgment of *difference*, people will give greater weight to *distinctive* feature sets than common feature sets. In the context of finding something copyrightable, this can have the effect of biasing a person to a finding of difference, rather than a finding of similarity, and thus predispose them towards finding enough originality to sustain a finding of copyright. It is important to note that while most of these judgments never make it to litigation and while counting cases might reveal a fair number finding insufficient originality — the biases, heuristics and framing effects discussed here can, and do, still exist.

Applying these cognitive science principles to the cases examined in Part I.A *supra*, reveals the potential influence of framing on courts' assessment of copyrightability. In both *Batlin* and *Durham*, courts focused on a secondary work's "originality" in order to qualify as a derivative work. As previously discussed, originality is essentially shorthand for an assessment of differences between two things. Thus, the framing of the test in terms of a finding of originality was akin to framing a test in terms of difference, which can have the effect of amplifying the emphasis on distinctive features. Additionally, in *Batlin*, the rule applied by the court used the original work as the referent, and the secondary work as the subject, asking whether the secondary work was more than a "merely trivial" variation from the original work. Such a framing, similar to when subjects were asked whether Mexico was like the United States,[85] has the potential of creating an asymmetrical result and skew respondents towards a greater

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[82] *See* Part I.A.

[83] *See* Part I.B.

[84] *See* Part I.C.

[85] Here, the secondary work is more like "Mexico" in that it is the subject and the primary work is like the "United States" in that it is the referent. Tversky found that greater similarity is likely to be found when the more "prominent idea" — here, the primary work — is the referent.

finding of similarity than if they had been asked with the subject and refer-
ent reversed. Though many factors are obviously at play, and are not nec-
essarily borne out in the courts' holdings in *Batlin* and *Durham*, such a
framing could potentially bias courts towards findings of originality in
other cases.

In contrast to *Batlin* and *Durham*, the total concept and feel infringe-
ment test in *Roth* frames the question both in terms of finding similarity
and finding difference.[86] Looking to the "totality" of the secondary work,
the court took both the similarity *and* differences between Roth's work
and the underlying public domain elements into account, or at the very
least rephrased the test away from just "similarity" to a "total" assessment
of features. Additionally, unlike the *Batlin* or *Durham* courts it did not
engage in a lengthy assessment or listing of similar features or differences
between the secondary and original works. The *Roth* test, then, avoids the
pitfalls of a more one-sided originality assessment and creates a more
thorough examination by framing the question in such a way as to discount
the asymmetrical biases documented by Tversky. As I will later discuss,
this more neutral approach is the optimal choice to create more consistent
results in copyright cases.

2. Fair Use

Beyond framing in terms of subject or referent, in measuring differ-
ence Tversky also found that focusing attention on one object over an-
other object can result in asymmetrical findings. When an apple is
compared to applejacks, the apple is the focus of attention; for example,
its unique features will be more heavily weighted than the unique features
of the applejacks. This framing effect could possibly explain some of the
outcomes when the fair use doctrine is applied. In determining whether
something is transformative in the context of fair use, the court is refocus-
ing its attention not on the underlying work (the apple) but on the secon-
dary work (the applejacks) — giving the derivative work a second chance
to prove its value. This focus could magnify the likelihood of finding
unique features in the derivative work and weight them more heavily.

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[86] "It appears to us that in *total concept and feel* the cards of United are the same
     as the copyrighted cards of Roth. With the possible exception of one United
     card . . . , the characters depicted in the art work, the mood they portrayed,
     the combination of art work conveying a particular mood with a particular
     message, and the arrangement of the words on the greeting card are sub-
     stantially *the same* as in Roth's cards. In several instances the lettering is
     also very *similar*. It is true, as the trial court found, that each of United's
     cards employed art work somewhat *different* from that used in the corre-
     sponding Roth cards." Roth Greeting Cards v. United Card Co., 429 F.2d
     1106, 1110 (9th Cir. 1970) (emphasis added).

Beyond the questions raised by framing, the relatively subjective weighting of features between two works examined by courts can also be explained by cognitive science judgments. Recalling Medin and Goldstone, the likelihood of finding similarity can depend on the different emphasis placed on the availability of relational or attribute comparisons.[87] From these studies we can create an ad hoc hierarchy of important qualities in judging similarity: of primary importance is relational sameness (objects are all the same shape, all shaded or un-shaded); secondary importance is attribute sameness (both have a triangle, both have a shaded circle); and finally, of least weight in finding similarity is relational differentness (objects are all different shapes, all different colors). Therefore, it would make sense that a court's inclusion of a relational comparison (such as the object's purpose[88]), rather than just an attribution comparison (such as an item's quantitative physical features), could make it more likely to find difference between two objects and thus, lead to a finding of fair use.

In the fair use cases described in Part I.B, transformation emerged as the primary consideration for analyzing whether a derivative work could be excused from liability under fair use. Because transformation holistically addresses the secondary work's enrichment of society and added value to the primary work, it could be considered a "relational quality," rather than a strict assessment of the altered attributes within the four corners of the work. This emphasis might help explain why the courts found web searches that gathered thumbnails of copyrighted images significantly transformative in *Perfect 10*, even though the attributes of the images were identical, and thus perfectly similar, to the underlying work. Accordingly, the court's inquiry focusing on how relationally different the two contexts are rather than on how similar or different the attributes of the images are, could have contributed to its ultimate finding of transformation. Similarly, though the court came to a different conclusion regarding the applicability of fair use, *Castle Rock* demonstrates how the introduction of questions of relational similarity can outweigh also significant attribute differences, not just similarities. Though the television show *Seinfeld* and the trivia book based on *Seinfeld* shared few physical attributes in common, the court's finding of the similar purpose of both items — to satisfy viewers' "between-episode [*Seinfeld*] cravings" — trumped any attributional differences in features of the two works.

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[87] *See supra* Part II.B. Relational comparison looks to the context, purpose and arrangement of those things being compared, while attribute comparison merely compares individual traits and qualities between two things.

[88] As Medin illustrated, this might involve the court looking at the underlying role and purpose of each object, such as whether it is meant to entertain or educate, hang on a wall as art or be used as a functional object.

B. Infringement: Finding Concepts and Perceptions of Substantial Similarity

As discussed *supra* in determining whether a secondary work is an infringing derivative work, courts have traditionally looked at the similarities between the two works, and what has been taken from the underlying work.[89] While to reach this question courts must first make judgments of originality similar to the inquiries in copyrightability and transformativeness, the fundamental inquiry is one of judging "substantial similarity."

Again applying the findings of Tversky, it becomes clear how this framing of "substantial similarity" from an infringement perspective can affect the finding of a judgment of similarity. Framing can result in asymmetrical similarity judgments depending on what is being considered as the referent and what is being considered as the subject. Tversky found that greater similarity is likely to be found when the more "prominent" idea is the referent. This is perhaps best illustrated with the court's disparate treatments of copyright infringement in *Scholastic v. Stouffer*[90] and a few years later, in *Warner Brothers Entertainment v. RDR Books*.[91] In *Stouffer*, J.K. Rowling, British author of the wildly successful Harry Potter series, sought a pre-emptive declaratory judgment against Nancy Stouffer, an American author who counter-claimed against Rowling. Stouffer had published a series of children's books that had run in limited distribution and told stories of a small race of people known as "muggles" and a second set of coloring books with a central character known as "Larry Potter."[92] On summary judgment, the court found for Rowling, specifically asserting on the issue of copyright infringement that the "protectable elements of Stouffer's [work] are simply "not substantially similar" to those of Rowling.[93] Just a few years later, Rowling's works again appeared in court, this time with Warner Brothers claiming copyright infringement of Rowling's works by Vander Ark, a fan of the Harry Potter series who had sought to publish a book called *The Lexicon* that was essentially an encyclopedia-like reference book based entirely on the Harry Potter series.[94] The court found that Ark's book "copies a sufficient quantity of the Harry Potter series to support a finding of substantial similarity between the Lexicon and Rowling's novels," and to support Warner Brothers' claim of copyright infringement.[95]

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[89] *See* Part I.A.

[90] 221 F. Supp. 2d 425 (S.D.N.Y. 2002).

[91] 575 F. Supp. 2d 513 (S.D.N.Y. 2008).

[92] *Stouffer*, 221 F.2d at 429-30.

[93] *Id*. at 438.

[94] *Warner Bros*., 575 F.2d at 520.

[95] *Id*. at 535.

The two cases illustrate the power of a "prominent" referent: in *Stouffer* where Stouffer's less prominent work was infringed, courts used Rowling's work as the subject and failed to find substantial similarity;[96] in *Warner Brothers* where Rowling's more prominent work is allegedly being infringed upon, courts used Rowling's work as the referent and found similarity.[97] The comparison of these two cases in the light of this framework reveals that the deck is remarkably stacked in favor of copyright infringers who have a prominent work or those whose prominent works might have been infringed.

Even where the referents are not based on prominence in the popularity sense, this effect can be seen. In copyright infringement tests, where the original work is typically the referent and the secondary work is typically the subject, this could potentially have drastic effects. Beyond the possible underlying bias towards finding similarity by using the original work as the referent, Medin and Goldstone's relational and attribution distinctions are also applicable in infringement. Specifically, this framework can shed light on the disparate outcomes of the courts in the art-tile cases of *Mirage Editions* and *Lee*. As previously discussed, in fair use cases, relational qualities of a work, like transformation, will often be more heavily weighted than attributes within the four corners of the work in assessing similarity or difference. This appears to be true in copyright infringement cases as well. In *Mirage Editions*, courts found the creation of an infringing derivative work when a company bought copyrighted artwork prints, cut out the prints, glued them to ceramic tiles and then sold the tiles in the open market. Central to the court's reasoning was its finding that the creation of the tiles "transformed" the art in question by placing it on tile and was therefore a derivative work. In contrast, the court in *Lee* declined to consider the gluing of art to tile a transformation. Instead, it looked at the attribution differences between the original prints and the prints glued to tiles and found the "distinction without a difference." Though both cases addressed virtually the same facts, *Mirage Edition*'s additional emphasis on the difference in the context of the two works — their "transformation" from book to tile-work — trumped their four corner attribution similarities. In contrast, the court in *Lee* incorporated a

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[96] In other words, *Stouffer*'s case was more like Tversky's testing of the phrase "United States [J.K. Rowling's works and the alleged infringer] is like Mexico [Stouffer's works and the "original work"]." Subjects were found to be less likely to find similarity where the more prominent idea was the secondary work/alleged infringer.

[97] In other words, *Warner Brothers'* case was more like Tversky's testing of the phrase "Mexico [Ark's Lexicon and the alleged infringer] is like the United States [J.K. Rowling's works and the "original work"]." Subjects were found to be more likely to find similarity where the more prominent idea was the referent.

need for the factor of "originality" in order to find an infringing derivative work, and as such compared the attributes of the two works similar to the courts' analyses in *Batlin* and *Durham*. Its finding, then, ignored any change in "context" and merely analyzed the two works qualitatively.

C. *Improving Tests for Derivative Work Rights and Liability*

In sum, the framing of any legal analysis in terms of similarity or difference, subject or referent, or the selective use of either relational or attributional comparisons can all affect the findings of originality, infringement and fair use in derivative works claims. As demonstrated, certain cognitive science ideas, such as framing, demonstrate a clear possibility to skew judicial assessment and offset the delicate balance of subjective assessment. This can be demonstrated in *Batlin* and *Durham* which both showed how framing biases could easily sway the determinations of the court. But some tests have a more neutral effect on courts than others. The "total concept and feel" test employed in *Roth*, for example, seems to effectively manage to offset potential framing problems, with its balance in looking at both similarities and differences between the works. While Roth is a clear court-made solution seemingly endorsed by the findings of cognitive science, not all of the biases and framing issues illuminated by cognitive science are so neatly resolved. It is unclear, for example, whether "relational" rather than "attribution" comparisons have an equally biased effect on judging similarity. In other words, it is unclear whether relational judgments in derivative work tests are more "accurate" or "unbiased" than attribution judgments, and therefore it is difficult to decide which mode of comparison to employ going forward. Instead, rather than reveal any kind of "new" or "better" test for finding fair use or infringement, relational and attribution distinctions simply allow for a new framework for understanding the qualities courts have found historically important in assessing derivative work claims. Going forward, this cognitive science framework could potentially be used to create a more categorical assessment of derivative works cases than the few cases illustrated here. Such an examination might reveal findings of courts' framing biases, or alternatively create a coherent approach to assessing relevant qualities when assessing originality or similarity. Perhaps most important, however, applying the cognitive science similarity framework to derivative works cases can educate lawyers and courts about the processes at play in their seemingly subjective assessments. Ideally, as the world of copyright law grows increasingly more complex and inconsistent, the lessons of cognitive science can help lend a settled consistency and at least an appearance of guidelines in what all can acknowledge is among the most subjective of determinations in the field of law. If embraced by the courts,

this new knowledge would have a recursive effect on the law's treatment of similarity and help create a more informed and fairly applied doctrine.

In the meantime, the insight gained from this basic understanding of cognitive science and its effects on the courts, might be of great use to attorneys practicing copyright law. Altering the phrasing of briefs to the court, or even the language in jury instructions might have an enormous impact on a judge or a jury. Additionally, practitioners might choose to accentuate relational qualities over attributes, or the opposite, depending on the party. Alternatively, an appellate court might be willing to consider the framing biases to be sufficient grounds for appeal and review. The possible impacts of this body of knowledge on the practice of copyright law are seemingly endless.

CONCLUSION

Courts' determinations of the creation, infringement or exception from liability of a derivative work are largely based on similarity judgments. Because of the subjective nature of similarity, however, courts and legislatures have long struggled to create laws and tests that outline qualities and categories for determining similarity between original and derivative material. These questions about how to judge similarity, however, are not isolated to courtrooms. Cognitive science's scientific and theoretical models can help explain how humans prioritize, categorize and judge features to determine similarity between two or more objects or ideas, or how current judgments are heuristically biased. These scientific models and understandings shed light on the potential biases of court-made tests to judge similarity and suggest new frameworks for understanding courts' various considerations in assessing copyright infringement and derivative works.